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We are genuinely pleased to be able to offer our readers a taste of the provocative and sage reflections of Jim Berry in this issue. Our selections are drawn from Jim's monthly newsletter which issues from his Center for Reflection on the Second Law, 8420 Camellia Drive, Raleigh, NC 27612. Paul Larson went through Jim's newsletters, chose our offerings and wrote a short introduction to each.

Jim Berry is deeply concerned with the fate of the earth, especially in his beloved North Carolina, which seems determined to sell its soul (land and people) to the lowest bidder, whether carrying dollars, francs or yen. The proud Southern tradition of communal values and love of the land are threatened by carpetbagging yuppies, speculating capitalists and bandwagoning politicians. Berry himself has become, indeed, a "center" of ecological conscience and populist economics amid this swirling euphoria for what his brother, Tom, calls "Wonderland" but which is in reality Wasteland.

Both Jim and Tom Berry (of the Riverdale Center) are in their 70s and have contributed greatly to the ecological movement in this country during the past decade. They reflect the growing number of so-called "retired" people who do not move to Florida to play shuffleboard but devote their time and wisdom to the healing of the earth and local communities. Jim, a retired U.S.A.F. Colonel, is the prophet-activist, while Tom, an ex-university professor, is the philosopher-shaman. Yet each shares some of the qualities of the other and draws on the other's strengths. Personally, both are a joy to know and a source of inspiration.

--Don St. John

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"BACK TO THE SECOND LAW"

James Berry defines the Second Law in this newsletter from September, 1987. In it he also discusses the ecological and economic implications of the Second Law as they relate to the contemporary views of the earth. Because Berry roots his thinking in the realities of this law, our issue, devoted to his writings, begins by getting "Back to the Second Law."

To get back to the Second Law--the Entropy Law. Entropy is a measure of uselessness. Low entropy means low uselessness or high utility; and high entropy means the opposite, low utility. In the economic process goods are produced and sold and used and discarded. The basic stuff out of which the goods are made comes from the earth, and when the goods are discarded, when they reach the state of uselessness, high entropy, they go back to the earth. Standard economic theory, which is concerned only with human interests, regards the subtraction of low entropy stuff from the earth stocks as an "externality", not to be included in economic analysis. Likewise when an item is discarded into the junkpile standard economics ignores the fact--unless the disposal agent charges a fee. In that case the fee is added to the GNP!!! The nation is considered to be better off for every step in the process.

Seen from the point of view of the earth, that way of thinking is all wrong. Valuable stuff, low entropy earthstuff, treasure, has been transformed in a very short time into junk, trash, garbage, poison, high entropy waste. The earth is poorer in a whole lot of ways. Consider oil turned into auto exhaust, iron ore converted into junked automobiles, forests converted into old newspapers, animal species extinguished.

The point of this short review of Second Law effects, is to reassert the overwhelming fact: Economic activity which seeks to produce and consume and then throw out goods at the maximum rate possible is

totally insane seen from the standpoint of the earth, which underwrites, of necessity, every single human act. The first rule of economics is, "It is better to be rich than poor." However, in defining what it means to be rich one has to abandon a human centered way of looking at things; one must see the human as a participating member of the earth family, a member of the community of life. When the earth is rich, its inhabitants are rich. When the earth thrives, all thrive. To turn a river into a sewer is to impoverish a region and the region's inhabitants. It may well be that somebody is richer in money terms, that many have acquired something that relieves drudgery, or provides luxury. Other short term human benefits might be enumerated also, but the Second Law is forever operative. Entropy increases with every action. The greater the GNP the greater the earth's impoverishment. When that impoverishment has reached a certain stage decent life on earth will become impossible. Observers of what is happening to air, water, soil, wildlife, wilderness are crying in alarm that we are approaching that condition now. The question is: how do we deal with this predicament?

