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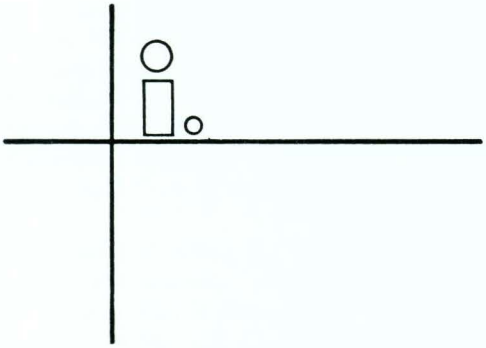

Getting With Spaceship Earth

By Noel McInnis

> We cannot effectively manage the environment without knowing what it is and how it behaves. We cannot detect changes, natural or man-made, desirable or undesirable, without repeated observations and established baselines. We neither know in a systematic way what the environment is like nor how and at what rate it is changing.[1]

Mankind is about to discover another planet. Until recently it was assumed that we had discovered all of the planets in our solar system, but it now turns out that this is not the case. In the process of scanning the skies for Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto, we overlooked the most important planet of all—Earth. Earth is the most important planet by any human definition, since this is the planet which sustains human life. And it is precisely because Earth is our home that we never discovered it before.

Man-on-earth is in the same predicament as fish in the water. "If you want to know about water," Marshall McLuhan has quipped *ad infinitum*, "don't ask a fish." The environment into which we are born remains invisible to us unless one of two things happens: 1) we leave it, or 2) it changes drastically. Quite recently, both of these things have happened to man-on-earth. Man left the earth long enough to look it over, and brought back pictures which make it difficult for us to overlook the planet as formerly. And those of us who stayed on earth discovered our planet by virtue of the fact that its

[1] *Institutions for Effective Management of the Environment* (National Academy of Sciences, Washington, D. C., January, 1970), p. 37.

feedback is doing things to us which were entirely unintended in our doings to it. The coincidence of these events is quite literally leading to our belated discovery of the third planet from our sun. What we are discovering, of course, is that the planet as a whole behaves differently than its parts. Our present habits of relating to the planet only in part are producing a planetary reaction which, on the whole, will be unfavorable to our continued enjoyment of the planet if not our very existence itself.

We are discovering, in other words, that our planet is a spaceship, *a closed, finite system in which all behaviors ultimately feed back through the system upon themselves.* Inappropriate behavior in one component of the system can disrupt or destroy the entire system. If the system is as complexly (and therefore as flexibly regenerative) as that of our planet, the destruction is more likely to be relative: the source of disruption will probably be eliminated by the system long before the system itself collapses. The system will become greatly altered in the process, but the whole will still survive the loss of some parts. Unlike the Apollo craft, as Bucky Fuller is fond of pointing out, the earth did not come equipped with an operating manual. Neither, therefore, does it require our services as crew. "Men go and come," we are told in *Ecclesiastes* "but earth abides." It may also be written that man came and went.

On a spaceship, every sub-system is related to every other sub-system. Nothing in the design functions without reference to everything else. All sub-systems are affected by a major change in any one of them. In other words, the various sub-systems of a spaceship constitute one unified, balanced overall system. Any imbalance orginating in one of the sub-systems is eventually redressed throughout the whole.

So well-integrated are our planet's numerous systems that the earth functions as a single organism. This fact we have demonstrated to ourselves most dramatically by the massive application of fertilizers and pesticides. The system-disruption potentials of this activity are most vividly illustrated by our long term experience with DDT. DDT symbolizes our dread of an unavoidable function of the planet, that of death. Although DDT's effects are mild in comparison with many other chemicals used in our death-control tactics, it has become the focus of all those who see the folly of avoiding our death by annihilating other forms of life.

