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IN DEFENSE OF THE ESSAY

WHILE the resources of human beings for meeting their difficulties and solving their problems sometimes seem well-defined, there is not much agreement on how to rank the various levels of analysis or where effort should begin. Even so, people have strong opinions about what is most important to do, which they reveal by how they spend their time.

A magazine like MANAS, for example, represents a definite point of view on such questions—proposing that the essay is a useful and even indispensable tool for understanding human problems. What is an essay? It is a comparatively brief and essentially amateur examination of matters serious people are wondering and asking questions about, plus an attempt to provide a modicum of light on the issues, with perhaps some suggestion as to how the light may be increased.

What is this "light"? Well, whatever the embarrassments of saying so, such light practically always comes from some timeless verity that is a part of the human heritage. No notable originality is involved. The essayist attempts to focus a modest ray of this light in a novel and persuasive way on the problems at hand. No pretensions to special knowledge are involved. The essayist says: "Let's try putting together certain ideas and facts—things we all more or less agree upon—in some fresh combination. Maybe some unexpected clarity will result. Clarity, after all, is what we mean by 'more light'."

The good essayist is basically a Socratic. Like Socrates, he doesn't imagine he knows very much. But he is sure of one thing—that the present human determination of the nature of the world and the corresponding account of the nature of man either contain serious errors or are woefully incomplete. He looks for the mistakes and missing elements. Gaining assent from readers would be for him a pleasant result, but his true objective is to establish a certain temper of mind in such investigations. The means of looking, after all, will set limits to any incidental goal that may be reached. And since the essayist is a follower of Cervantes ("The road is better than the inn"), all goals are ultimately incidental for him. Progress is seeing further, which inevitably redefines the goal.

We now need illustration of what might be acceptable as an essay of representative excellence. One of the best essayists of our time was Joseph Wood Krutch. In *If You Don't Mind My Saying So . . . ,* a book with the same name as his column in the *American Scholar,* there is a consideration of the question we started out with: What are the resources of human beings? In this essay, titled, "We Need More than More Facts," he begins:

> Nearly everybody says nowadays that "what we need is more facts." Since I happen to be an essayist by habit, I have private reasons for doubting this statement and I admit them to begin with. An essayist deals with personal experiences, opinions, tastes, notions, and prejudices. For him, a fact is at best a peg to hang something on. But I don't believe that my doubts are purely professional. There are a lot of things we need more than we need still more facts.
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> Goodness only knows we have a lot of them already about a lot of different subjects—scientific, sociological, and especially statistical. No age before ours had one-tenth so many, or thought it did. People in other days frequently had firmer convictions but, by our standards, they were absurdly short on facts. They didn't know how much stress a two-by-four would stand or what is the relative frequency of color blindness among men and women. They didn't know to a decimal point the prevalence of illiteracy in every subdivision of every nation or just how many peanuts are produced in South Carolina.

Well, he's getting there. We know what he means. The worship of facts without being able to depend on them—*use* them in our lives—is likely to be exposed as unmistakable folly.

Did Mr. Krutch "research" this article? Not really. He didn't need to. He was bothered by the fetishism of fact, thought about it, and ideas began to come in fast. An essay is a tasteful and imaginative use of an ordinary human's network of association—anyone can do it—and the essayist's obvious purpose is to encourage everyone to start doing it more deliberately. This is an activity properly called philosophizing, in which there are virtually no experts—certainly no "professionals"—and which no human being should delegate to anyone else.

This piece by Mr. Krutch is one of the shortest in his book—only a little more than two pages—yet very potent. It is likely to make the reader ask: Why didn't I see that for myself?

The case for "facts," he shows, is the Aristotelian contention that we need to find irrefutable proofs for what we accept or believe:

> The theory is, of course, that once "the facts are all in" there will be no more room for difference of opinion and all men will agree on what ought to be done. So, over a limited field, it does work out. We do not come to blows over the question of how big steel girders in a bridge ought to be. But does it work out that way in matters political, economic, social, or moral? Does the capitalist have any facts not available to the socialist? . . .
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> In most of the fields where facts are sufficient, we have been getting on very well. We know just how to build bridges, make aircraft fly faster, and make bombs more destructive. But we don't agree at all on the question of just who, if anybody, ought to be blown up by them. More facts are not going to settle that or any other "ought" question. And it seems to be the ought questions which are causing a great deal of the trouble. Unless we agree upon some of them pretty soon, there may not be much left to argue over or, for that matter, many people to argue.

