

Growing Environmental Ethics

June 1990
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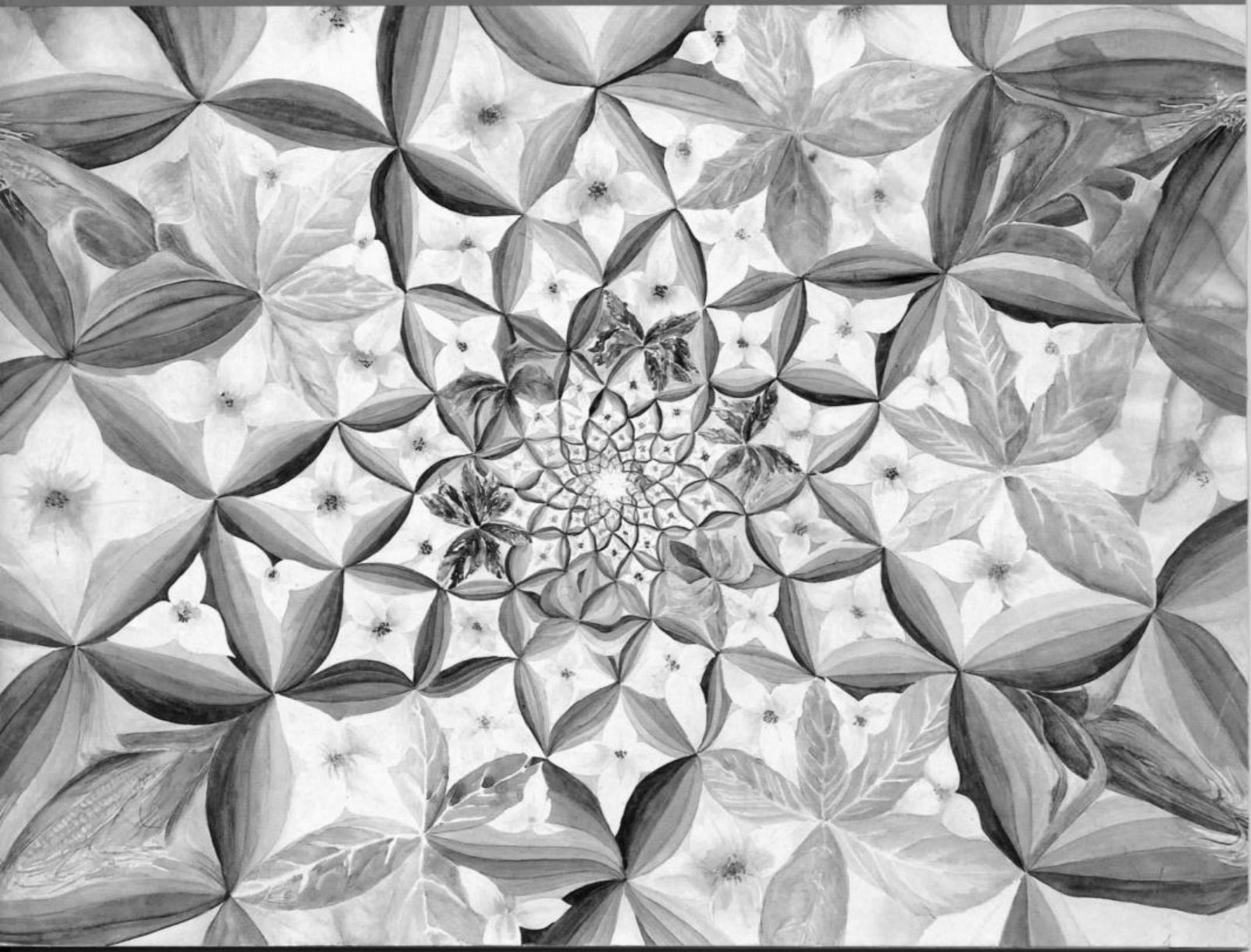
EDGES

NEW PLANETARY PATTERNS

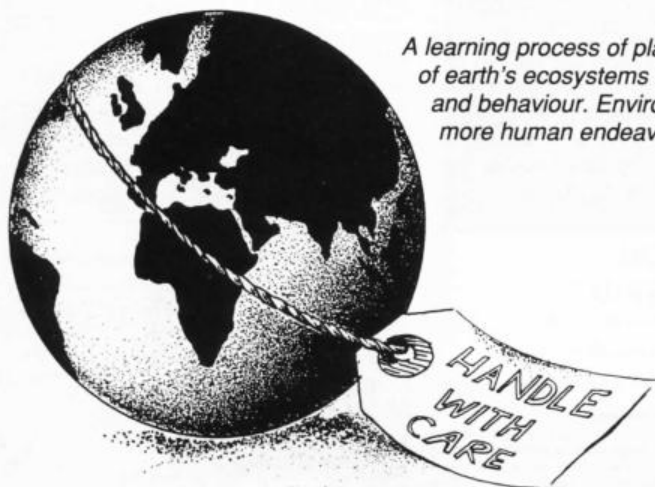
THOMAS BERRY The Seduction of WonderWorld

HAZEL HENDERSON Levelling the Playing Field

DOUGLAS DONEGANI Garden or Gas Chamber?



Growing Environmental Ethics



A learning process of planetary magnitude is occurring. The fragility and interdependence of earth's ecosystems is causing even inertial human institutions to change their thinking and behaviour. Environmental ethics are maturing and growing up to include more and more human endeavours.

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to be treated with integrity

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EDGES

NEW PLANETARY PATTERNS

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Date of Issue: June 1990.

Editorial

As dusk fell one April evening a major power failure forced a large section of Toronto into darkness...and a prolonged reflection. Since the weather was perfect and there was nothing to do inside, neighbours sat out on their duplex porches and lawns. For a couple of hours without lights, TV, refrigerators and stereos we chatted in the dark and went for strolls, listening to voices drift up and down the streets. It all felt very natural, but I wondered if I would be able to survive with unadulterated nature for much longer periods of time. I also began to wonder, "Can nature survive with us, humans?"

There is an obvious ethical question as to whether pollution should be considered a crime just like stealing. With the surge in recycling and the enormous success of Earth Day this year, I have no doubt that millions of other people are rethinking their values on many ethical questions. Environmental ethics are growing to encompass large areas of life that were left previously to priests, politicians or philosophers. But now it is everyone's responsibility.

I would, however, be foolhardy to swallow an ethic that is based on fear or simply on who can shout the loudest. We might easily be led down the garden path through the dark...to a cliff. A good environmental ethic will only grow side by side with understanding and wisdom. This issue of *Edges* is devoted to finding good ground for environmental ethics to grow.

Fr. Thomas Berry, a profound eco-theologian for decades, shows us what we are up against in our own minds and hearts and then shows us a way through. Hazel Henderson scans the global economic and political horizon and finds common ground for everybody. Douglas Donegani paints a picture of options on a planetary scale. Peter Hutton, Anna Wright, Helen Forsey and even the United Nations General Assembly have something important to add to the dialogue on growing environmental ethics.

This is the beginning of our third year of publication. We thank you for your continuing interest in *Edges* and invite you to comment on this and other issues of *Edges* Magazine.

ILONA STAPLES

"XI. THOU SHALT NOT POLLUTE."



MOSES RECEIVES AN UPDATE.

Earth Is Calling

Conversations at the Thomas Berry seminar in Toronto stimulated me and, long after the participants parted ways, kept me thinking about some of the issues we discussed there. I've been thinking about what we agreed we needed to do: that is, to depict the joy of transformation and to make that transformation, as Berry puts it, lyric experience.

The idea is very exciting—new movies, new paintings, poems, everything. However, screenplays, poems and paintings take time to create and usually won't be rushed—and I've got the urge to do something now. Luckily, I've stumbled across something I can do while I start doing my bit to create this lyric experience—advertising. I'm talking about a grassroots kind of advertising that will pop up in unusual places.

More simply put, I've come across a slogan that I now include in everything I do. The slogan is: *Earth Is Calling*. Simplistic? I don't think so, but it is short and punchy; it doesn't need to be explained, and, best of all, it demands a response. *Earth is Calling* is personal and evocative without being bossy. I don't think it will turn people off. Now, although we don't have million-dollar ad budgets, we can still advertise.

I now stamp *Earth Is Calling* on all my envelopes. More importantly, I'm also sharing it with as many artists and media people as I can and am encouraging them to do the same. It's not meant to belong to any one organization or person. The more wildly different sources it comes from, the better.

There are many different places to say *Earth Is Calling*—at the bottom of

invitations; in a classified ad; at the bottom of a masthead; in a press release; on money; on mail; on a cheque; in a character's dialogue; in a title; in a song; in conversation. I encourage you to slip it in wherever you can. We come into contact with a lot of people over the course of, say, a month, even if only indirectly. We can take

advantage of the contact, because, don't forget, we are competing against "Can't Beat The Feeling!" And that's tough competition for any idea, no matter how worthy.

Obviously, a slogan alone is not enough. But as far as slogans go, I think *Earth Is Calling* is a good one. Reclaiming some of our headspace for the great job at hand is a good start, now.

**EARTH
IS
CALLING**

Jens Kohler
Toronto, Ontario

The Edge Effect

I totally agree with your approach that the edges are where it's at. Edges define conventions, boundaries, limitations—some of the most primal facts of our experience. But I was recently reminded that many natural organisms besides humankind are affected by "living on the edge."

This so-called "edge effect" apparently takes place wherever one type of landscape turns into another: where forest becomes meadow, meadow becomes ravine, aquatic plants become open water, and so on. "Wildlife derive a lot of benefit along edges," a naturalist told

me. "Deer like to browse along the edge of a forest. And any fisherman can tell you the best place to fish is at the edge of a weed bed."

Edges are like a whole different type of terrain, an intriguing blend of both adjoining ecosystems, but with an even richer abundance of life. Perhaps edges offer animals both shelter and a clear view of any approaching dangers. Whatever the reason, this only confirms my view that you are onto something big with your magazine. Keep up the good work. See you at the edge.

Gordon Graham
Toronto, Ontario



Oasis In Indiana

A year and a half ago, my brother David and I drove across the country from California to Indiana. We had decided to move to Bloomington, a university town of 50,000, so that we could live with our sister, Ann. I have since claimed Bloomington as my home, the first one, really, that I've had in my 26 years which have been lived in many, many places.

We arrived in October of 1988. In January 1989, I was hired to be the Environmental Projects Coordinator for the City of Bloomington. I am responsible for the city's recycling programs. I have an eight-foot by ten-foot office with a non-stop ringing phone. I suppose I have too much of the old social worker mentality (overworked and underpaid), but I thoroughly enjoy this work and I suppose I'll have plenty of time to make the big bucks later.