DDT is being metabolized by the entire planet. It is found in the fatty tissue of penguins at the South Pole, thousands of miles from its nearest application. DDT is found in the fatty tissue of creatures of the air, creatures of the mountain, creatures of the plains, and creatures of the mid-ocean. DDT is carried by all of the planet's transmission systems—air, water, and food chains. As a result, the planet is soaking up DDT like a sponge. When DDT begins, as it has, to

take its toll of the oceanic vegetation which produces 70% of the earth's atmospheric oxygen, it definitely tolls for thee. Since we are at the top of the food chain, we humans stand to concentrate more DDT in our systems than any other species. The concentration of DDT in our species is already so great that the milk of nursing mothers, in this country at least, exceeds by 2 to 6 times the amount of DDT considered adequate to make milk unfit for commercial sale (i.e., human consumption) in interstate commerce.

On a spaceship, all inappropriate behaviors ultimately feed back through the system upon themselves. When we cast our bread upon the waters, we can be sure of its eventual return.

"WHAT DOES OUR PLANET DO?"

We must frankly admit that the discovery of our planet may not come in time to save us. The present crisis mentality concerning our environment could as likely increase the disruption of the planet's functioning as to decrease it. This is because many of the remedies being proposed—frequently called "eco-tactics"—are as partial and as out of context as the shortsighted human activities which created the crisis to begin with. I am afraid that too many of us are approaching the environment crisis like James Thurber's "Scotty Who Knew Too Much."[2]

> Several summers ago there was a Scotty who went to the country for a visit. He decided that all farm dogs were cowards, because they were afraid of a certain animal that had a white stripe down its back. "You are a pussy-cat and I can lick you," the Scotty said to the farm dog who lived in the house where the Scotty was visiting. "I can lick the little animal with the white stripe, too. Show him to me." "Don't you want to ask any questions about him?" said the farm dog. "Naw," said the Scotty. "You ask the questions."
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> So the farm dog took the Scotty into the woods and showed him the white-striped animal and the Scotty closed in on him, growling and slashing. It was all over in a moment and the Scotty lay on his back. When he came to, the farm dog said, "what happened?" "He threw vitriol," said the Scotty, "but he never laid a glove on me."
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> A few days later the farm dog told the Scotty there was

[2] Copr. (c) 1940 James Thurber. Copr. (c) 1968 Helen Thurber. From *Fables for Our Time,* published by Harper and Row. Originally printed in *The New Yorker.*

another animal all the farm dogs were afraid of. "Lead me to him," said the Scotty. "I can lick anything that doesn't wear horseshoes." "Don't you want to ask any questions about him?" said the farm dog. "Naw," said the Scotty. "Just show me where he hangs out." So the farm dog led him to a place in the woods and pointed out the little animal when he came along. "A clown," said the Scotty, "a pushover," and he closed in, leading with his left and exhibiting some mighty fancy footwork. In less than a second the Scotty was flat on his back, and when he woke up the farm dog was pulling quills out of him. "What happened?" said the dog. "He pulled a knife on me," said the Scotty, "but at least I have learned how you fight out here in the country, and now I am going to beat *you* up." So he closed in on the farm dog, holding his nose with one front paw to ward off the vitriol and covering his eyes with the other front paw to keep out the knives. The Scotty couldn't see his opponent and he couldn't smell his opponent and he was so badly beaten that he had to be taken back to the city and put in a nursing home.

Moral: It is better to ask some of the questions than to know all the answers.

Until we have a fairly good answer to at least *one* question, all of our answers are likely to aggravate the problem. We cannot intelligently cope with our spaceship until we know what it does. The question "What does our planet do?" is *the* priority question of our time. Until we know what our planet does, we cannot establish an intelligent ecological relationship with it.

GETTING *WITH* IT

Ecology is, after all, the study of the transactions among the organisms in a given environment. In any given instance, therefore, it is first of all the study of the relationship of an organism *with,* not to, its environment. The distinction between relating *with* and relating *to* is difficult for the Western mind to grasp, since almost all of our environmental perceptions—human relationships as well as physical—are based on the law of the lever. We tend to perceive all of other-than-self as so much mass to be manipulated, as so many relationships to be *had* rather than transacted. As a result, our technologies are now succeeding in the manipulation of our total environment, with the further result that we are now being had by the planet.