Well, what is it that we need more than more facts? This question has to be asked, and Mr. Krutch asks it, at the same time opting out in Socratic fashion from those who claim to have more than ordinary competence to provide an answer:

> Unfortunately, there is no simple term which will define what it is that we need more than we need "more facts." It isn't, indeed, one thing. But "wisdom," "conviction," "standards," even "general ideas," are all terms which suggest some part of it. So, of course, does "good will." At least they all indicate things for the lack of which we cannot agree where agreement is most vital. And the disagreements will continue to exist no matter how many new facts are made available.

Here, alas, is the classic anti-climax of sound Humanist discourse. We are waiting for the new insight, the flooding vision, the wave of friendly persuasion that will lead us to gather by the river with Mr. Krutch and start making the world anew. It doesn't come. Instead, he says something people have been saying since Year One ("with all thy getting, get understanding"). Mr. Krutch is a man without impressive secrets:

> Ignorance of "the facts" would certainly not remedy the situation. Probably nothing will ever dispose completely of the problem. But it cannot even be lived with successfully as long as we put our faith in "more facts" when they are not going to help. We might even do well to stop looking for them if that would release energy to be expended in examining those convictions, those standards, and those general ideas which more facts are not going to change.

Here we might marshal relevant comment from three contemporaries or almost contemporaries. First, from Martin Buber, who comments on the decline of deep conviction (noted by Krutch) in the modern, fact-worshipping world:

> But we must not deceive ourselves by believing the disease can be cured by formulae which assert that nothing is really as the sick person imagines. It is an idle undertaking to call out, to a mankind that has grown blind to eternity: "Look! the eternal values!"

Second, from Gregory Bateson:

> My complaint with the kids I teach nowadays—graduate students and such—is that they don't really believe anything enough to get the tension between

> the data and the hypothesis. What they may find out doesn't really impact on theory, because they don't have any theory they're willing to hold tight enough to get an impact. It *slides* all the time.

Third, A. H. Maslow:

> Because healthier, more perceptive people are less ought-blind—because they can let themselves perceive what the facts wish, what they call for, what they demand or beg for—because they can therefore permit themselves to be taoistically guided by the facts—they will therefore have less trouble with all value decisions that rest in the nature of reality, or that are part of the nature of reality. . . . "Pure" value-free description is, among other things, simply *sloppy* description. . . .

The observations of these three help to keep the inquiry fluid, preventing casual simplification and the neglect of subtleties such as Maslow suggests.

So, back to Mr. Krutch, who inquires into what will revise or improve our convictions or general ideas, giving them a stronger part in human decision:

> What does change them is thinking rather than fact-finding, discussion about general principles rather than about "the facts," and, in the end, Moral Discourse. When men come to an agreement about what ought to be done, it is usually because some have been persuaded, not because they have been given new facts. And it is the use, the respectability even, of persuasion in which a fact-worshipping age has lost all faith.

A little wistfully, perhaps, Mr. Krutch concludes his brief masterpiece: "Yet even a familiar essay may sometimes persuade."

Well, how successful was he? He was pretty persuasive if the use of his own—everyman's—resources in this defense of the essay leads even a few readers to want to see more of what he has to say on this subject—one that he never really drops. For the fact is that very nearly everything Mr. Krutch writes is actually an attempt at Moral Discourse.

Impossible! Moral discourses are dull, filled with platitudes! And Mr. Krutch is at least interesting. Well, *why* is he interesting?

The complaint here is not against moral discourse, but against moralizing, which is something quite different. Moralizing is discourse which lacks basic respect for the reader. It tells, it does not invite. It tries to disguise facts as values—make them compulsive. The victim of moralizing has been shorn of options, allowed no independence of mind.

It is precisely Mr. Krutch's freedom from moralizing that makes what he says fresh and inviting. Only positivist bigots could be put off by what he says.

He suggests that the essay is an exercise of the art of rhetoric. Let us consider this. Let us say, for example, that we have at hand a Verity that might reduce the obscurity of current events. How shall we suggest this persuasively?

Well, which Verity? Is the one we choose the right one? Has it the leverage we need? Leverage? What is it? Something you can use to batter down resistance? Something to raise people's sights? Leverage in persuasion, by Platonic rule, will never *compel*. It can't be self-evident public truth, but only self-evident private truth, which can hope to win only inner assent. For example, for Plato and the Buddha, and for a great many others, Karma and Reincarnation were self-evident private truths. They are the "Newton's Laws" of the soul for those who are convinced of them. But they don't have the sort of supporting evidence that one can assemble for the laws of motion. You don't have to be a good man to believe in and exploit gravity or attraction and repulsion. Plato was convinced that in order to know philosophic truth—to obtain persuasive evidence of moral and metaphysical verity—you not only have to be a good human being, but urgently want to know the truth, too. Otherwise your truth will be only "opinion." It may be well-informed opinion, but it isn't really knowledge.