Bloomington is a town of many facets: it's a college town, diverse and active. It also has its share of rural life—high school students driving round the square on Saturday night. It reflects much of the diversity I have lived in my own life and has a home for that part of me which is basically midwestern: something that no amount of moving 'round will change.

Recycling has not yet become a mid-western habit. The vastness of space has postponed the landfill crunches that have hit the coasts of the United States so that recycling is relatively new here. Bloomington, however, is an oasis in southern Indiana and, to an extent, our recycling program reflects that. We have monthly curbside collection of glass, cans, and newspapers for 3000 of our 8000 households. Most of the schools in the city are recycling paper and cans; we have dropsites for glass and cans at three locations in the city; we have a site for



The author, on-site, reports that Earth Day in Bloomington was a great success.

the collection of used motor oil, and a recycling centre that takes recyclables, including plastics, recently opened here. Since April 2 of this year we are no longer hauling yard waste to the landfill. It is being separated and composted.

None of our trucks are fancy and we don't have curbside containers for homeowners to put their recyclables in, but the process is working and the demand is growing. The state of Indiana plans to recycle 25 percent of the waste stream by 1995 and 35 percent by the year 2000. We should be at 35 percent by 1994.

This is a great job to be in. I can hardly lose. "Recycling Is Inevitable"

was the title given to the presentation I made to the Daughters of the American Revolution last week. Mid-westerners, keen on common sense, can hardly argue the logic of recycling, as tipping fees go up making it more expensive to throw away, and as all those east coast states come to Indiana to dump here.

It does not surprise me at all that my life has brought me here. Every day I see evidence that change happens practically, that the success of a community rests with the individual, that no one survives in isolation. All that from a bunch of trash.

Jane St. John
Bloomington, Indiana

LETTERS

AIDS Help

I must admit that I was greatly impressed by your "Medicine in the 90s" issue (September 1989). I can attest that this particular issue depicts an accurate picture of the actual state of medicine.

In the fall of '87 I was dying of AIDS, and although medically documented, I did not need to be a doctor to know it. If I am alive today, it is thanks to a product (714-X) developed by Mr. Gaston Naessens, a French-born biologist, who spent the past forty years developing a unique and impressive microscope, as well as an elaborate theory on degenerative diseases. His 714-X has helped thousands of patients worldwide. For me, the main attraction of this product was that it is non-toxic and has no side effects whatsoever.

Incorporating these complementary treatments would seem to be the perfect opportunity to rebalance the medical practice. However, it is perceived as a threat by the medical empire. Orthodox medicine does not agree with Mr. Naessens' theory. In fact, they are not even willing to hear him out. The medical community seems to be going out of its way to destroy the man, theory and microscope before too many people hear about his successes.

Last fall Mr. Naessens was in court facing five charges, including charges of criminal negligence leading to the deaths of two individuals. After a three-week court battle, he was found innocent by the jury. This seemed to unleash the wrath of the medical establishment. Most of the "brave" therapists that dared to successfully administer the 714-X are now facing charges of illegal medical practice. Even a journalist, who had written thoroughly objective articles about Mr. Naessens before the trial, was harassed by legal opponents.

In early January, Mr. Naessens was once more in the Sherbrooke courthouse facing three fraud charges. Before the procedures even began, the Justice Minister, through the Crown Prosecu-

tor, ordered them stopped. Finally a spark of reason glittered from our legal system! It is highly unlikely that the civil charges of illegal practice of medicine will be dropped by the medical establishment. In fact, Mr. Naessens will face more than 60 of these charges in the summer of 1990.

These innumerable trials simply waste time and money, and scatter energies that could be better used to distribute this great man's knowledge. It is very normal for the medical profession to protect itself. What is not acceptable, however, is to stunt any scientific advancement in the process.

Kim Lalancette
Montreal, Quebec

Fascinated With Graphics

I have subscribed to your magazine from the beginning. It is one of the best magazines I receive, and one of the few that integrates body, mind and spirit.

I have always been fascinated with the graphics in *Edges*. I was a little disappointed in the March 1990 issue because the cover looks more like the regular magazines on magazine racks and the inside didn't have as many graphics as usual. The content, though, continues to be outstanding.

Ann Scelba
Jamesburg, New Jersey

Quilting Consciousness

Three years ago, while living in L.A., I began studying Native American culture, particularly the roles of mythology, ritual and symbols in healing. I participated in Robin Van Doren's medicine wheel workshop, which launched for me an exploration of witchcraft. I read most of Starhawk's works, as well as Marion Weinstein and *Mists of Avalon*. As we are now beginning to recognize, women in history who were named witches were simply expressing an authentic feminine spirituality, connected to and growing out of being in touch with nature, and a passion for healing—healing primarily at the level of the soul.

Starhawk, in *The Spiral Dance*, describes the mode of perception of witchcraft. She quotes from Robert Ornstein's *Psychology of Consciousness*, which uses the word "artistic" to describe the mode of consciousness for the right brain. However, this consciousness requires a medium of expression which takes a different form from that used to express left-brain, logical thinking. As I studied this book, I realized my passion has always been the artistic. As a youth, music had been that medium for me. For several years I was without an artistic medium. Recently, I have begun working with quilted fabrics and textiles. Finding fabrics has opened up the universe to me! I feel like a river which had been log-jammed and now can run again!

I've been studying Joseph Campbell's *The Power of Myth*, Jean Houston's works on sacred psychology, including *The Search for the Beloved*, and other works. My primary focus is the co-creating of art forms with an individual, family or team of people in a work setting. These art forms become a part of their visual mythology and perform a powerful role in healing and sustaining health. The designs put them in touch with their own life story, reminding them of the sacredness their life is.

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One of Claudia's quilts

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Thomas Berry, Co-Founder
Ecology and Spirituality Program
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THOMAS BERRY IN THE BEGINNING...WAS THE DREAM

IS THERE A THEOLOGY FOR ECOLOGY?

Newsweek Magazine (June 5, 1989) proclaimed: *It's the Season for a Theology of Ecology*, and named **Thomas Berry** as the "most provocative figure among the new breed of eco-theologians."

In the British journal *The Way* (Jan. 1989), Jesuit theologian **Thomas E. Clarke** initiated a serious study of the challenge currently presented to the Christian theological world by Berry's developing theological vision.

Thomas Berry and Thomas E. Clark, in dialogue with each other and with the participants. The mood is casual and open, the atmosphere is one of serious discussion in a relaxing setting: lakefront, swimming, tennis, walking, etc.





The Seduction of WonderWorld

THOMAS BERRY

"The present human situation can be described in three sentences:

1) In the twentieth century the Glory of the human has become the Desolation of the Earth.

2) The Desolation of the Earth is becoming the destiny of the human.

3) All human Institutions, Professions, Programs and Activities must now be judged primarily by the extent to which they inhibit, ignore or foster a mutually enhancing human-earth relationship."

How and why did this desolation of the earth happen? How did this particular western culture, deriving as it does from a Biblical Christian humanist matrix, provide the basis for such a devastating commercial industrial culture? How has that culture been subject to those catastrophic processes that we witness at the present time? I would put it in terms of five transcendences.

Thomas Berry is an historian of cultures with special concern for the foundation of cultures in their relations with the natural world. He has been active in various ecological bioregional movements since the late 1960s. Since 1970 he has been director of the Riverdale Centre for Religious Research in New York. The following is a partial transcript of the final talk given by Fr. Berry at a weekend seminar in Toronto in March 1990 sponsored by ICA Canada. Tapes of the entire weekend are available.

We are constantly urging people not to get submerged in the material order or the phenomenal order, because our destiny is some trans-phenomenal world; but there is great difficulty implicit in this. Let me lightly indicate the aspects of our tradition that are vulnerable. If we are dealing with the actualities of the present order of the planet, our western civilization is obviously more vulnerable to certain things than the other civilizations.



The first thing that makes us vulnerable is a *transcendent, personal, monotheistic deity*. You might ask how that makes us vulnerable. The constellation of the divine in a transcendent order tends to desacralize the phenomenal world. In addition, the opening chapters of Genesis offer us a transcendent patriarchal deity that was given this status with a certain abhorrence of the feminine deities of the Eastern Mediterranean—all earth-oriented deities. We can translate the early chapters of Genesis as a triumph of the Heavenly Father over the Earth Mother. You can translate the first commandment, "Thou shalt not have an Earth Mother." The plus side of this is that we inherited the special sense of a deity that is beyond the phenomenal world. The downside was that this has led us to treat the phenomenal world with something less than the reverence paid it in those cultures where there is a sacred dimension to trees, to rivers and to the whole of creation.

The second transcendence is the *spiritual transcendence of the human*—the insistence that we do not form a single society with the natural world, that we are not material, that we are spiritual, and as spiritual beings we must have this disengagement from the actual world. In a very interesting way, it makes the natural world vul-

*The industrial establishment
has been trying
to transform the world
with a WonderWorld
millennial vision.*

nerable by establishing the natural world as an external objective reality that can be dealt with in subservience to a higher spiritual reality for which all things exist. So that things do not have intrinsic sacrality; they become sacred by participating in subservience to the human.

A third transcendence is the *concept*



PHOTO BY INTA, TORONTO

of redemption. This concept says that we are not for this world; we are redeemed for some other world, for a transcendent world. The transcendent redemption experience again looks at the natural world as having a certain utility, sometimes as having a certain sacramental value. But on the other hand it is not in itself possessed of a sacred role.

The fourth transcendence is the *transcendence of mind*. This came to us somewhat later through Descartes: there is only mind and extension in Descartes, and this devitalized the world. Descartes stole the soul of things. All the way up to the time of Descartes, there was the sense that every organism was an ensouled organ. It had an *anima*, a term which has been subverted by Jung to other designations, but the primordial meaning of *anima* is the primary organizing, animating principle of a living organic being. Now this existed all the way up to the time of Descartes, but he took that away. For him, birds were mechanisms, everything was mechanism. There was no vital principle, not even a vital biological principle. It was mechanism, and this began the whole mechanistic trend of the modern world. Thus arrived the transcendent mind through which we inherited a transcendent divinity, the transcendent spiritual nature of the human, and a transcendent redemption.

The fifth transcendence is a *transcendent technology*. Technology allows us to transcend the basic biological law that every species should have opposed species, and conditions that limit each species so that no one species could overwhelm the others.

But, with technology, humans subvert that. We subvert the population limits of the planet; we can put off death, we can preserve life, we can take over the planet and we can subvert the whole chemical constitution of the planet; we can subvert the biosystems of the planet in a way that nature, in its transmodern, its non-scientific technological phase, is not capable of dealing with.