It's all a matter of behavior directed by good sense, wisdom. It is better to be rich than poor. This is what Kenneth Boulding said once:

I shall argue that it is the capital stock from which we draw satisfactions, not from the additions to it (production) or the subtractions from it (consumption): that consumption, far from being a desideratum, is a deplorable property of the capital stock which necessitates the equally deplorable activities of production: and that the objective of economic policy should not be to maximize consumption or production, but rather to minimize it, i.e., to enable us to maintain our capital stock with as little consumption or production as possible. (From "Income or Welfare" in the Review of Economic Studies, 1949, as quoted in a Herman Daly essay in the December, 1985 issue of Review of

Social Economy, "The Circular Flow of Exchange Value and the Linear Throughput of Matter-Energy.")

And there you have the economic policy of The Riverdale Center for Religious Research, and the Center for Reflection on the Second Law, of the "Green" movement and of bioregionalism: "Capital stock should be maintained, not depleted. Production and consumption, in the industrial sense of our times, are deplorable activities and should be minimized." Industrial scale production and consumption not only deplete capital stock but, in the process, destroy beauty and balance and health, and for it substitute wasteland:

The great mountain slopes and forests of the section had been ruinously detimbered; the farm soil on the hillsides had eroded and washed down; high up on the hills, one saw the raw scars of old mica pits, the dump heaps of deserted mines. It was evident that a huge compulsive greed had been at work, the whole region had been sucked and gutted, milked dry, denuded of its rich primeval treasure, something blind and ruthless had been here, grasped and gone. (Thomas Wolfe, about the mountains around Asheville, The Hills Beyond)

The change in human behavior required by the adoption of this policy would be enormous, but I think it is inevitable. If the rivers and oceans are killed, the forests wiped out, the air poisoned, the soil poisoned and washed away, the animals extinguished, it is all over for everything. If that "huge compulsive greed" continues its grip on the land and the marketplace everything will be lost.

This kind of talk is pretty much avoided. The changes are difficult to contemplate because they threaten the job and income structure. Consider Canton, North Carolina. People there do not want Champion Paper closed down. The destruction of the Pigeon River by the mill effluents is just something that must be tolerated. The conversion of trees into paper plates is

necessary in this society. Ecosystems are less important than the jobs and the income. In this society, people can not get income without jobs. Champion provides jobs and that is as much as anyone needs to know. Keep the mill going and throw out the environmentalists. How do you reply to that?

In this way: we must invent a new economics, one that saves the capital stock and the life supporting air and water. There is plenty of money, plenty of work to be done, and workers to do it. Save the rivers; save our capital stock, the natural endowment, and save the workers' incomes as well. A society with all the brains and ingenuity we claim to possess can surely take these assets and invent economic and social arrangements that will permit the earth and its inhabitants to function in mutual prosperity. Humans cannot thrive except in a thriving environment.

II

FITTING IN

In this newsletter, James Berry discusses the theory of evolution, how this theory articulates our inter-connectedness with every aspect of the Universe and celebrates the mystery of existence.

The Seeker: What's it all about and how do I fit in?

Grandmother: It's the right question and it's hard to answer. You will have to work on it all your life. But maybe I can give you some help in how to go about looking. I think you begin by getting yourself an identity and I think that might begin with understanding that you belong in the world. When I say world I mean the universe and the earth and the life system of the earth, the entire life system, and the human species, the region where you are, the locality where you are, social and economic and political arrangements, and your family. You may not have a clear identity in all these ways but you have some of them at least. And know that you are unique. There has never been another person just like you and there is never going to be another.

In this way, work at finding out just who you are and how you come to be just here, just now. That's important. But it's not easy. Ideally you need to know a lot of history, a lot about what has gone on in the past that led up to your presence at this place at this time. It will require a lot of study, but it's necessary to get yourself located. I think it is important that we believe that there is meaning and that we are capable of finding it; at least we are capable of trying to find it. I have come to think that the meaning of the human species is to be found within the meaning of the universe. If the human has meaning, the universe has meaning and since the human is a part of the universe then it follows, in my way of thinking, that the human purpose must fit into the universe purpose. "The human journey is an aspect of the universe journey and subject to it." I also believe that the meaning of the universe is a mystery we have not penetrated and are unlikely to penetrate. So, for now anyway, we just accept the universe as a given and work on the problem of finding meaning for the human species as a functioning component of the universe, accepting that the part is not greater than the whole. After finding a meaning for the species then we try to find a meaning for subsets, such as races and regional groupings, within the species and then meaning for the individual.