The only way we can avoid being had by the planet is to get with it. But we cannot get with the planet until we know what it does.

We are therefore desperately in need of intelligent *eco-strategies,* to assure that our co-tactical doings *to* the environment are healing rather than aggravating the situation.

Eco-*strategy* involves the monitoring of natural processes and the development of technologies which are harmonious therewith. Eco-*tactics* consist of environmental manipulation. Perhaps the best way to illustrate this distinction is to take a brief look at the problem of birth control. The pill and the intrauterine device represent a tactical approach to the problem of birth control. Both the pill and the IUD represent the manipulation of a system to alter its functioning. The pill and the IUD are something we do *to* the reproductive system. The rhythm method, on the other hand, represents a strategic approach to birth control. That it has not been a highly reliable strategy is proven by the very existence of many who will read these words. But *it could be reliable.* The body chemistry of the female during the time she is capable of conception is different than when she is not. What if a woman were capable of accurately monitoring this particular nuance of her body chemistry, via a reasonably simple test analagous to the litmus test or the simple urinalysis with which diabetics can monitor their sugar level? If she had this monitoring capability, it would not be necessary for her to tactically tamper with her physical processes or to tactically deny her emotional ones. She could very strategically *get with* her reproductive process and control birth in nature's own way.

We are every bit as much in need of getting with the planet as we are in need of getting with the human reproductive process. Population is a global problem, yet very few persons perceive it in global *depth* as well as in global breadth. The closed-system nature of our spaceship assures that any major change in the functioning of the human reproductive process, such as Zero Population Growth, will effect changes in many other systems. We cannot alter the pattern of human reproduction without alterations in the patterns of related systems. (A most obvious example: we cannot establish equilibrium in the population if we insist that Gross National Product must continually rise. Equilibrium in one major system requires equilibrium in all major systems. The assumption of additive growth, if ruled out for the population, must also be ruled out for the economic system. The economic implications of Zero Population Growth are in direct conflict with the economic assumptions which presently govern this country. Zero Population Growth is more subversive of the "American way of life" than Communism, because even Communism shares with capitalism the goal of additive growth.)

The fact that man is not presently with the planet is dramatically illustrated if we imagine that we could compress the world's present population of over three billion persons into one town of 1,000 persons,

in exactly the same proportions.[3] In such a town of 1,000 persons there would be only 70 (United States) Americans. These 70 Americans, a mere 7% of the town's population, would receive half of the town's income. This would be the direct result of their monopolizing over half of the town's available material resources. Correspondingly, the 70 Americans would have fifteen times as many possessions per persons as the remainder of the townsmen.

The 7% American population would produce 16% of the town's food supply, eating nearly twice as much as necessary and storing for their future use, at tremendous cost, most of what they were unable to immediately consume. With most of the other 930 inhabitants of the town hungry, there would undoubtedly be ill feelings.

The 70 Americans would have an average life expectancy of 70 years, the other 930 less than 40 years. The lowest income group among the Americans, even though it included a few people who were hungry much of the time, would be better off by far than the average of the other townsmen. The 70 Americans and about 200 others representing Western Europe, and a few classes in South America, South Africa, Australia and Japan would be well off by comparison with the rest.

Could such a town, in which the 930 non-Americans were quite aware of both the fact and means of the Americans' advantages, survive? Could the 70 Americans continue to extract the majority of the raw materials essential to their standard of living from the property of the other 930 inhabitants? While doing so, could they convince the other 930 inhabitants to limit their population growth on the thesis that resources are limited? How many of the 70 Americans would have to become soldiers? How much of their material and human resources would have to be devoted to military efforts in order to keep the rest of the town at its present disadvantage?