There is a final transcendence: a *transcendent goal*. The dynamizing principle of our modern civilization that has brought us to where we are is a powerful stupendous dynamism that has energized the corporation enterprise. The energies that have gone into building the infrastructures of the industrial world are fantastic; the energies put into automobile production, the energies put into the discovery and manufacture of electronics, the energy put into building dams and other mammoth construction projects. At the present time, there are something like 200 megaprojects in the world, each of them multi-billion-dollar undertakings. There is, for example, the tunnel under the

English Channel; a plan for a great highway linking northern Europe with Italy, another project bringing fresh water from the Great Lakes and northern Canada to the south of the North American continent. These are unbelievable megaprojects. For a long while Russia was planning to divert some of the Siberian rivers, to turn them from flowing north to flowing south. There's almost no end to the energies and efforts put into these projects.

The Millennial Illusion

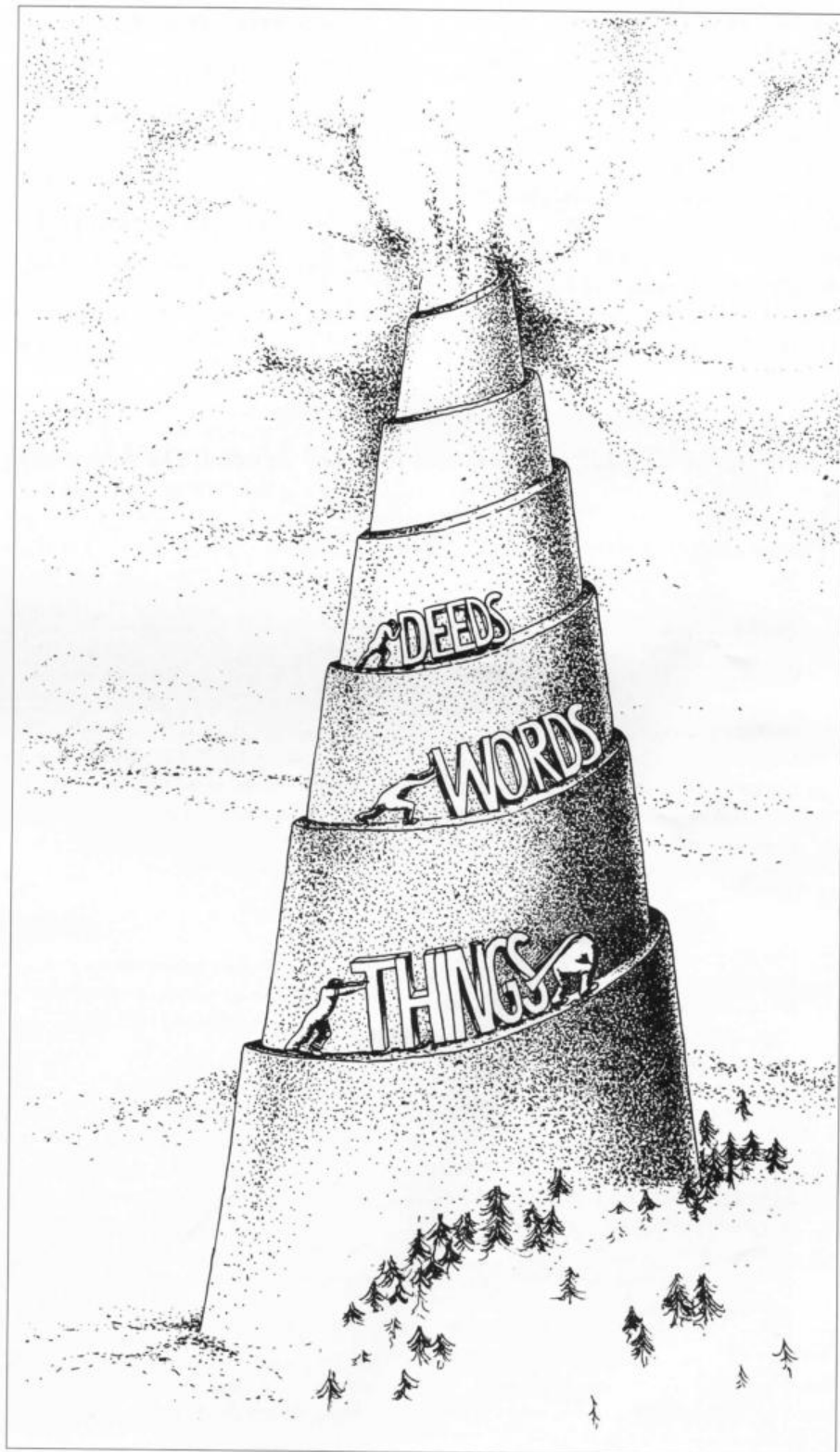
It's the illusion of WonderWorld. Everything that has happened has been multiplied by a tenfold order of magnitude by the "Millennial Vision" that came in through the biblical world. The Millennial Vision that was begun in the apocalyptic literature from Daniel to the latter chapters of the Book of Revelations held a vision of the period when the human condition would be transcended. The greatest single dynamizing force in the whole of history is probably the Millennial Vision—the vision of a time when the human condition would be transcended. In this time, in a final conflict between the forces of good and evil, the Dragon—the evil or destructive force—would be chained for a thousand years during which there would be peace, justice and abundance, and the elimination of the general pervasive agony of the human condition. This would be the reign of the saints.

This vision of that age has sunk deep into the western intelligence so that there is, in the western soul, a certain resentment against the human condition, even to the point of its becoming unendurable. The industrial establishment has been trying to transform the world into this WonderWorld millennial period. That's why all the advertising today is WonderWorld advertising—get this automobile, that bar of soap, this gew-gaw or that trinket and it's going to put you in WonderWorld—we live in a WonderWorld illusion. But what we are really getting is WasteWorld. However, we think we're going to

WonderWorld—and that's the central issue.

This is why, in the program that I am setting up, the upcoming Ecozoic Period has to appear with an attractiveness that counters the seductive WonderWorld.

There are two things that have to be done with the vision of the industrial world. First, it has to be assaulted in itself. Second, an alternative has to be identified, and an alternative that has a particular lyric quality. The alternative cannot promise us that we'll get



beyond the human condition; but it can promise us life, excitement, a world of meaning, a great world.

But we need to be clear that the natural world has, inherent in it, a violence and a vulnerability. The commercial-industrial world has given western civilization many protections against famine, against cold, against heat, against arms, and the limits of things. We have refrigerated food, we have cars, air conditioning, airplanes—a stupendous array of wonders. The human community is not about to give up all that, but we need to be clear that we are paying an awful price for that protection. That is the difficulty, even though the industrial bubble and the whole process that gives us these things is disintegrating.

One final thing about the industrial world. At its present magnitude it cannot be maintained, nor can it ever be done again—it can be done once, and

*We are moving from
a limited democracy
to a more
comprehensive biocracy.*

once only. There are three reasons for this. When these things were done, there was an unawareness of the dark side of the industrial world. Its creators saw and experienced only the bright

side. Now we are seeing the dark side. Those who built the roads, structures, and dams saw them as glorious ways into the future. Now we see the damage that dams do—the damage of irrigation processes, the damage the automobile is doing. We will never again as a community be as much seduced as we were earlier.

The second thing is the financial aspect: it costs a thousand times more to maintain things than to put them up in the first place. We have no money for repairs. Every government is in a deficit. The US is over three trillion dollars in debt. It has a budgetary deficit of between a hundred and a hundred and fifty billion dollars. Then there are the 200 billion dollars needed to clear up the indebtedness of the

Women and the song of the earth

DOROTHY OLINGER

"...and still the singing in my body daily returns me to a love of this earth. I know that by a slow practice, if I am to survive, I must listen to this song."

Susan Griffin in *Healing the Wounds: The Promise of Ecofeminism*

In the dominant patriarchal systems that have prevailed for some 2,500 years, woman was likened to the earth—and man to the heavens. A connection made to debase women in the past may, today, be the means to save women and men, the whole of humanity, and the earth. Where patriarch sought to divide and separate—men from women, women from women, women and men from the earth—a new sense of identity is helping us realize that we are connected, we are part of the living system of the earth.

The human heart beats in unison with the heartbeat of the earth. Until we feel that beat, hear the song of Gaia (mother earth), we are in danger of extinction.

Women know what it feels like to be dominated, exploited, controlled, considered of less worth, expendable. Women have known rape in all its forms—physical, psychological, intellectual, spiritual. So when we speak of

the rape of the earth, women know what is meant. It is more than a metaphor; it is reality.

Rain forest clear-cut for grazing; dolphins trapped in ocean nets and clubbed to death by tuna fishers; medical wastes washed up on New Jersey shores; top soil, billions of years in the making, blown and washed away by careless agri-

*We need new images of power
like webs, nets,
gossamer threads.*

cultural practices; pollution of ground water by toxic wastes; pollution of air and destruction of the ozone layer.... This is the earth—dominated, exploited, controlled, considered of less worth, expendable. Women have tasted this bitter dose; their hearts are ready to hear the cry of the earth and to respond.

We need a new world view, a new myth, a new story. Where there is separation, we need connection; where there is

ranking and dominance, we need linking and equality. Competition and individualism must yield to cooperation and a sense of community.

We need to keep examining our use of power, to see it as a process of interaction between persons rather than a quality possessed by any single individual. We need new images of power like webs, nets, gossamer threads. Power over must yield to power with others. Women's use of power has the capacity to break down polarization and dichotomy and foster community.

Covert activities must give way to honesty and a transparency of intention. Above all, there must be Reverence—that which alone can change things around. This is the new world view—the circle that embraces all, the circle of energy moving among all beings. Reverence begins with ourselves. We must reverence who we are as women, trusting our experiences, entering into them, reflecting on them, drawing from them the deep wisdom needed to make life decisions.

The Global Myth, the New Story that is needed today is the long story of human emergence out of cosmogenesis and earth-genesis. From the first gigan-

Savings and Loans collapse. And so it goes. The budgets are diminishing. The education and health budgets are not there. So, the existing system is imperilled and in decline.

The third thing is that the natural resources are no longer as readily available. The petrochemical industry is already beyond its apex and the downfall is coming. Within ten years, people will be paying up to eight dollars for a gallon of gasoline. Beyond that, the petrochemical industry will be dissolving. All the oil in Alaska will not keep the US going for more than six to eight years. No matter how much fossil fuel is discovered within the lifetime of our children, the petrochemicals will be so extensively exhausted that the petrochemical

industry as we know it today will not be possible.

Countering the Seduction

It's in this context that we have to counter so many of the most forceful structures that have determined the world as it is. That is why we must have a total restructuring of the story of the universe, a total restructuring of the professions, a total restructuring of the vision of the future. All the human professions must recognize their prototype and their primary resource in the integral functioning of the earth community. The natural world itself is the primary economic reality, the primary educator, the primary governance, the primary healer, the primary presence of the sacred, the primary moral value.