I fully accept the proposition that the human species came into being as the natural result of the evolutionary process. I take it as established that what flows out of what was. Everything is the outcome of the time developmental process of a constantly emerging world. That leads to the conclusion that the universe needs whatever it is that the human brings to the universe process. Here I introduce a thought that occurs repeatedly: "The human is that being in whom the earth (universe) celebrates itself in conscious self-awareness." Without the human there is no possibility for the operations of mind and consciousness, of reflection intuition and spirituality. There would be no agent capable of curiosity and therefore of learning and understanding of achieving knowledge and working toward a comprehension

for what's going on here and what is our role in it.

A minute ago we spoke of the mystery of the universe and that brings up God for only God can fill the space reserved for mystery. Religion should build around the idea of God essential structures for answering the kind of questions we are considering here, and for guiding human behavior so that it conforms to religion's concept of what God wants regarded as sacred. It is the obligation of religion to recognize what is sacred, solemnize it, ritualize it, teach it, and establish sanctions to protect it. I think that religion is a necessary element of human living when it permeates every thought and action of the human animal and holds the human to standards that sanctify and promote life and living.

Our problem, as I see it, is that our religion has not accommodated itself to realities science and common sense have revealed. The basic reality religion fails to recognize is the very fact of the embeddedness of the human species in nature and the moral imperatives that flow out of that; i.e., the necessity for the human to conform behavior to the way nature works. We have a society that is destroying nature, and religion is doing almost nothing (there are some exceptions) to defend nature.

A philosophy is developing which states that the human must use those qualities unique to the human for universe purposes. In this way of thinking, I commend it to you, it is necessary for the human to learn about the universe and to celebrate it, to bring to it mind and consciousness and self-awareness and curiosity and understanding and love and respect and nurture and awe and etc. (It is OK to substitute the word "earth" for the word "universe" since membership in the universe is fully comprehended by membership in the earth.)

So your search might lead you to conclude that you are located here and now, that you belong to this region, these associations, etc. and that you can find a role for yourself by inhabiting this area of the earth in such a way as to make all elements

of it thrive. You might also work on trying to bring understanding of the natural world and its requirements to religion.

III

TALKING TO THOMAS

While the first two selections from Jim Berry's writings describe his scientific, religious, and philosophical views, the final two newsletters discuss two types of action--education and work.

The following dialogue on Second Law Education takes place between a pupil and Jim Berry's brother, Thomas Berry. At issue is, "How does one help the child form a good story?"

A TEACHER AND PARENT TALKING TO THOMAS

T&P: I have heard you talk a lot and I believe the things you say. They make a lot of sense. And I know there are many really basic problems crying for attention. But my particular concern is with children, my own and the ones I take care of and teach. You know that the school system strives mightily to equip our children to cope with the world the way it is, to make their way in society as society is presently constituted. There is little or no interest in stimulating a desire to make the world a better place. (Unless one believes that science can do that.) I think maybe the real shortcoming of the way we teach is the failure to establish in the child's mind any sort of understanding of how the child relates to the non-human world. We do teach the child to relate to other children and to adults but there is no curriculum to connect the child up to the context of living, air, water, soil, wilderness, wildness, animals, plants, rocks, etc.. Kids are just not being taught to see the earth as a sacred source of life and support for life. Indeed, teachers have to avoid treating the sacred in any manner. And, it seems to me that parents, for the most part, don't know there is anything sacred except for some sort of divinity way out there somewhere that preachers talk about on Sundays. This divinity doesn't amount to a hill of beans

in the real world. The real world is a place where money and power and pleasure control daily activity. Teachers know that kids are dreamers and that they need dreams and I think kids die a little bit when they have to abandon dreams and prepare to pursue money and power and pleasure. I remember a book called Death at an Early Age about kids who didn't have a childhood. It might also be an apt observation to be made about kids who are discouraged when they dream about "impractical" lives. I asked a young man who came to see my daughter about how he saw the future. He answered that he needed to make lots of money because he had expensive tastes. I wish he had said that he intended to tilt at windmills or expose charlatans or clean up trout streams; anything but make a lot of money. He has died a little, I think, because he does not dream of doing something wonderful or fulfilling a need to serve a noble purpose. How do we go at this business of preparing the children?