Chances are the 70 Americans would have to organize into a military camp in order to maintain their material dominance of the remainder of the town. Chances are most of the Americans would be too insecure or guilty about their situation to enjoy their dominance. Chances are this guilt and insecurity would lead some of the Americans to protest the situation and call for a change. Chances are that the protesting Americans would find themselves subjected to variations of the same repressive forces being used to subdue the other 930 townspeople. Chances are the military camp would also be a police camp.

The most regretful thing about the situation you have been asked to

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[3] This analogy is quoted from Richard Heiss and Noel F. McInnis, *Can Man Care for the Earth?,* to be published in May, 1971, by Abingdon Press (Nashville).

imagine is that it is not imaginary. For such is the present material relationship and incipient political relationship of the United States to the rest of the world. The material relationship is very clear: the United States is systematically plundering the planet's physical resources. And if the political conclusions drawn above are not yet so, they are rapidly becoming so. The logical complement of a nation of plunderers is a nation of police.

ENVIRONMENTAL MONITORING

The only way to get with the planet is to find out what it does via a world-wide system of environmental monitoring. A recent report of the National Academy of Sciences makes it clear that this is a necessity not only for coping with global problems, but for dealing with localized problems as well:

> The necessity for very broad monitoring is suggested by consideration of a relatively simple environmental relationship. Many people have settled in Southern California to enjoy the sun at the broad, clean beaches. Houses have been built right at the edge of the beach, which in some places have then become littered with kelp and buzzing with flies. The houses have displaced tiny animals such as isopods, which previously ate the kelp. More houses have been built inland and in some areas have been subject to floods. Dams have been built and have stopped not only flood water but also the sand that replaced the beach sand being constantly lost to deep water. Thus the beaches are becoming less wide and less widespread. Finally, to get to the beaches, more and more people drive more and more automobiles, and the resulting smog obscures the sun.
>
> This is a very simple outline of a most complex relationship. We cannot say what happened. We shall have no more success than we have had so far in dealing with these problems in the future without a comprehensive plan for monitoring the whole environment and its changes and knowing the possible consequences.[4]

The *whole* environment of any locality is, of course, nothing less than the entire planet. Nothing less than an understanding of the entire planet as an integrated system is becoming an absolute requirement for intelligent human interaction with local environments.

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[4] *Institutions . . .*, pp. 38-39.

The problem of environmental monitoring at present is not that there is none, but that existing programs are partial and uncorrelated:

> We do make some baseline and serial observations at present through such environment-related agencies as the Environmental Science Services Administration, the U.S. Geological Survey, the Bureau of Commercial Fisheries, the Bureau of Sport Fisheries and Wildlife, the Forest Service, the National Air Pollution Control Administration, and the Federal Water Pollution Control Administration. In addition, many local and state agencies secure data on environmental parameters. Most of these data are obtained for special purposes, there is little cross-referencing of data, few comparative studies, and no overall evaluation of the quality of the environment. The existing environmental monitoring program has many critical gaps.[5]

Fortunately, we *can* get with the planet. We know enough about what the planet does that we are now able to develop the means for finding out everything else we need to know in answer to that question. The relevant information is being gathered by numerous national and international agencies, as well as by corporate and educational research departments. In addition to remaining uncorrelated, however, this information about what the planet does is also not being disseminated through the schools. As a result, the people who are least informed about our planet are those who are being prepared to live on it.

THINKING THE WORLD TOGETHER

The reason we learn very little about the planet in our schooling is because of the curriculum's overwhelming concern with the affairs of men. As far as the curriculum is concerned, man *is* the planet, and thus it is that we learn to consider only the human inhabitants of our spaceship as having first-order significance. When we do study the planet, it is still a very partial endeavor. We learn about the geographical part, or the biological part, or the physical part, but never are we enabled to develop a sense of the whole thing. Never, that is, are we presented with some perception of the planet as the total system that it is, so that we can perceive its parts in context. While the mind may be unable to concentrate on the planet as a total system, it can certainly develop a planetary perspective or world view which enables it to concentrate on particular sub-systems *in contemplation of the whole.*

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[5] *Ibid.*, p. 37.