In economics, it is clear that the human economy is derivative from the earth economy. The glory of a rising gross national product with an irreversibly declining gross earth product is an economic absurdity. The only viable human economy is one that is integral with the earth economy.

The ecology issue is not for some one course in education. It is the course, the curriculum, the structure of the whole business. It is the background for medicine, it is the preparation for law. It is not a course; it is *the* course. And it is the unity of the sequence of education from kindergarten to professional school. It is the comprehensive context of things. So now college education needs to move into an ecological phase. I am even

tic explosion of light energy some 20 billion years ago, through the 4.6 billion years of earth moving into the living planet that is the marvel of our known universe—we are in the story!

We exist by the same basic principles that enabled all this to happen, and without which we are doomed to extinction. These principles are diversity: the uniqueness of each being, essential to the evolutionary process; interiority: the inner mystery and spirituality of each being that calls for reverent response; and communion: the union, the connectedness of all beings, the community of beings of which we are part.

When we are aware of these principles, when we incorporate them into every facet of our lives because we know we are part of the whole, then we have made the New Story our own, the new world view that can bring sanity and hope—hope for a better future on this planet for us all and generations to come.❖

Dorothy Olinger is director of Global Education Associates Upper Midwest. Reprinted with permission from Worldwide Women News, a quarterly news journal published by Minnesota Worldwide Women, Fall 1989.



prepared to accept business students and the economic world as the central aspect of the college. Rather than the liberal arts, let's teach economics, but a valid economics, and you'll teach everything else right and everything else will fall into place. It has to be a valid economics, because economics is as sacred as anything else. Economics has to do with food and shelter and clothing, with existence, but it has been degraded into a mere utilitarian process, an exploitative process—but that's a subversion of economics. And if the small religious college wants to do something religious, it could teach the discipline of economics, but structured along the line of the integral economics of the planet. The distortion of economics is at the base of social problems today, so the best way to approach social problems is to validate the whole world of economics.

Education is already late in its revision. But we can expect that it will, in the future, be extensively altered. Education will be defined as knowing the story of the universe, of planet Earth, of life, of consciousness, all as a single story. There's no other way of discovering the role of the human in the universe. Just as the earth is a bio-spiritual planet, the universe is a physical, spiritual biological reality. Knowing the story of the universe, of the earth, of life and of consciousness all as a single story is where the synthesis is. The humans articulate this story in a particular human way, the whales do it in their way, the birds do it in their way, the worms in the earth do it their way, insects do it their way. Every particle of the universe tells the story in its own context. It's a kind of symphonic process. When we exile the scientific telling of the story from the humanities and theology, we do not allow them to be an integral expression of the great story.

And so with governance. We are moving from a limited democracy to a more comprehensive biocracy. It could be said that democracy is the conspiracy of humans against the natural world, just as the US constitution is the conspiracy of humans against the North American continent. What we

need is not merely a constitution for humans, but a biocracy and a constitution for the continent. We need a governance that is participatory processes extended to the larger community, and already the basis of that has been established in environmental impact statements—a first step toward a biocracy. The United Nations Charter for Nature is almost completely unknown. It should be in the hands of everybody. In the UN vote on the Charter, 111 voted for it, 18 abstained, and only the US voted against it. But this is going to change. I may be wrong, but I believe that in the US general election of 1992, the environment is going to be the top issue. Any candidate who really comes out in a clear way to a commitment to the ecosystems of the country will have a great advantage. ♦

*The basic biological law
is that every species should
have opposed species,
and conditions that limit
each species so that
no one species can
overwhelm the others.*



The Tree Will Continue to Grow Except at This Point, 1968-1978. By the Italian artist Giuseppe Penone.



World Charter for Nature*

*Resolution 7 of the 37th Session of the United Nations General Assembly
28 October 1982*

The General Assembly,

Having considered the report of the Secretary-General on the revised draft World Charter for Nature,

Conscious of the spirit and terms of its resolution 35/7 and 36/6, in which it solemnly invited Member States, in the exercise of their permanent sovereignty over their natural resources, to conduct their activities in recognition of the supreme importance of protecting natural systems, maintaining the balance and quality of nature and conserving natural resources, in the interests of present and future generations,

Adopts and solemnly proclaims the World Charter for Nature.

The General Assembly,

Aware that mankind is a part of nature and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients,

Convinced that every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action,

Persuaded that lasting benefits from nature depend upon the maintenance of essential ecological processes and life support systems, and upon the diversity of life forms, which are jeopardized through excessive exploitation and habitat destruction by man,

Firmly convinced of the need for appropriate measures, at the national and international, individual and collective, and private and public levels, to protect nature and promote international cooperation in this field,

Adopts the World Charter for Nature which proclaims the following principles of conservation by which all human conduct affecting nature is to be guided and judged.

GENERAL PRINCIPLES

1. *Nature shall be respected* and its essential processes shall not be impaired.
2. *The genetic viability* on the earth shall not be compromised; the population levels of all life forms, wild and domesticated, must be at least sufficient for their survival, and to this end necessary habitats shall be safeguarded.
3. *All areas of the earth, both land and sea*, shall be subject to these principles of conservation; special protection shall

be given to unique areas, to representative samples of all the different types of ecosystems and to the habitats of rare or endangered species.

4. *Ecosystems and organisms*, as well as the land, marine and atmospheric resources that are utilized by man, shall be managed to achieve and maintain optimum sustainable productivity, but not in such a way as to endanger the integrity of those other ecosystems or species with which they coexist.

5. *Nature shall be secured* against degradation caused by warfare or other hostile activities.

Vote: 111 in favour, 1 against, 18 abstaining, 26 absent

Other highlights of the resolution

Functions

10. Natural resources shall not be wasted, but used with a restraint according to the principles set forth in this Charter.

10a. Living resources shall not be utilized in excess of their natural capacity for regeneration.

11a. Activities which are likely to cause irreversible damage to nature shall be avoided.

11e. Areas degraded by human activities shall be rehabilitated for purposes in accord with their natural potential and compatible with the well-being of affected populations.

12. Discharge of pollutants into natural systems shall be avoided and where this is not feasible, such pollutants shall be treated at the source, using the best practicable means available.

Implementation

14. The principles set forth in the present Charter shall be reflected in the law and practice of each State, as well as at the international level.

24. Each person has a duty to act in accordance with the provisions of the present Charter; acting individually, in association with others or through participation in the political process, each person shall strive to ensure that the objectives and requirements of the present Charter are met.

* excerpts

The Healing Rhythms of Nature

Helen Forsey is a member of Dandelion, an intentional community on a 50 acre farm in southeast Ontario. Helen Forsey has been concerned for many years with the relationship between feminism and non-violence in daily life. Dandelion is part of the Federation of Egalitarian Communities with a central belief in cooperation, equality and non-violence; and brings people together for that purpose. The following is adapted from a telephone interview with Helen in March 1990.

At our community, winter is when we make hammocks to distribute to stores across the country. There is lots of office work to be done and winter is the time to get the finances and books up-to-date. We also do indoor work on buildings. The main outdoor work is bringing in firewood. It's a time for reading and studying, for getting up-to-date in our own thinking, and for planning and designing things for the spring and summer. The greenhouse grows spinach, lettuce and bok choy all winter.

When spring comes, it's time for fixing up the pasture fencing, planting in the gardens and pruning fruit trees. A springtime flood can so cover the roads and fields as to make our own place unrecognizable.

Summer is time for weed-

ing, mulching and tending the gardens. One summer it got so dry that a pair of blue herons had to nest very close to our bridge. I walked by them every morning at 7:30 on my way to the hammock shop and the two little heron babies would be out on a tree branch making their funny croaking noises. We all got used to each other even though normally, herons are very shy.

People give very different answers on why they want to live closer to the land. For myself, I felt alienated in the city. There was too much stuff between me and the earth. Living on this farm gives me a feeling of groundedness, of being in touch with something real. Dealing with animals and plants on a daily basis and working with my hands is a balance for the intellectual work that I do. If I go and cultivate or spread manure with the tractor, my consciousness goes to other states. I find that my best ideas can come during that time. That type of labour with the soil is a time of sorting through things that are difficult or challenging, both in political life and in my personal life. It provides balance.

But there is also much more going on than simply the type of thinking that occurs, say, on a long drive. When I am on that tractor, I

am working on how to get around a field without having to go over the same area twice. I am figuring out where the rocks or hills are so that maybe I will have to come at it from a different direction. At a conscious level, my mind is working on these types of thing. Much of the political and personal sorting out is not directly an intellectual process but I feel it happening so that when I get back to the house, it feels like a layer of sediment has been separated out.

Many people say they are looking for a more integrated lifestyle. On the farm, I am much more aware of the connections between things. We all know in our head that everything is connected to everything else. But when you actually live in a place where you are dependent on the sun, rain and warmth, it makes perfect sense that your moods are just as much affected by the weather as what you can or cannot do, and even how fast you go about doing things. People

*You can never fully complete
a task and you can never compartmentalize.*

who are in close contact with small children have some of that same experience. You can never fully complete a task and you can never compartmentalize.

There are many types of healing experiences on the farm. Some are as simple as leaning up against or hugging a tree or listening to water. Watching the animals is most beneficial. One of our members used to spend half an hour or so quite often simply watching the chickens. Sometimes they look stupid and sometimes they seem very smart. He would come back up to the house for supper and tell us about what he had seen the chickens do that day. We would all end up laughing.