Thomas: Well, I am like you. I have always thought that the child's dream is very, very important. In some sense one's early dreams are never lost. In unexplained ways the decisions one makes throughout life are influenced by the outlook that informed the dream in the first place. You know, I keep saying that it is all a matter of the "story." Each of us explains the world and our presence in it with a story. "I was born (somewhere), my parents were (whoever), there were brothers and sisters, grandparents (they came over from somewhere). We are (_____) who raised food, our ancestors came from (_____) and so on." And the story also accounts for every other facet of our own existence and the existence of everything else. It tells how things came to be, gets us located in time and space, shapes our attitudes, gives direction, distinguishes between right and wrong, acknowledges or does not acknowledge divinity. And, the way I see it, our dream is a function of our story. So, maybe the question is: How does one help the child form a good Story?

I once wrote out my idea of what a good American college ought to teach. I described a curriculum which I thought would

provide a student with the intellectual capability to live a fulfilling life and one that all the earth's creatures would be happy about. I won't try to give you the whole thing but parts of it are just as much for children as for adults. Cosmology is something everybody is fascinated with. It has gone through huge changes and those changes are very important to how we understand the human role in creation. Children can be introduced to the moon and the sun and the stars very soon in life. Other children, animals, plants, soil, the astounding variety of things that are encountered at every turn. The principle of differentiation is thus incorporated almost in infancy. The world is not a smudge of sameness but a wonderland of new forms and shapes and sizes, and sounds and colors; not a monoculture but a fairytale of surprise and beauty that ought always to remain that way.

One's story, in its cosmological aspect, should also, I think, explain that the origin of life, mine and yours and the child's is a mystery buried deep in the way the universe and the earth do what they do. This is a good place to introduce religion, perhaps, a religion that perceives the natural world to be the primary revelation of the divine, primary scripture, primary mode of numinous presence. Christian religion ought to be divested of residual antagonism toward the earth and embrace its sacredness.

And there is uniqueness, individuality, subjectivity, interiority that all things possess but humans in great measure. Personality, creativity, that find expression in artistry of all kinds, in work and in play make each story peculiarly one's own and makes each person a treasure unto himself or herself. I think this ought to be discovered and acknowledged by the child with the help of the teacher. The reason we are fascinated with ourselves, I have always thought, is because we are, each of us, truly, truly fascinating subjects.

I stress a third principle after differentiation and subjectivity. It's communion. The connection between all

things begins with the child's connection to its parents, and from there it goes out to everything. I like to see children gardening at an early age. Food reveals the connections best, perhaps; the connection to the soil and the sun and the rain. Food is much more than just sustenance. Its spiritual meaning is vast and can be ingested with the eating. What you eat is stuff that was there from the beginning. It has been recycled ten thousand times. Wind and water continually circulate through the entire system. Plato drank this water; so did the dinosaurs. The evolutionary process can be explained here, so that the child knows it belongs in the life system.

But after we have said all that we still have to get to the real problem. How are we to understand the role of the human in the world? For the child, it is enough to be joyful. For the adult I think the answer goes something like this:

The human is that being in whom the earth community reflects on and celebrates itself in conscious self-awareness. The earth is a celebratory event. The end and purpose of all science, technology, industry, commerce, and finance is celebration. This is what moves the stars through the heavens and the earth through its seasons. The final norm of judgement concerning the success or failure of our technologies is the extent to which they enable us to participate in this grand festival.

IV

MORE ABOUT WORK

In this last selection, Jim Berry discusses work in light of the Second Law and the nature of the economic revolution required to sustain this new concept of our "the job."