Can anyone really *know* about these things? Well, it would be quite discouraging to assume that no one has ever been sure about them. So, to keep an open mind, we might stipulate—as in a hypothesis—that, say, Plato and the Buddha knew about them. Another stipulation—easier, perhaps, to agree upon—might be that Plato and Buddha were extraordinary *teachers*, men who understood how people learn. This means that they were never impatient, never anxious, never desperate.

Assuming, then, that the stipulations have supplied a firm ground, we might take a few small steps, but no heroic jumps. (Heroes need something stronger than stipulations.)

A real educator is an accomplished persuader. He is also a certain *kind* of persuader. He seeks to persuade others to look about and look within and learn the best means of persuading themselves. An educator knows how futile it is to persuade anyone of something that is over the learner's head. Indoctrination not only fails to reduce the learner's ignorance, but adds double ignorance to it. A good teacher will never burden anyone with conclusions he can't understand. But he may nonetheless present a vision which *symbolizes* a conclusion which can be felt and aspired to, without much cognitive understanding.

Here, of course, are problems. There is the inevitable question of whether some particular utopian vista is a true vision or only a lurid display inviting emotional intoxication. But even if getting stuck in bogs of extravagant feeling is a very bad thing, it cannot be as bad as refusing to feel at all. The idea is to try to feel as human beings endowed with far-reaching ranges of discriminative awareness are able to feel. It is possible to cultivate and improve the vocabulary of feeling.

Mr. Krutch speaks of the importance of *thinking*. Plato, as one of our exemplary teachers, was certainly in favor of thinking. But he mingled reaches of vision—supplied by his myths—with exercises in thinking. Where reason stumbles—having been drawn too far from what we are able to reason about—the myth is there to provide a kind of balance. The myth has a double role: It inspires and gives a field for thinking, but also discourages the assumption that we know something that we haven't reasoned about. Myths are not literally believable. They are elaborate metaphors, and the good metaphors may become invitations to evolve the rational connections no metaphor can supply. Making those connections is work—hard thinking—often very difficult to complete.

These are some of the problems the educator faces and must deal with. Sometimes he seems to do his work with rare perfection. Can this ability be named? We can do no better than call it his art.

Mr. Krutch has some thoughts concerning such matters. In an essay, "Novelists Know What Philosophers Don't," he argues for the superiority of art over Cartesian "clear and distinct ideas," in all cases where the clarity and the distinction are inevitably unearned rewards—precocious to our development.

Here is Mr. Krutch's defense and advocacy of the novel—a literary form of art:

> The novelists are, to be sure, less dear and less precise. But for that very reason they are truer. Every philosophy and every "ideology" must sacrifice truth to clarity and precision just because we demand of a philosophy or an "ideology" greater clarity and precision and completeness than is compatible with human knowledge or wisdom. What is most true and most valuable in any philosophy is not the tight and inclusive system which it presents but those glimpses and divinations and *aperçus* which the philosopher later formalizes into his philosophical system. Most of us are not Platonists or Spinozans or Nietzscheans. We have accepted insights from each while rejecting the whole which each pretends to present. And it is just the philosophical superiority of art, not only that it suggests the complexity of life and of art, but also that it is everywhere closer to the most genuine and the most justifiable portions of man's thinking about life.

Mr. Krutch has examples. The reader may prefer to choose his own, and this is fine if they make the point:

> Proust, one might contend, is truer than Bergson because Proust is communicating an experience to the meaning of which Bergson had attributed a specious definiteness and completeness. Mr. Farrell, one might go on, is truer than Marx because he is sharing with us those observations concerning the influence of economic factors on life which Marx attempted to reduce to laws and which his investigations of economic process were, at bottom, merely efforts to justify. And the larger part of the intellectual public is more familiar with Proust than with Bergson, more familiar with novelists like Farrel than with Marx, because, even when unaware of its reasons for doing so, it rebels against the ambitious falsity of philosophy while accepting the human persuasiveness as well as the human elusiveness of art.