Unfortunately, geography is largely the study of the names man has given to various locations on the earth and what he does with these locations. Biology is largely the study of terms man has given to the biota. Physics is largely the study of mathematical formulations man has given to discovered functions of the planet. And so on. Our formal studies of the planet, *particularly at the level the vast majority of us encounter them in school,* are focused upon the symbols we use to identify it rather than upon that to which the symbols refer.

Our present curriculum has enabled us to master our ability to think the world to pieces. Since we can relate to our environment only in the terms that we perceive it, we are now quite effectively tearing the planet to pieces. If we are to think the world together, to comprehend (com=together; prehend=take) it as a single piece, we must create a new curriculum to complement the old.

The old curriculum has been very successful in conveying to us the fragmented, analytical, mechanical world view which enabled man to develop a technological civilization and which now shapes us to behave in mechanical conformity with our creations. But the planet and its occupants do not function according to the technological program with which we are attempting to subdue it, and thus our behavior is on a collision course with our own being. The planet's program is preponderantly that of synthesizing parts into wholes. Man's program is preponderantly that of reducing wholes into parts. If the latter program is merely preliminary to a synthesis which accommodates itself with the planet, very good. But if man continues his program of reducing wholes into parts as presently practiced, his will be the ultimate parting from the planet.

We are desperately in need of perceiving the planet as a *gestalt.* The world ultimately hangs together in our perception of it, *if* we are to hang with it. There is no institution which does more to shape/misshape our perception of the world than the schools. A major burden for the creation of a planetary world view therefore rests upon the schools. At present, any student who emerges from high school or college with some sense of how the world hangs together does so in spite of his formal education. Present and subsequent generations must obtain such a perception as an integral part of their education. Somewhere they must learn to think the world together.

The need to think the world together is increasingly recognized by numerous individuals and organizations, and a few isolated and partial attempts are being made to develop educational materials and strategies to meet this need. Although none of these attempts is as fully developed as some of the isolated and partial environmental monitoring programs mentioned above, they would certainly derive a similar advantage from a concerted effort at correlation. At a minimum, they would benefit from the mutual awareness by said in-

dividuals and organizations of one another's concerns, ideas, and objectives. This could be facilitated by a center whose own objective on behalf of thinking the world together is to create such a mutual awareness. Such a center could monitor the activities of others who are working at an integral understanding of the world, and facilitate communication among potentially symbiotic endeavors.

Fortunately, such a center exists. The Center for Curriculum Design, a non-profit foundation in Evanston, Illinois, identifies itself as "An Educational Foundation for Thinking the World Together." Its major concern is with the development of materials and strategies for integrating knowledge. The Center seeks, creates, and disseminates information on persons, organizations, projects, materials, strategies, and ideas for integrating knowledge, developing whole-earth perspectives and other ecological mindsets, and increasing the public's environmental awareness.

Several of the Center's current activities are integrated in a comprehensive program called The Spaceship Earth Curriculum Project. These activities include the compilation of a directory to the type of information mentioned above; the development of a college-level Integrative Studies course at Evanston's Kendall College, entitled Environmental Thinking; the creation of original materials in all media which stress the theme of human/environmental integrity; and the convening of a Spaceship Earth Conference to bring together those who wish to develop whole-earth educational strategies and materials with those who are already doing it. Persons who identify with the task of thinking the world together are urged to correspond with the Center (823 Foster, Evanston, Illinois 60204).

Some time ago it was announced that the missing link between ape man and civilized man had been discovered. It turned out to be ourselves. This announcement was probably inaccurate in perspective. We *have* achieved the main fruits of civilization, and are discovering that many of them are too bitter to be tolerated. We have to get beyond civilization. The announcement should read that the missing link between ape man and *earth* man has just been discovered. It turns out to be ourselves.

So we'd better get with it.