Once you start thinking about work in certain ways everything takes on a different look. Riding down a four lane highway recently it came over me to observe that all this expanse of asphalt and treelessness is

the result of work. People and machinery were recently all along here clearing and grading and paving. And it's quite likely that those same people and those same machines are somewhere else right now doing the same thing. If you go to a shopping center and look at the amazing arrays of stuff for sale you can think of it all in terms of work. That stuff was produced by people who made their living doing that work. At the same time you observe that all those items represent earth stuff transformed into some sort of consumer goods. You also observe that all of it is going to be in a trash pile sometime soon. From the standpoint of the producer of the stuff, the faster it goes into the trash pile the better. Turnover is what makes profits. From the standpoint of the worker, turnover is important also, for it makes the job secure and therefore income is secure. The society likes it that way. The faster stuff moves through the production/consumption process the more prosperous we all are. True?

No! It is not true. That way of thinking ignores the basic fact that the real bottom line is kept by the earth, and that the earth is right now suffering from a deficit that threatens the life process itself. Life does not exist except on the terms the earth sets. The earth is in charge; the earth sets the rules. There is so much air, so much water, so much soil, so much wilderness so much of the things that life depends on. There is so much capacity to recycle and reprocess. There are so many whales, and so many fish and so much ability to regenerate; so much wetlands, so much iceland, and so much of this mineral or that mineral, things which do not regenerate. And where is the wisdom to take note of all this and to set behavior patterns and religious practices that recognize it.

Is it a good thing to build highways? Well, yes! It is a good thing to be able to get around and roads are necessary. But we have moved into insanity when it comes to roads, an insanity made necessary by the automobile insanity. Despite the fact that the automobile is making a wreckage out of our lives and our environment, we continue to

center our lives around it and to make everything bow down to it. A street in Cary, NC, is stripped of its trees so that there can be two more lanes of automobiles carrying people mostly engaged in movement of trivial consequence. The automobile is God and unless these people building that road are at work they will not have an income and there will be unemployment and that will be a disaster. We have to keep people (and machinery) at work. The capacity to build roads is there; the money is there, the thought of idle capacity is entirely repugnant, let's build. Trees are unimportant; animal habitat is unimportant. Jobs is what matters.

But a job is just a means of getting income. It is our society's way of distributing access to the necessities of life. What is not recognized in the system is the Second Law. Entropy is a necessary consequence of all activity. Work, jobs, invariably transform something out of the earth from one condition to another, and then into discard, from a condition of low entropy to one of higher entropy. Invariably, always. It is a stricture of creation. (It ought to be noted that if it were not so, nothing could happen; it's like friction: a burden but a blessing too.) Well, if the Second Law is in control we ought to pay attention and seek to minimize its effects.

Remember that we have defined work as falling into two different categories: good work and bad work, classified according to what it accomplishes. Work which makes for human well being while respecting the well being of the entire life process is good work; and work which degrades the earth's ability to sustain life over the long term is bad work. When you look at it this way you see the necessity to reexamine the whole spectrum of human activity, nothing less. Our total view of what life is all about is at issue. That is what Thomas Berry has been talking about these many years. The New Story comes down to that. The human must fit into creation in such a way as to complement it, so human work has to be aimed at complementing creation, at being a support for creation, certainly not at being

creation's destroyer, which is what we are right now. It is this kind of thinking that society must embrace as the ecological age gets under way.

Richard Clark of Berkeley, CA, wrote last week to say that he had seen a reprint of our circular on *The New Economics* in the news letter *Human Economy*. Clark sent along a copy of an essay he had written entitled *The Addicted Society: A Green View of Our Socioeconomic System--and the Political Agenda it Suggests*. The opening paragraph:

At the very heart of the ecological problem, the social justice problem, the institutional violence problem, and the oppression of the Third World countries lies a political economic reality that is not yet widely understood. It is that our current economic system requires people to keep busy in some paid activity, even though the essential utility of this work has ever less to do with meeting basic needs and ever more to do with the creation of comparatively superfluous products and services. Growing numbers of workers, by now a large majority, are required to keep busy in this way in order that the 'system' have a rationale for distributing to them those things which are basically valuable, e.g. housing, food, health care. This, as we shall see, is fundamentally absurd.