Mr. Krutch balances the argument with a concluding insight of some depth:

> I shall press the paradox no farther. Already it has carried me a bit farther than in sober earnest I should care to go, but the element of truth that is in it ought at least to make plain the error of those who insist that a novel or a play should not only have a meaning but a doctrine as well. The best as well as the most effective works of art may sometimes be those in which the author is in pursuit of a truth, but the only reason for composing a novel or a play instead of a treatise is that the author is unwilling to reduce to a formula an insight which he can present without violation only through a concrete situation whose implications he can sense but only sense. Once the meaning of a work of art can be adequately stated in abstract terms it ceases to have *any raison d'être.* It has ceased to be truer than philosophy and has become at best only a sugar-coated pill. . . . But art will continue to exist and to be truer than philosophy just so long as—and no longer than—there are truths which elude formulation into laws.

Well, it seems fair to suggest that if there are philosophers who really know, and know their work as teachers, they will combine art and philosophy in just the proportions needed at a given moment of history.

REVIEW
HIGH AND LOW

THIS week we have a choice of materials for review. Available first is a book from University of Chicago Press—Robert Engler's *The Brotherhood of Oil* ($12.50). Some may remember that Mr. Engler wrote *The Politics of Oil* back in 1961. The present volume grew out of his impression that people are "waking up" to the ugly realities behind the policies of the government and the oil companies with respect to energy and fuel. There was the embargo and fuel shortage, hard upon Watergate's disillusionments, and now an energy crisis looms. What might people do if they understood more about what has been really going on? This seems the last question the oil companies and their friends and relations want to have answered. So Mr. Engler decided that it was time to write another book.

Turning to—not really—another subject, we have received in the mail our first exchange issue of *Appropriate Technology* (for February), the quarterly journal published by the Intermediate Technology Development Group founded in London by E. F. Schumacher and others in 1965. This is the kind of paper people (ourselves, at any rate) are likely to read with the same kind of interest an older man who can't even bend over to tie his shoe laces (much less weed a garden) may take in the contents of *Organic Gardening.* Basically it's the same sort of thing. You get the feeling that at last a great many people are going to have expert instruction and encouragement in doing practical things the way they ought to be done. When this extraordinary need begins to be more widely felt, the publications which are devoted to spreading the word about such matters are likely to enjoy an enlivening spurt in circulation. Think of the vast audience that magazines like *Popular Mechanics* once attracted (perhaps still do). There is a sense in which *Appropriate Technology* may have the same potential. *Popular Mechanics* appeals to intelligent hobbyists handy with tools. *Appropriate Technology* also holds this attraction, but adds the dimension of meeting worldwide human need.

One story in *Appropriate Technology* describes a van which will bring films to small villages where there are no movie houses—an innovation by MediaConsult, a nonprofit organization of technical consultants in Copenhagen. This group devotes itself to developing means of communication which are "rugged and simple" and will not require "large or complicated organizations to work them." MediaConsult's movie-van improves on previous applications of the idea by eliminating the screen which needs to be set up somewhere outside at night. Its picture screen is built into the back of the van:

> The principle is an old and well-known one, namely that of rear projection. If a film, or a slide, is projected through the inside of a dark box onto a translucent screen, the result can be viewed from the other side of the screen in daylight, provided the sun does not shine directly onto the screen surface.

The van used in the MediaConsult prototype is a Renault 4L, "chosen because it is one of the smallest, lightest, and least expensive of the cars suitable for the purpose. It is also a car that is widely used in developing countries." Good photographs illustrate this article, which gives enough technical specifications to satisfy most engineers.

The editorial in this issue reports on the growing interest in intermediate or appropriate technology in the United States. California and perhaps one or two other states now have offices of appropriate technology, and the federal government is contemplating a program "to develop and implement technologies for low income communities." Butte, Montana, is the proposed location for this National Center for Appropriate Technology, which would be a resource for "technical information and tie together all the existing organizations currently working on various aspects of appropriate technology." The focus will be on "technical

assistance and hardware which have a direct bearing on the communities' food and energy needs, such as solar heaters, wood stoves, small greenhouses, better home insulation, etc."

The editorial points out that "intermediate" does not mean inferior to high technology. It means the right—therefore the most efficient in human terms—technology. A man on a bicycle may indeed be more efficient, all things considered, than a rocket for going to the moon.

By surface mail *Appropriate Technology* is £4 a year. In America (U.S. and Canada) write to International Scholarly Book Services, Box 555, Forest Grove, Oregon 97116. The home address of Intermediate Technology Publications is 9 King Street (Covent Garden) London WC2E 8HN.