The rhythms of nature have a great effect. Waking up with the light and going to bed with the dark fits me very well, even though I don't get to actually do it very much. But the further I get away from that the more out of synch I feel. Then there is the quiet, the natural sounds, the natural

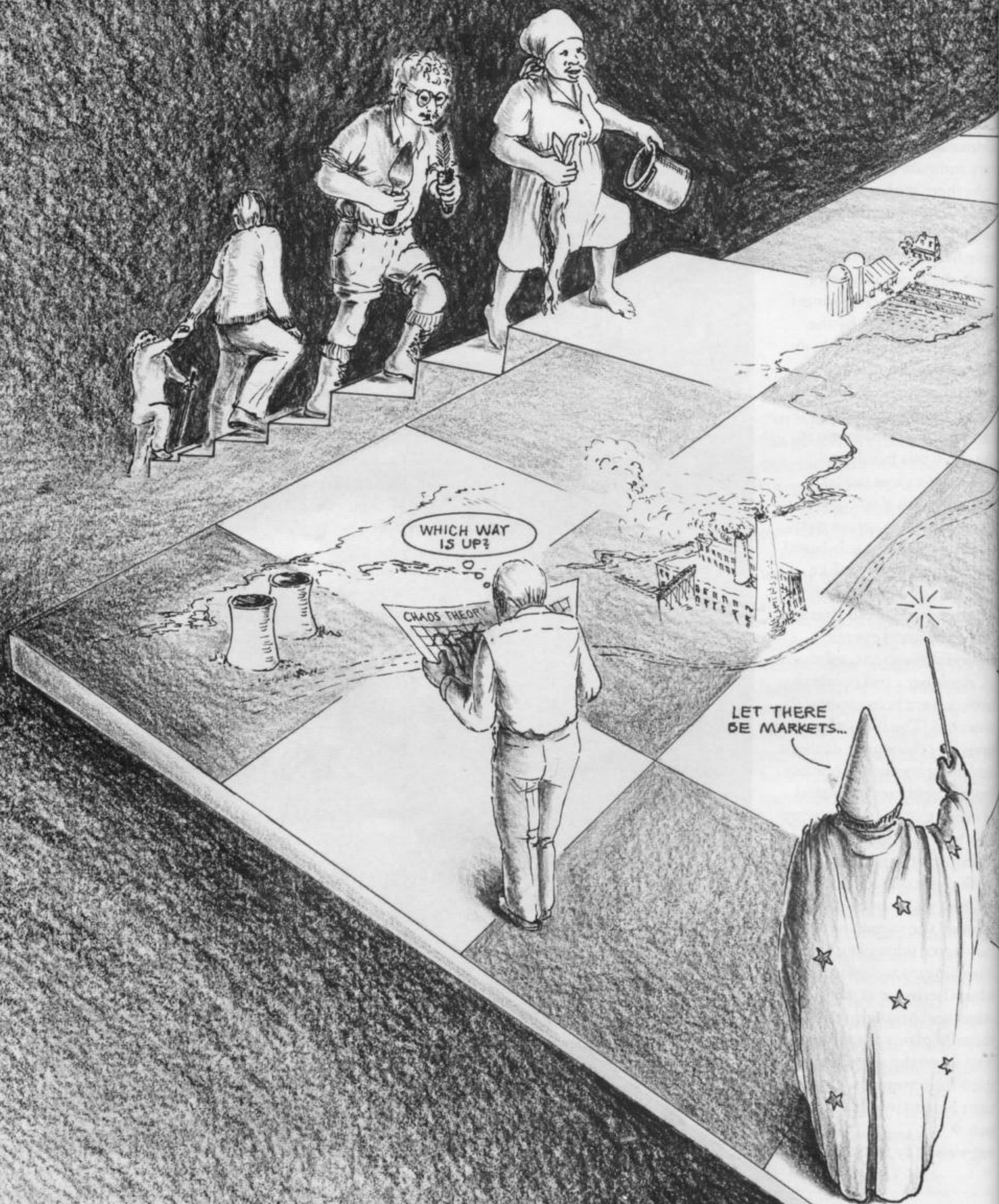
silence and the dark and the very intimate sense of being right there with it when you step outside into the full moon and the shadows. I have become very aware of when the moon is new, or when it is full. In the winter time, you can walk by the reflection of the starlight on the snow, even in a new moon. Last year, a full moon fell on the winter solstice and walking at midnight in the snow was fabulous.

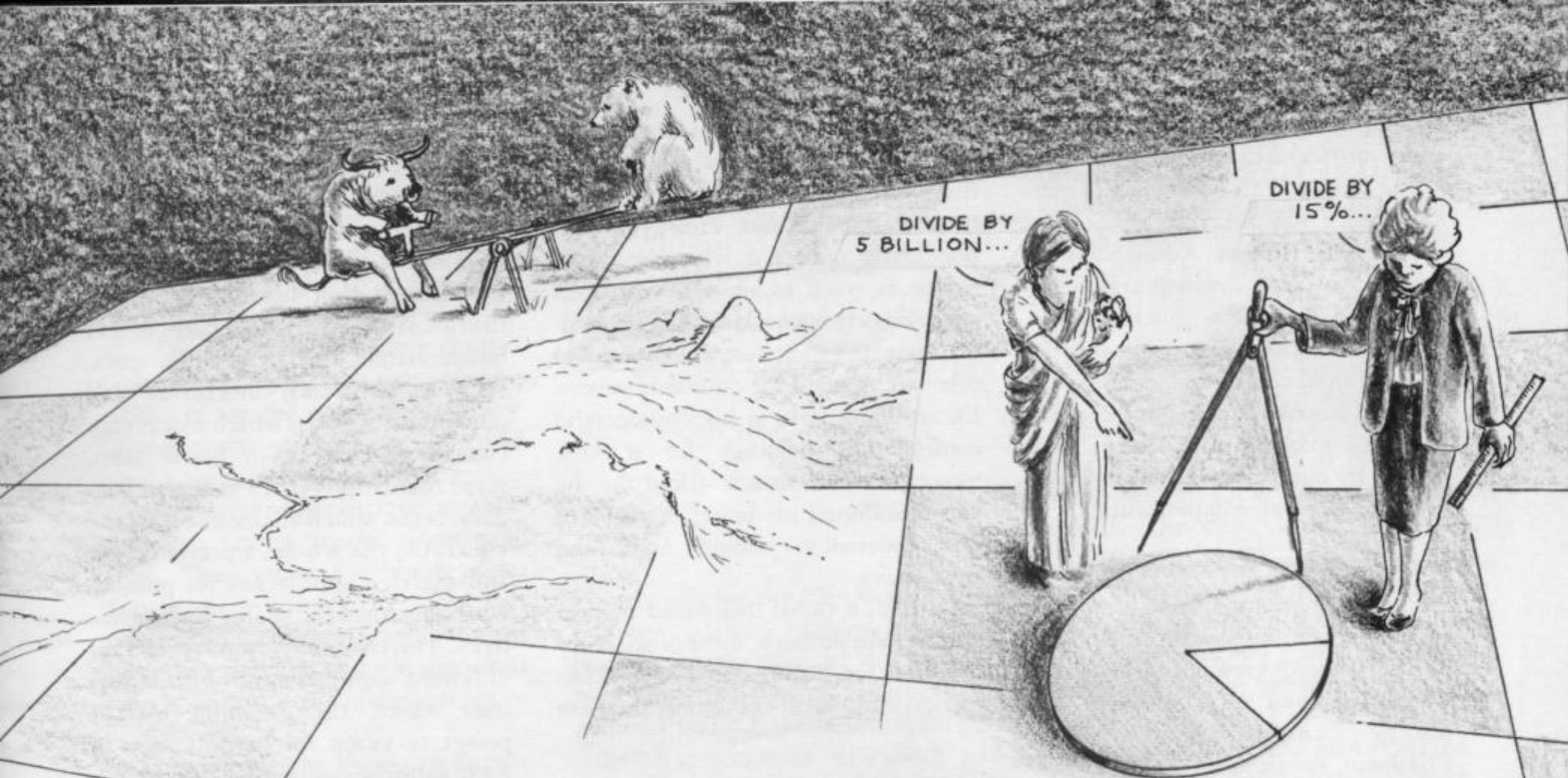
Today a great deal is being written about and picked up from native spirituality, from the earth-based spirituality of people like the Celts and from other nature people of old Europe. The rituals and events around the seasons, solstices, equinoxes and points in between are being reempowered. The roots of traditions like the winter daylight returning around groundhog day are being rediscovered. My own experience of living on a farm makes this reempowerment more real.

We've made a practice of taking a walk once a week through the swamp or pasture to see what plants are blooming, to recognize which herbs are at what stage, and to take cues from the wild plants around us. And when the snow flies and the winter comes, we are right here to watch it happen. ♦

Interviewed by Bill Staples







Levelling the Playing Field

HAZEL HENDERSON

The debate now shaping up between economics versus long-term environmental ethics has been brewing for over a decade. Economists whose intellectual investments and clients are tied to the declining sector have been lobbying environmentalists and insisting that it is we who need to learn economics, rather than they who need to learn ecology and systems sciences. Economists still claim that economics provides the best overall theoretical framework for policy, while environmentalists insist that it is economics which must now find its place in broader, inter-disciplinary models. Obviously, economists prefer market "solutions" and their own narrow models of "efficiency" and "productivity" with which they are familiar. They also exhibit a propensity to reduce every-

thing possible to money coefficients or "shadow" prices. Ecologists and system theorists use many other coefficients: time, hectares of land, infant mortality, literacy levels, etc., and this "politics of research methods and epistemologies" shows few signs of resolution.

The Bush Administration has endorsed, predictably, "market solutions" such as effluent taxes, incentives (i.e., subsidies), and pollution licenses. Now all these should have a place in the mix of options. However, the most controversial proposal is to allow these licenses to pollute to be traded between companies in newly expanded markets, so that companies, for example, who happen to be in compliance with air-quality standards, can sell their rights to spew out more pollution to those companies who are still violators; or sell pollu-

tion rights to companies who want to come into the area and site a new polluting facility. This perversion of market theory was used in some cases during the Reagan Administration, and I have made detailed arguments against it elsewhere. Such policies grow like noxious weeds out of neo-classical market theory and from economic textbooks that do not recognize the way markets are distorted by power, by unequal access to information, and by income opportunities.

Market Theory Gone Haywire

This kind of misapplication of market theory to political, social and public health problems grew out of the famed Chicago School of Economics. Its leading proponent is Milton Friedman, co-author of *Free to Choose*. This book highlights the main concern of his theorizing, namely individual freedom in the market, rather than the new concerns of the global commons. These doctrines of the Chicago School have pervaded many of the nation's law schools and are taught as "Law and Economics." They assume that our democratic political system is simply analogous to yet another marketplace, where conflicts can be worked out between private parties and interest groups. By using welfare economic principles such as compensation for damage caused to others by market activities, or their willingness to pay to avoid harm, they thus avoid the need for much regulation. Some of these ideas do still work in small com-

munities where the social fabric is still intact, where moral and ethical sanctions still apply to control purely self-interested behaviour. However, it is hopelessly outdated where common resources, such as air, water or open space must be shared in today's crowded urbanized societies, where win-win rules are needed for equitable access. Even Judge Bork, in his unsuccessful confirmation hearings for a U.S. Supreme Court seat, testified that he had abandoned his belief in much of this theorizing behind Law and Economics.

Although these misplaced market theories are perhaps, most of all, inappropriate for dealing with our environmental and global commons, they are

M-m-m, judging by the limited vocabulary, either a Martian or an economist.



Hazel Henderson is an internationally recognized futurist, author and lecturer. She is Director of the Alternative Futures Programme at the University of Florida, a director of the Worldwatch Institute, an advisor to the Cousteau Society and the Calvert Social Investment Fund. Her books, *Creating Alternative Futures: The End of Economics* and *The Politics of the Solar Age: Alternatives to Economics* have challenged traditional economic and political thinking and have provided well worked out alternative pathways. Her articles have appeared in

over 200 journals and she has lectured in more than 20 nations. She has been very active in the creation of community-based economic interchange systems that draw on her insights into ecology and planetary ethics. She lives in Florida.