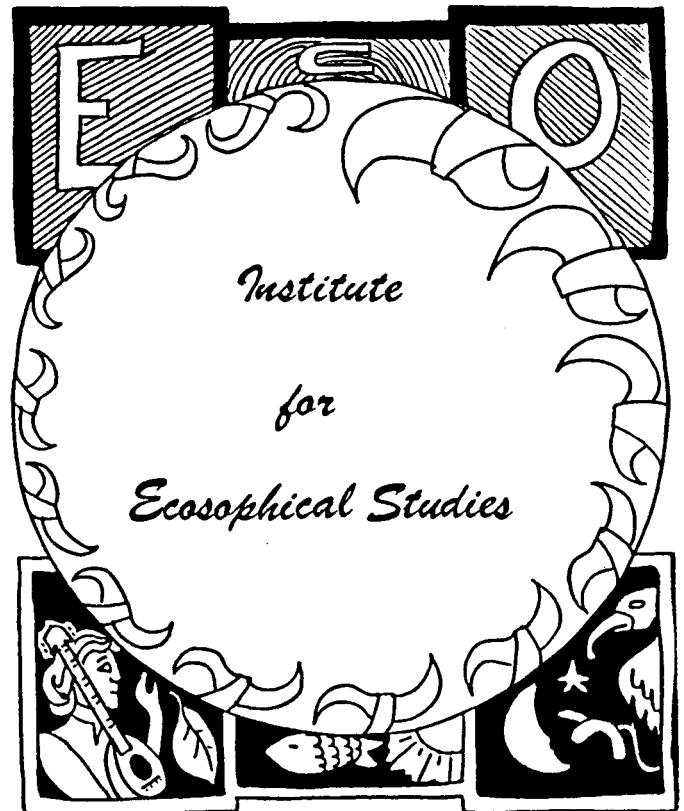
The essay goes on to make it very clear indeed that our economic system is addicted to superfluous consumption and forced to keep going into every expanding consumer and federal debt to sustain the addiction. This must happen "...if growing numbers of people are not to be thrown out of work. In other words, since we have no mechanism by which basic work can be distributed evenly or fairly among those who need jobs and basic good, it becomes necessary for both consumers and the nation to sustain ever greater indebtedness so as to finance the production and consumption of enough to keep most everyone employed...in areas of production that are determined by short term profits and the artificially created needs

of the many, rather than by consideration of societal and planetary welfare."

Clark plans to publish a quarterly journal *The Green Policy Forum*. Write him at 1339 Rose St., Berkeley, CA 94702. He says all this better than I do.

A Harvey Rockman called from Florida. He saw a letter in *New Options* we wrote saying that an economy of minimum production and minimum consumption is the only sort of economy that makes any sense. He is looking for a vehicle to make a movie which makes this point. He is convinced that the logic is so powerful that it must seize the American mind before long.

We are not alone. Nicholas Georgescu-Roegen please note.



Crossing Fahy Bridge

by Cayle

Cars stream past glazed by streetlamps
while soot-stack smoke rivers up the sky
and a jetting flame blues the black waters,
fled by the throbbing second-shift crew

whose exodus glares across,
drowning out the wind's hiss among rails
and the river's leveed trickle
echoing lightly as an eclipsed moon.

Between worlds, the icy river endures
not knowing which whiter or lesser bank
cycles pollutants to the sea
or why it mirrors fires of industry...

Shall my right hand forget its cunning,
lips sing no music, eyes rust away my face,
my lungs exhale a steel-mill haze?
I will hang by an electric cable

and want almond milk and the husk
of every vital thing...and if I forget you
my soul is sisterless, mechanized myth,
and steel roses tender as a kiss.

*(Fahy bridge is an old bridge connecting the
north and south sides of Bethlehem, Pa.

"The Steel" sits between the two sides--ed.)

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