In order to embrace intermediate technology without inhibition, one need only read the end of Mr. Engler's first chapter in *The Brotherhood of Oil:*

> The energy crisis was seen either as the fault of "all of us" or due to conditions beyond corporate control. Advertisements made frequent if somewhat oblique references to greedy sheiks, righteous environmentalists, profligate consumers, and bumbling bureaucrats lurking in the dwindling fuel pile. Texaco had unveiled the secret new ingredient in better mileage performance—"You." Then it retreated discreetly behind the faithful (and now perspiring) dealer who was "giving you everything he's got.) Shell offered on prime viewing time one-minute patriotic glimpses of its adopted American heritage. Mobil was to underwrite modern art and bicentennial concerts, a national town meeting of the air and British television drama. "We think we're adding some gaiety and sparkle to American life," its public relations manager explained.

Mr. Engler goes on and on, setting the stage for his nearly endless array of grimy facts. One who reads through to the end is likely to feel both impotent and outraged. What about a world of industry in which you have to become an expert confidence man simply to survive and do business as usual?

While visiting Russia back in the fifties, André Gide went to a telegraph station to send Stalin a greeting on his birthday. When the operator told him the string of honorifics he had to use to address Comrade Stalin, Gide hurried home. He didn't need to see any more of the wonders accomplished by Socialism. The Revolution was over.

The parallel is not really obscure. Big technology has made for itself a psychological prison camp in which the human qualities of human beings have hardly any survival value at all. This becomes quite clear at the end of Mr. Engler's book:

> The violence against nature inherent in the unthinking grabbing of all that is gettable spills over to become violence against other humans who may stand in the way. Arms to secure a supportive energy flow in turn require guaranteed energy sources. United States "defense"—arms production and the armed forces—now account for at least a 10 per cent of national energy consumption. And the role of the United States as arms merchant and drill sergeant, selling a minimum of $11 billion of hardware in 1974, heavily to the Middle East, is defended as necessary for balancing the flow of payments for foreign petroleum.
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> Defeat in Indochina of the world's largest military power by "gooks on bikes" and the equally devastating inroads upon democratic freedom by a supporting national surveillance apparatus at home increasingly brought into public question the wisdom and durability of America's imperial reach. The illusion that the nation can engage in covert operations abroad, whether intervening in civil wars, overthrowing legitimate governments, or planning assassinations while itself remaining democratic, gets further shaken by each accompanying revelation about the cold war deceits against the American people. . . .
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> Time is short, not necessarily because resource depletion and human extinction are inevitable. More troubling is the likelihood of continued adaptation to the present systems of power. One can envision 1985: landscaped energy parks glowing towers and stacks amidst a national wasteland of stripped countryside, decaying cities, unemployed citizens, and neglected public services—monuments to corporate planning and political mindlessness. Unable to think outside of the framework of profit, the sponsored "fuel for thought" messages urge, as always, more of the same.

COMMENTARY
NEW SUBSCRIPTION RATES

STARTING in September, when MANAS resumes publication after the summer interval of July and August, the subscription price for one year will be $10.00. A two-year subscription will be $18.00, and a three-year subscription will be $25.00. The single copy price will be 30 cents.

Doubling the price may seem quite a jump, but this is only apparently the case. While other publications have been increasing their rates from year to year, we have until now maintained the original price of $5.00 a year, as set back in 1948. We had hoped never to change the price, on the ground that the good reading MANAS endeavors to supply should be made available at the lowest possible cost. That view is still the basis of our policy, but since costs have nearly quadrupled during the time since 1948, it has become necessary to establish a new base price for subscriptions. Even with this increase, MANAS will still be a long way from being self-supporting, and will continue to require gifts from those able to make them, in order to survive. Fortunately, there are those who do what they can in this direction. The publishers are grateful for this help.

In behalf of readers who find the increase more than they can manage, we have instituted a "scholarship rate" of $7.50 a year, and $14.00 for two years, for students and others with low income. This policy of providing "negotiable" rates is gradually becoming typical of periodicals having the non-acquisitive motives that lie behind many of the encouraging changes now going on, bespeaking cooperation and mutual trust. We are glad to adopt this policy, believing it to be increasingly acceptable and understood. It will be maintained by regular listing of the "scholarship rate" in our subscription announcements.

With this issue, we complete the six-month cycle of publication for 1977. We do not publish during the vacation or rest period of July and August. The next issue of MANAS will be dated September 7. The new prices will go into effect at that time. Readers wishing to renew or to extend their subscriptions at the old rates ($5 for one more year, $8 for two additional years, and $12 for three) may do so during the coming months of July and August. After September 1, the new rates will apply.

For summertime reading: A free copy of the *Manas Reader* will be mailed to anyone who sends in five one-year subscriptions (at the old rate of $5 until Sept. 1).