What follows is an excerpt from her address to the Pacific Globescope Conference at the Biltmore Hotel, Los Angeles, USA, on November 3, 1989. © Copyright 1989 Hazel Henderson. This excerpt will also appear in her forthcoming volume, *Business Ethics and the Environment*, Quorum Books, Westview Press, Westport, CT, 1990.

espoused by many in the Environmental Protection Administration, the Congress and even some environmental groups with persuasive staff economists. The proposals for marketing pollution licenses are often thrown in with the whole range of less questionable uses of the tax code, such as subsidies, incentives and other price signals, which can nudge change as well as, or better than, some regulations (such as higher gasoline taxes, which are essential, in my view). On the whole, I prefer taxing and user-fee approaches for producers rather than subsidies and incentives. The latter too often create a set of "client" companies or whole industries which then acquire market power to lobby for perpetuation of such subsidies—creating tilted playing fields in the process.

To Protect Our Environment, a study sponsored by U.S. Senators Tim Wirth and John Heinz, contains many useful policy proposals toward creating new markets and price signals. At least, the truth that it is humans that create markets and not God, or magic forces, is clearly stated. The costs to taxpayers of these additional bribes is acknowledged, along with attempts at comparison with new revenues from effluent taxes—and comparisons with regulation and costs of legal and enforcement delays and of the endless law suits involved. The assumption is that all these intricacies and interacting variables can be modelled with economic tools, and that those environmentalists who participated were fully cognizant of the flaws in these models. However, economic theory is so perversely impenetrable that one has to be an expert in order to critique its deeply buried assumptions. It is more likely that the non-economists were overawed or did not wish to display their incomprehension. However, the report also includes recommendations that markets be created to trade pollution rights and licenses as well: for controlling air pollution, acid rain, greenhouse gases, surface and ground water pollution. These need much more critical examination and rebuttal on many grounds.

These marketable licenses to pollute imply that a right to pollute exists, in spite of protestations to the contrary, and since there is currently no Constitutional right to pollute, the whole approach sends the wrong signal. The spectacle of private companies trading together the rights of third parties to breathe clean air is sinister. Human rights cannot be abridged so easily, particularly when neither the potential victims nor their representatives are seated at the negotiating table. Thus, creation of these pollution markets invades the social and political arena in new ways that must be widely debated and not discussed merely within economic concepts of "efficiency."

For example, the Project 88 Report was directed by economists with funds provided by foundations. A citizen-based group, The Environmental Policy Institute, served only as "fiscal agent" for the project "as part of an effort to stimulate diverse points of view about environmental problems." Various environmental group representatives agreed to be listed as only "contributors, reviewers or staff," with further caveats that the report did not necessarily reflect the views of their groups or the "fiscal agent's other funding sources." To an old science and public policy hand like myself, Project 88 looks like the brain child of a particular financial and economics constituency more committed to the rear-view mirror issues of baling out the declining, unsustainable sector, than focusing on creating markets and price signals to fertilize the growth of the emerging, sustainable sectors of the future.

Fighting Pollution Licences

What have been the arguments used in favour of marketing pollution licenses? It is said, first, that regulation hasn't worked well and pollution is a fact of industrial life. Second, since pollution can't be eliminated, why not just recognize this reality and tax or license it?

Third, it is argued that we need to use both the carrot of subsidies and the sticks of taxes and regulations.

*The spectacle of
private companies
trading together
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is sinister.*

Fourth, offering the right to trade their pollution permits enables companies that are cleaner to make more money by selling these permits to dirtier companies. Finally, it is said that these policies will give us more "efficiency" and "bang for the pollution control buck." These arguments are less than persuasive for the following additional reasons beyond the constitutional one already cited.

Firstly, it is egregious to claim that regulation hasn't worked well, since much progress has been made, and only during the Reagan years has it begun to fail badly, since the policy of his Administration was to de-regulate the entire economy, and the EPA was singled out for systematic budget cuts and generally decimated.

Secondly, one of the real blocks to better enforcement has been that the burden of proof for pollution and toxic hazards in the environment was placed on the general public and the EPA and other enforcement agencies. This is very different from, for instance, the Food and Drug Administration, where

companies and all manufacturers have to take on the burden of proof that the substance be tested until it meets the GRAS (Generally Regarded As Safe) standard. This reversed burden of proof has allowed endless, costly legal delays and required enforcement agencies to hire thousands of scientists and lawyers to testify through appeal processes that dragged out over years. This generally prevented the logical regulation of these hazards at the source. The new California Toxics Law, Proposition 65, implemented in 1988, puts the burden of proof back into the marketplace, thus saving taxpayers millions and speeding up the regulatory process, applying toxic status to more chemicals in the past twelve months than the EPA managed under the Toxic Substances Control Act in the past twelve years.

Thus the fight over marketing pollution licenses has only just begun. As Jon Mills, former Speaker of Florida's House of Representatives says, "If these rights exist, what is to stop me and a group of my environmentalist friends from going into that same market and out-bidding all the polluting companies? We could take them off the market—but then, that's what we pay our government enforcers to do! Oh, you say that only polluters can enter these markets, not law-abiding citizens? What is fair about that?" I might add, what will stop us then, from setting up markets to trade licenses to commit felonies? And will there ever be enough money in the public treasury to bribe everyone to abide by the laws?



COMPLEMENTARY INDICATORS OF PROGRESS TOWARD SOCIETY GOALS

© RAHEL HENDERSON, 1988

EDUCATION
literacy levels,
school dropout and
repetition rates



HEALTH infant
mortality, low birth
weight,
weight/
height/
age



NUTRITION



POLITICAL
Participation and
Democratic Process



**STATUS of Minority
and Ethnic
Populations and
Women**



**AIR & Water Quality
and Environmental
Pollution Levels: air
pollution in
urban
areas.**



SHELTER



CHILD Development



BASIC SERVICES
water, sanitation,
telephones,
electrification, etc.



**BIODIVERSITY and
Species Loss**



**CULTURE,
Recreational
Resources**



ENVIRONMENTAL
Resource Depletion:
hectares of land,
forests lost
annually.



The good news about the prevailing cultural confusion over our changing values and goals, ethics and regulations, is that these issues are reaching higher thresholds of public awareness and debate—in the US Congress, on Wall Street in the corporate sector and in the community in schools and in the family. The whole world has changed and we are now debating how we need to change the game, the rules and the scoring system. Arguments for using “the magic of market forces” to achieve social and regulatory goals have been a constant and sensible refrain in American politics.

Debate Trickles Up

Our confusion was that we were blinded by economic dogma to also hold the contradictory belief that we did not actually create these markets, but rather that they were derived from some original state of grace, or “human nature.” As I have noted elsewhere, invoking “human nature” to buttress one’s political beliefs or policy is a very old strategy. Furthermore, while it is true, as Adam Smith said, that humans have a propensity to barter—indeed we have been doing it since we came out of the caves—the social innovation of creating a nationwide system of markets as a primary resource-allocation mechanism is a fairly recent and brilliant human invention. It was only some 300 years ago in Britain that a package of social legislation to create this national system of markets was introduced and passed by Parliament. It rolled back ancient cultural customs of feudal obligations and rights and the older reciprocity and redistribution methods of resource allocation methods still used by societies such as the USA and Britain.

In fact, one of the most critical errors of economic theory has been the omission of the informal, unpaid sectors from its models (for example, those involved in parenting, do-it-yourself, mutual aid, volunteering, food-raising and bartering.) I refer to this sector as “the love economy”—which all societies bogging down in

economism are now rediscovering as the unseen half of the economy.

So, of course, we should create new markets to help eliminate pollution or keep it within Nature's regenerating tolerances. But let us take credit for our intelligence, rather than keeping up the pretence that these are "magic forces" or that the propensity of humans to barter was invented by Adam Smith, or that capitalism is the only context in which they are or can be used. And let us remember that all human societies depend on sets of explicit and implicit values, ethics and morals; and the more we can agree to, and inculcate these ethics as responsibilities which go along with our rights, the less we will need police and external enforcement. Indeed we can use markets much more than we do now to shift our wasteful, unsustainable sector into the future, and create whole

new industries based on cleaning up, recycling, future sustainability and even environmental enhancement and restoration.

Ethic Driven Markets

To move forward and achieve these goals, there already is a wide consensus among economists and environmentalists that we must, as soon as possible and by a range of appropriate means, move to full-cost pricing, that is, put as quickly as possible all the longer-term social and environmental costs of production back onto company balance sheets, so that the products and services may be truly priced. Obviously, there are many long-term costs that we cannot hope to fully account for, such as ozone depletion and public health risks. This is why we can never rely only on prices. Other forms of feedback, mentioned earlier, must all be

used where most apt for the problem at hand. These external costs can be internalized by regulations, mass media exposés, votes, public opinion, consumer action, boycotts of offending products and "buy-cotts" of environmentally superior products. Add to these measures the imposition of larger bounties on recyclable cans and bottles, the sales efforts of pollution-control companies, of recycling and conservation companies and the continued educational campaigns and lobbying efforts of environmental groups.

Better consumer information and product-labelling is already creating its own marketing opportunities for pesticide-free organic foods, natural cosmetics, environmentally sound paper products, household cleaners, solar and energy-saving light bulbs. In addition, we can mention the efforts of the upstream industries which are

NEW INDICATORS OF COUNTRY DEVELOPMENT

(beyond money-denominated, per capita, averaged growth of Gross National Product).

A reformulated GNP to correct errors and provide more information includes:

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PURCHASING POWER PARITY (PPP) corrects for currency fluctuation.

INCOME DISTRIBUTION: Is the poverty gap widening or narrowing?

INFORMAL AND HOUSEHOLD SECTOR PRODUCTION measures productive hours worked (paid and unpaid).

DEDUCTION OF SOCIAL AND ENVIRONMENTAL COSTS: a "net" accounting which helps avoid double-counting.

ACCOUNT FOR DEPLETION OF NON-RENEWABLE RESOURCES

ENERGY INPUT/GDP RATIO measure of energy-efficiency, recycling.

MILITARY/CIVILIAN BUDGET RATIO effectiveness of government and diplomatic skills.

CAPITAL ASSET ACCOUNTS for built infrastructure and public resources.

COMMUNITY BASED ACCOUNTING to complement current enterprise-based accounting.

helping old companies change their processes, conserve their energy and recycle their "by-products," former pollution and waste back into their production stream, or find new uses for these unappreciated resources.