CHILDREN
. . . and Ourselves
WATER, WATER, EVERYWHERE

[At about the time the MANAS editors were preparing the review of *CoEvolution Quarterly's* issue on watersheds and water supply (MANAS, March 16), a correspondent in Buenos Aires offered to report on the United Nations Water Conference held in Marcll in Mar del Plata, Argentina. We asked him to keep it simple, and he did. His gathering from the papers and studies presented at the Conference appears below. Readers wishing further information on this enormous subject may get help by writing to the UN Publication Service, United Nations, Room LX2300, New York 10017. The results of the Conference will probably be available in published form in five or six months.]

"EVERYTHING LIVING," according to the Koran, is created from water. In more ways than one, perhaps, man, woman, and child were born in water æons ago. Two thirds of our bodies are water; and, curiously, two thirds of the earth's surface is water. Although there are many more, the obvious uses of water include drinking, cooking, bathing, heating, cooling, irrigating, and flushing. We also fish in water. Quite evidently, water is far more precious than petroleum. While petroleum can be replaced by, say, alcohol, coal, electricity, solar energy, or nuclear power, water has *no* substitute.

Petroleum, moreover, is now very expensive, while water is still free, or almost free. Petroleum has to be or is carried around the globe half the volume of present world shipping consists of petroleum. But water is used (more or less) where it is supplied.

The day will come when the world will run out of petroleum, but the water supply is virtually constant, not materially different from what it was in the days of Adam and Eve. Throughout unnumbered millennia, water has kept us alive, a many-splendored thing in all its purity, until quite recently, when—in the last instant or two, geologically speaking—man began contaminating it on a massive scale.

So, today, water is becoming a matter of life and death. Using data from the World Health Organization and other sources, Barbara Ward's International Institute for Environment and Development has published a study which reveals that today half a billion people suffer from water-borne diseases. These ills involve all degrees of seriousness—blindness, bloating, cramps, diarrhea, dizziness, and fever. A total of 250 million people are rendered unfit for work by these afflictions. Ten million annually die of them.

Such water-transmitted diseases are carried by filth, flies, mosquitoes, snails, and worms. Most of the infant mortality in the Third World results from the use of foul water. The most helpless victims are urban squatters, since high population density causes water-related ills to spread more rapidly. From a problem-solving point of view, all that is needed for immediate relief is safe water from a well, a standpipe. A minimum of 100 liters (26.4 gallons) per day of high-quality water per household is essential for human health, according to a UN study made in Singapore.

This amount of clean water is not within convenient reach of 70 per cent of the world's rural householders and of 20 per cent of the total urban householders. The people must go after the water and carry it home, often having to pay for it. According to the UN Center for Social and Humanitarian Affairs, African village women walk an average of an hour a day (four kilometers or about two and a half miles) to get the water they need. This makes you wonder how much they can carry. Some of these people walk up to ten miles a day for their water. What is true of Africa also applies during the dry season in central Burma, and elsewhere.

Halfway round the globe, in midwest America, there is a different story. A sample urban home in Akron, Ohio—held to be typical of the U.S.—uses 40 per cent of all its water withdrawal for flushing toilets, 35 per cent for baths or showers, the rest for drinking, cooking,

cleaning, washing, etc. But also in America, a rural household in Kentucky, without running water, consumes a total of only 50 liters, in contrast to 2500 liters used up by the average urban family. (A liter is a "strong" quart.)

Thus the really overwhelming priority is to bring safe water to people where they live, throughout the Third World. Working on this, Dr. Schumacher's Intermediate Technology Development Group in London has published a study, "Water for the Thousand Millions," which shows that the problem is not a matter of the water itself. Usually, natural underground reservoirs are adequate, even in arid and semi-arid regions. Nor is it mainly a matter of money. For only $120 a shallow well serving a village of a thousand souls can be dug in soft, silty soil, and equipped with a hand-pump. One difficulty is that villagers usually lack the education and training needed to maintain such equipment. There are also cultural complexities. While a village well would obviously do much to lighten the burdens of women, their social status as water-carriers would be diminished by using it!

How is water consumed by the people of the well-to-do nations? Well, preparing a kilo (a little over two pounds) of stringbeans for the table uses 10 liters of water, and 50 liters goes for the same quantity of spinach. A like quantity of bread requires 700 liters of water, a dozen eggs, 10,000 liters, a kilo of prime beef, 30,000. The processing of a kilo of steel consumes 150 liters, of paper, 300, of viscose rayon, 800, and of synthetic rubber, 2,000 liters. Preparation of a kilo of streptomycine requires 4,000,000 liters of water! The time may come when we shall be obliged to make water consumption a decisive factor in the evaluation of the products we use.