Of course, all these new markets are either values-driven or regulation-driven. For example, at a recent meeting of the World Business Council, one of my fellow-speakers, Dean L. Buntrock, President of Waste Management, Inc., a multi-billion-dollar corporation, began his talk by stating clearly that his company and its spectacular growth was "regulation-driven." Moving further upstream to the securities markets, we see the outstanding success at promoting better environmental practices of the socially responsible investing movement, whose investors now account for \$450 billion worth of assets screened for their longer-term social and environmental concerns.

Here again, changing values created this growing market niche, at first scoffed at by Wall Streeters. The ethical investment movement's Valdez Principles and Sullivan Principles (covering investment in South Africa) are now regularly covered by the financial press for their effects in corporate boardrooms. The energy-conservation market, created by OPEC and energy-efficient standards set in the 1970s, is still holding its own; it was not completely rolled back in the Reagan era. This market is poised to resume growth in the US as it rediscovers that its energy dependence on imports has increased. Its competitiveness internationally is still hampered by the fact that it takes the USA two and a half times as much energy to create an equivalent unit of GNP as it does Japan or our European trading partners. With new problems posed by global warming trends, the shift from fossil fuels to further conservation and alternative renewable energy is inevitable.

Marketing Global Commons

In fact, in my own environmental work, it is necessary to move even further upstream and survey emerging

"This spray—he's poison!"

Watty sat on his haunches with his lean arms resting on his knees, staring out at the paddock of lettuces. His heavy brows overshadowed deep-set black eyes as they squinted into the Australian heat haze, and the frown on his forehead highlighted the lines worn by 60 years of living in the North. The flies made frenzied attacks at his nostrils and eyes in search of moisture, but he was used to them, and a small twitch or blink would send them away for a few minutes of respite.

The lettuces were the community's first efforts at growing vegetables. They had hoped to feed themselves and have enough left over to sell in Derby where fresh vegetables usually had to be flown up daily from the South. A small group of men had got together to read pamphlets about horticulture and decided that they would grow lettuces as their first crop. There they grew in front of old Watty in all their glory, with each lovely new green shoot being eaten by bugs almost as it appeared. Four men from the community joined him as he sat in the dust, all of them looking gloomy.

"Them lettuces, they don't look too good, do they?" was the first comment from Tommy, the group's hardest worker.

"Bloody awful. What's wrong? Does anyone know what it is?"

Danny Taylor took out the well-read pamphlets and laboriously reiterated the instructions on planting and care, but could see no mention of what might be eating them. "What we gunna do, Watty? You used to grow food back in the mission days—can

you remember what them missionaries did?" Danny asked.

"They sprayed them with white stuff," said Watty, "all over the place they sprayed that stuff. We can get some in town at the store."

Next day, they sent young Billy on the long and dusty journey into town to buy some white spray from the store.

"What can we do for you, Billy?" asked the shopkeeper.

"Old Watty, he wants some white spray for the lettuces Mr. O'Reilly," explained Billy. "Them lettuces came up but they got eaten real quick."

"What kind of spray will he be needing then, Billy? Is it for the red legged earth mites or for the cabbage moth butterflies, or is it some other bug or maybe even fungus then?" he asked.

"I dunno, Mr. O'Reilly. Watty says he wants white spray like them missionaries used to use."

"Well Billy, if I don't know what kind of pest is attacking the lettuces, I can only guess what kind of spray to sell you. You take this book back to Watty and the other men. It's a new gardening book from down South and it may help him to figure out what's wrong. And I'll give you some all-purpose spray too. It might help, but there are lots of bugs up here in the North and they probably haven't invented a spray to kill most of them yet."

Bill carried his purchases back to the community and presented them to Watty and the others.

"What you do with this spray

then?" asked Tommy holding up the bottle to the sun to check if it was white. Do we pour it straight on the lettuces, or what? There's not much in this bottle and there's a lot of lettuces."

"Them missionary fellas, they sprayed this stuff with a shower nozzle and a pump," said Watty. "They had a canvas pack to put the stuff into and then they pumped it out. I didn't want no spray without the pack, Billy," he said. "Go back to town and get a pack."

The next day, Billy made another trip into town to see Mr. O'Reilly. "Did that spray work then, Billy?" he asked.

"No, Mr. O'Reilly, Watty couldn't spray it because there was no spraying pack and nozzle."

"Well bless me, I didn't realize he had no kit. Here you are, Billy, there's a spray pack, complete with hose, nozzle and pump. Tell Watty to cover his face when he sprays too. Here, take one of these."

He handed Billy a small white beehive-looking thing with elastic on each end.

"What's this then, Mr. O'Reilly? What's it for?" Billy turned the mask over in his hands and looked up at the shopkeeper.

"You put it on like this, Billy," and Mr. O'Reilly put the mask over Billy's nose and mouth so that only his eyes were showing. Billy looked at himself in the mirror and laughed.

"I look like a bushranger, Mr. O'Reilly," Billy called as he left the store making shooting actions with the

spray pack and nozzle and laughing to himself.

"This must be part of the spraying uniform," he said to himself. "It's pretty funny."

He brought the spray pack and mask to Watty next day when he arrived back home, and showed him how to put on the mask. All the men looked into the pack, then looked at the spray bottle, noting that the pack would hold a lot more than the bottle of spray.

"Looks like we need more spray then, Billy. Go back to town and get some more." As old Watty told Billy to take yet another trip to town, the other men nodded their heads in agreement and settled down to watch and wait for his return.

"Watty says we need more white spray now," Billy said when he reached the store.

"By golly, you must have a lot of lettuces out here then, Billy. How many have you got?" asked Mr. O'Reilly.

"They planted 200, but I don't know how many are left by now," said Billy. "Every day more die, and we haven't sprayed this white stuff anywhere yet."

"Did Watty and the other men dilute the first bottle of spray I sent over? It was quite enough to spray 200 lettuces."

"What's dilute?" Billy asked.

"You know, put water into it to make it weaker."

"But won't stronger spray kill more bugs?"

"No! No!" said Mr. O'Reilly.

"Stronger spray will kill the lettuces as well as the bugs, and it will probably kill anyone who eats the lettuces too if they don't wash them really well first."

Billy was impressed. He bought no more spray then, but went home with a determined glint in his eye to talk to Watty and the others. He told them what the spray would do to the bugs and the lettuces, and anyone who ate them unwashed, and to anyone who used the spray equipment without protection.

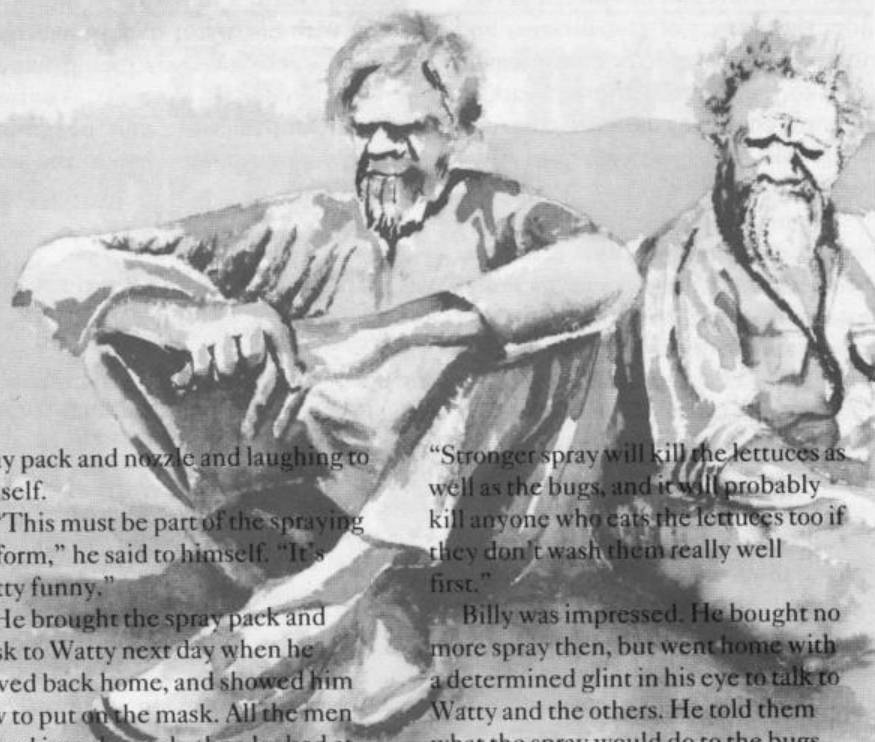
Watty looked slowly around at the group and then spoke in the measured tones of an elder.

"This spray—he's poison. He might poison the ground and the water too. We'll let the bugs eat the lettuces and grow something else that's too hard for them to get into. We'll look at the book Mr. O'Reilly gave us."

There was a low rumble of assent from the group as consensus was reached.

Two months later the rough and hairy leaves of pumpkins and watermelons were spreading all over the paddock, and in the fullness of time the harvest came. A few watermelons had been pecked by the crows, but most of the crop was eaten or sold by the community, and there was a special corroboree to celebrate. Watty and the men had proved they could support themselves while protecting the earth, and also share some of her bounty with other creatures. ♦

© November 1989 Anna Wright. Anna Wright is the pen name of a freelance writer living in Brisbane, Australia.



shifts in society and in values and consider the impact of globalization and trends in the planetary ecosystem in order to see where both new markets and new commons are emerging, and where win-win rules still need to be negotiated and new treaties written.

The new opportunities in both the new markets and the new commons include all manner of environmental restoration and enhancement such as reforestation and new uses for renewable, less-toxic organic plant inputs into hundreds of manufacturing processes. As I predicted in my earlier books and papers, the paradigm shift from focusing on mechanical, inorganic sciences and production methods of early industrialism to the post-industrial focus on biological systems and information-rich methods, has now occurred. I described this paradigm shift as one in which a problem of production would no longer instantly invoke visions of machines, factories or hardware, but engender more careful thought, and scanning of ecosystems for their inherent capabilities and their untapped potentials which human knowledge can more deftly use and augment and shape to our needs.

An example of the rethinking of what "development" means on a living, crowded planet is the budding industry of desert-greening, which promises to be a huge global market well into the 21st century. Many different methods are practised today, and some areas, such as my home state of Florida, have all the native plant species and agricultural biotechnolo-

gists to create a new export industry, along with our water quality management technologies now being honed by environmental necessity. Venture capital companies are now beginning to see the new opportunities, and sev-

*One of Britain's
most successful exports
since World War II
has been eccentricity:
the sheer creativity
of its young rock musicians
and punk fashion designers.*

eral new firms are in the launch process.