Consumption patterns would be vastly altered if water had to be paid for. An ever-present "water-consciousness" would pervade our daily lives if, as the World Bank has proposed, a water "tariff" were applied in steeply progressive rates, weighted by such considerations as water-scarcity at the location of use, the comparative importance of water-intensive products, and the likelihood of contamination of water in a particular application. We are already developing energy-economics as an independent discipline. We may eventually have a similar discipline of water-economics. Then, in relation to water consumption, we may be made familiar with the sort of slogans now aimed at petroleum-users: "Don't be fuelish!"

Yet the wells, given social intelligence and the will to use it, need not run dry. A reverse version of the drama of the Sorcerer's Apprentice need not be our future fate. The recovery of water obtained through the never-ending cycle of evaporation-precipitation-runoff—making of the seas a giant desalting plant—will go on and on. This natural process produces enough fresh water, clean (at its source) water for the world's four billion inhabitants—enough, in fact, for ten or fifteen billion people. Yet all this water is unevenly distributed—over regions.by seasons, and in years. Hawaii's Mt. Waileale receives 113 meters of rainfall a year, while the Atacama desert in Chile has no precipitation at all, and we must begin to think of such things when we choose sites for cities or plan expanding urban growth.

We are not locked in position by ruthless necessity. And if humans are able to transmit vast quantities of oil in supertankers and install pipelines across Alaskan wastes, the construction of watergrids is also within their capacity. If, moreover, beneath the Sahara there lies a huge freshwater reservoir, why must nomads and their animals wither and die of thirst during a Sahelian drought?

There is plenty of water. Only the relations we have established with it make water often seem available in the wrong place at the wrong time. We are beset by these anomalies from confused purposes. All this can be changed.

Buenos Aires

ANDRE VAN DAM

FRONTIERS

Cracks in the Economic Foundation

IT is almost impossible to have a conversation about economics without bumping into the concept of economic systems; yet the term's intellectual base is riddled with so many logical holes that we should banish it from our language.

Abandoning it will not be easy because the idea of economic systems is fundamental to the construction of economics that is shared by both the right and the left. David Rockefeller, for example, tells us that capitalism "is able to respond to changing circumstances more readily than tightly controlled systems. The capacity of this flexible system to deal relatively quickly with new problems is of particular importance when we look to the future." And of course the Marxists forge their own persuasive arguments for overthrowing the present system and replacing it with a more "scientific system." Politically they may be poles apart but they both share a belief in the existence of economic systems.

For such a commonly used phrase a standard definition should be easy to find. Yet my copy of Paul Samuelson's *Economics* (sixth edition), the bible of the introductory college economics courses, uses "economic systems" throughout, but it is not listed in the Index and never defined. A recent publication by the U.S. Department of Commerce and the Advertising Council is more helpful. Their booklet, "The American Economic System . . . and your part in it," tells us, "An economic system is the mechanism by which labor, resources and skills are brought together to produce and distribute the enormous variety of things people need and want."

That definition is a clear intellectual descendant of Adam Smith's original conception of the idea. In his essays *Philosophical Subjects,* a work which preceded his famous *Wealth of Nations,* he observes:

> Systems in many respects, resemble machines. A machine is a little system, created to perform, as well as to connect together, in reality, those different movements and effects which are already in reality performed.

Smith's conception of systems as machine-like is a result of his fascination with Sir Isaac Newton's work *Principia Mathematica,* which set out to describe the system of the world. Newton believed the universe is a grand machine whose motions are regular and predictable.

Smith was so inspired by Newton that he felt logical principles could also be described for a system of economics. So, based on Newton's conception of a machine-like universe, Smith spelled out basic principles for a "science of economics."

Modern physics, however, is evolving a very different conception of the universe based on Einstein's theories. While those searching for a new image do not agree on what it resembles, it is clear that it does not look like a regular and predictable machine. For example, astronomer James Jeans said that the universe looks less and less like a big machine and more and more like a great thought. Similarly physicist John A. Wheeler says, "There may be no such thing as the glittering central mechanism of the universe . . . not machinery but magic may be the better description of the treasure that is waiting."

Smith's idea of economic systems, then, is based on an idea that is now being rejected by physicists. Even if the logical foundation was not eroding, Smith's utilization of Newton's model should be challenged because it gives birth to a science of exchange based on a very limited model. Specifically, the mechanistic view requires the creation of artificial boundaries to isolate certain aspects of phenomena. For example, when a steam engine (which was the major mechanical motor of Smith's day) is fueled with coal, filled with water and humming away, it appears to be a self-contained unit in its own little universe. But in actuality it is only part of a much larger drama with infinite boundaries. To view it in the larger perspective we have to step back from the

machine and observe where the coal comes from, where the waste goes, where the parts for the machine come from, where they will go, and even the origin of the laborer's breakfast supplying calories for the muscles that shovel coal into the boiler.

The problems delineating the boundaries of mechanistic systems illustrate the difficulties in defining economic systems. Where do the economists—the practitioners of the orthodoxy of economics—impose boundaries? What parts of reality do economic theories encompass?

Answers can be found by examining what economists use to interpret exchanges. Vast numbers of physical and social exchanges occur on the planet, such as the interchanges of the food web, the hydrological cycles, or even the interactions within a family, yet economists only concern themselves with those which can be translated into fiscal terms. But looking at the world through the social fantasy of money imposes a perceptual filter that only permits selective perception of what is actually happening. To comprehend this we need only to examine a typical exchange, such as the purchase of gasoline. When you drive up to a service station and buy gas, that sale is considered by economists to be a transaction occurring within the economic system, yet the trapping of sunlight eons ago to make the oil, and the discharging of the burned gasoline into the air are outside it. Ecologists realize the interdependence of these processes, but the economist credits only the portion describable in monetary terms.

Economics also believes that physical occurrences are describable by numbers. A number is very different from a word; linguistic terms can convey an impression of what is being observed, but number symbols can only convey the quantity. Viewing an entity or process as a number blinds us to its qualitative dimensions. If we look at the world quantitatively, it is abstracted from us, not incorporated as an integral part of our being.

Karl Menninger, a German philosopher, believes that the Western world's number orientation has had a strong influence in shaping our attitude toward what we call "nature." In *Number Words and Number Symbols* he explores how the utilization of numbers shapes the way we look at the world, and the values that emerge from our vision. 'Primitive" man's conception of the world differs radically from ours. Describing it, Menninger writes:

> Things have not yet been "cooled off" for him (primitive man) by his intellect, which sifts them and orders them and separates them, filing their elements away in the gray colorless pigeonholes of concepts. On the contrary, in their immediate, hot-blooded, many colored uniqueness they touch his innermost heart. Thus they are not objects to him things which are alien to him and stand "outside" himself—here am I and there is the world—rather they are completely absorbed in his own life. . . . He is woven into the very fabric of the universe by powerful strands of religion he does not, like "modern,, man, like ourselves, stand before it in wonderment, in calculation, or indifference.

The very vocabulary of economics betrays the distortions resulting from its abstract perspective. The term "production" offers a good example. Seen by economists as representing only those goods and services resulting from capital investment, production is used to describe what happens in factories. It implies that the factory is the source of "products." Yet the act of production is much broader than the limited activities that occur in industrial plants. Factories don't produce anything; they only take substances from the planet and process them.

Equally distorted is economics' use of the term "resources." By defining objects as diverse as trees and rocks as the same, critical distinctions are blurred; qualitative aspects are not discerned. Consequently, as Murray Bookchin has pointed out, this allows us to ignore critical differences between parts of the physical world and plunder with a clear conscience. Freed from the recognition of the spirit of mountains, we strip-

mine; blind to the life force of trees, we clear-cut; deaf to the cascading song of rivers, we pollute.

Economics also utilizes a warped conception of work and labor based on a market bias. It only recognizes work when it is done in the context of the monetary exchange network. A person could expend productive energy in the home, for example, and receive no recognition by economists that work had occurred, even though the tasks might be as exerting as factory labor.

Understanding the deficiencies of the concept of economic systems is necessary before we can begin the much-needed process of reconceptualizing a theory of exchange based on a more encompassing paradigm than that provided by Adam Smith's dangerously narrow view. Built on the inadequate descriptive capacity of numbers, a limited mechanistic analogy, vague boundaries, the biases of money, and a distorted vocabulary, the concept of economic systems is a social myth supported by such shallow logic that it should have been abandoned long ago. Quite likely we cling to it because it is convenient. The idea of a neatly boundaried and all-encompassing "economic system" simplifies complexity for both the right and the left; those who believe that a new society can be created through a quick revolution and those who camouflage their self-interests with social theories.

The distorted logic underlying the idea accounts for why revolutions fought to alter the "economic system" usually disappoint the idealists among the victors. Before we can hope to see truly successful revolutions, we shall have to overthrow our fragmented view of the world expressed by our ideas of disciplines and economic systems. Only then can we begin to make a place in our schema for an attitude that properly respects both social and natural exchanges.

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SAM LOVE