New visions of world trade in the 21st century go far beyond the confines of economic theories of nations competing via comparative advantage or protectionism in a global marketplace. In the new era of global interdependence, countries will learn strategies beyond competing over today's narrow range of goods, such as automobiles and consumer electronics. They will practice the other two important trade strategies: cooperation (when commons require win-win rules, such as in space development) and—most important—creativity, that is, rethinking the game itself. Today, we are trying to impose industrial conformity on all trading partners

by extending economic theories of protection to today's lengths of trying to homogenize everyone's social and cultural values, as is now occurring in the "structural impediments" debate with Japan.

Instead, nations can learn that each culture and its host ecosystem has produced truly unique gifts to offer in world trade, and the game will shift from "hardware" (shipping goods around) toward "software" (expertise, technique, social innovations). This "cultural niche" model is derived from ecological theory (where diversity is a basic principle) and mirrors the cooperation and symbiosis which is just as common in nature as competition. Competition, cooperation and creativity are all important strategies, appropriate in various circumstances, and no economic algorithm from either socialism or capitalism can be applied dogmatically.

Examples of such "cultural niche" export strategies include those in the Netherlands, where a bedrock export with no competitors is the export of both the "hardware" and "software" involved in diking out the sea, from the unique Dutch 2000 years of expertise, which they routinely export to places like Bangladesh and the city of New Orleans. With global climate trends the way they are, this may also prove to be a growing market. Similarly, one of Britain's most successful exports since World War II has been eccentricity: the sheer creativity of its young rock musicians and punk fashion designers. In this way, we may be able to savour each other's cultural

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diversity and thrive on it, as we do on each other's food and art. By far the largest global environmental ethics market is now emerging out of the winding down of Cold War arms expenditures, and the re-channelling of some of these trillion-dollar annual budgets into coping, at last, with the real Horsemen of the Apocalypse: hunger, disease, ignorance and destruction of our planetary life-support system. Growing world trade in these basic goals of all humanity, awaits only our fuller recognition that our tightly interwoven global economy is also a commons. This commons will require more win-win rules and agreements on debt, currency fluctuations, and special drawing rights. It will demand a re-thinking of what a "level playing field" might look like, once we take off our economic spectacles.

Debt must be dealt with beyond the currently fashionable swaps for nature or equity (often band-aids based on murky ethical premises). The world's bankers and finance ministers need to face up to the fact that the de facto default has occurred already, and most of the recent remedies merely acknowledge some of this reality. Writing off Third World countries' debt is a necessary, but not sufficient, starting point for further recycling of surplus currencies—such as yen and Deutschmarks—into more organized secondary markets for discounted "country junk bonds."

Levelling the Playing Field

As this Third World debt is put behind us, the global playing field can be buttressed by placing an ethical floor under it. This ethical floor would include an extended lattice of agreements and protocols on toxic chemicals, worker and consumer protection, environmental standards, and the eventual levelling of some of the really serious differentials in wages (measured not in GNP terms, but in purchasing power equivalents (PPEs). These differentials in exploiting human labour, together with the excessive differentials in consumer and worker safety and environmental

protection constitute the driver behind the excessive, unhealthy migrations of populations across borders looking for work, and companies looking for short-term market advantage. These massive migrations further fuel the globalization processes and the 24-hour-a-day financial casino where money is divorced from real wealth and becomes mere blips of information on thousands of trading screens, where time windows of opportunity to exploit differentials in currencies and interest rates are collapsing to mere nano-seconds.

Much of this ethical lattice of treaties, agreements and protocols to raise the ethical floor to level the global playing field is already in place. There already exist the United Nations special agencies, the 1987 Montreal treaty on chlorofluorocarbons and the Law of the Sea which has been waiting for the USA to ratify it after a decade of delaying tactics. Only when this ethical lattice is in place can ethically aware, responsible companies live up to their moral codes without fear of unfair

competition from others willing to cut corners and exploit people and the environment for short-term gain.

Most of the great ethical and moral leaders in the short history of our human family have preached similar ethical imperatives, usually encoded in the classic systems theory statement of the Golden Rule. They have reminded us that the "god" is within us as well as without. We have free will, reason and compassion, and the intelligence to read the feedback signals from every level of our societies and environment. No subject is more important to our survival than exploring our values and our potential for altruism, as well as broader self-interest. For when our individual self-interests are seen in the larger context of the human family on planet Earth, we see that they are all identical. It is in every one of our broadest self-interest to help create and undergird the ethical and environmental markets of the 21st Century, since they provide our best assurance for survival and truly human development. ♦

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Garden or Gas Chamber?

DOUGLAS DONEGANI

A day like today I realize what I've told you a hundred different times—that there is nothing wrong with the world. What's wrong is our way of looking at it.

Henry Miller, *A Devil in Paradise*

Clearly humanity has been addressing the world with predominantly *yang*, or male, energy. As long as men and women continue to do this, we are going to have wars and other destructive activities including inappropriate exploitation of the ecosystem. As the late Virginia Satir wisely advised in her afterword to *Conscious Evolution*, "the inclusion of the

yin, or female energy, is essential.... We need to include the male and female parts, present in each of us." J.C. Cooper reminds us in *Yin & Yang*: "As everything in the manifest world...arises from the relationship between the two polar opposites, the *yin* and *yang*, it is the main concern of life to understand them and keep them in balance and harmony."

We find in the Bible (Genesis 1:27): "And God blessed them, and God said unto them, be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the

earth." When Charles Darwin made the first public presentation of his theory of evolution in 1858, he told the Linnean Society: "All nature is at war, one organism with another, or with external nature." Simultaneously, Alfred R. Wallace said that plants and animals are caught "in a struggle for existence in which the weakest and least perfectly organized must always succumb." Their contemporary, biologist Thomas Huxley, felt that: "The animal world is on the same level as a gladiator's show. The strongest, the swiftest and the cunningest live to fight another day...no quarter is given." Tennyson's "In

Memoriam" captures this vision of brutality in the phrase "Nature, red in tooth and claw with ravine [violence]." Biology and conventional wisdom have, for the most part, been dominated by this paradigm since Darwin's day. But it does not square with the observations of some contemporary biologists.

To date we have focused on pathology, evil and illness and what we perceive to be the brutal context in which we live. To concentrate on individual and planetary well-being is new to us. We must learn to see problems as challenging opportunities that lead to the advancement of humanity in the direction of a planetary culture.

We live today amidst the manifestations of the grand dreams of *yang*-driven industrial civilization at a time when its advancement and enhancement is no longer appropriate. The resultant planetary crisis must be examined, for in this darkness we can find the light of transcendent hope.

In his article "Politics Unbound: The World That's After Us," William Irwin Thompson states that during industrial civilization "the technology is one of steam and internal combustion, and this gaseous activity is poetically appropriate, for the environmental disturbance is not merely one of soil loss or deforestation, but atmospheric change in the enormous production of CO₂. Once again the political area is not co-extensive with the ecosystem, though the British certainly strained to make it so; and once again the crisis indicates a movement in cultural activity from oceanic to planetary....It goes without saying, of course, that our contemporary political area is not co-extensive with the ecosystem."

Toward the end of the article Thompson points out that "we are already beginning to witness the fall from grace of scientific econometrics....Economics fosters a rather curious world-view in which objects are seen to be separated by space, and this in turn brings about a system which produces mansions of wealth at one end and dumps of dioxin at the other one.

The ecological implications of the inappropriate advance of industrial civilization can be grasped through the mental window of Gaian insight co-originated by atmospheric chemist James Lovelock and biologist Lynn Margulis. This insight, now a theory, began as "the hypothesis that the earth's living matter—air, ocean and land sur-

faces—forms a complex system which has the capacity to keep our planet a fit place for life."

In harmony with this idea, the Dalai Lama, in his capacity of head of state and with *yin-yang* balanced energy, pointed out in 1979 that "When man changes the environment too quickly, say, for example, by burning the oceans of oil in the earth's crust and turning them into a gas in the earth's atmosphere, he creates a situation in which the environment then changes at a rate faster than his own rate of adaptation."

In *Gaia: A New Look at Life on Earth* Lovelock says with soft reassurance, "At the present time the amount of carbon dioxide in the atmosphere is increasing because of the widespread consumption of fossil fuels. If we stopped burning

*We want and
don't want Eden
and we want and
don't want the
planetary guardian
management
responsibilities*

these fuels tomorrow, it would not take long, perhaps thirty years, for the atmospheric carbon dioxide to revert to its normal level." In other words, we can hope for ecological forgiveness for our CO₂ production "sins" as long as we don't push the ecosystem too far.

If we do push up the CO₂ level too high, Gaia, acting in the best interests of all planetary life will, in all likelihood, react by creating a greenhouse gas chamber: an ecological holocaust that could eliminate humanity from the surface of the earth—the dinosaur story all over again. In this regard it is important to remember that it is unlikely that anything we do will threaten Gaia. Gaia as a whole is not at risk; humanity, as a component thereof, is.

Let's look for a moment at which steps some ecological scientists say will ensure that humanity will be at serious risk in the next century if not sooner. In this context it is important to remember that the lure of prosperity enhances

greed, which in corporate terms could be perceived as mostly *yang*-driven business ventures, large and small, that are all in a sense "subsidiaries" of the meta-corporation "Lust and Envy International." Prosperity, in this sense, is the archetypal opposite of fulfillment, which implies human activities attuned to all that lives. "The world has enough for everyone's need," Gandhi said, "but not for everyone's greed."

Oil merchants in Alberta, Canada and elsewhere wish to profit excessively from robust sales of the oceans of oil in the earth's crust which would then be vigorously run through internal combustion engines in a manner that would drive up atmospheric levels of carbon dioxide and thus intensify the already negative greenhouse effect. As Lovelock has said, "We are like a modern version of the Gadarene swine, driving our polluting cars heedlessly down the slope into a sea that is rising to drown us." This intended drive up of CO₂ is Step One towards putting ourselves at serious risk.

Down in Brazil vast portions of the tropical rain forest are being cut down. The forests act as "green lungs" for the earth, absorbing carbon dioxide and producing oxygen. But the problem here and elsewhere is not just the attitudes of wealthy corporate executives. As William S. Ellis says in his *National Geographic* article, "Brazil's Imperilled Rain Forest:" "The rush has slowed somewhat now, but large numbers of men and women from the dirt poor continue to arrive, chasing dreams of a better life—riches, even—through the rain forest of Brazil, through the vast dank chambers of Amazonia, which stands today as probably the last great seductive frontier on earth." The culture in this area now mirrors the excesses of other frontier openings.

So some human activities would increase the atmospheric levels of CO₂ while Brazilians, in devastating the rain forest, will diminish Gaia's capacity to reduce and stabilize CO₂ levels in a range fit for human life. In this regard it is important to remember that ecocidal corporate activities are propelled by the purchasing practices of consumers who are ultimately just as responsible as corporate directors and employees for damaging activities; so the devastation of the rain forest is Step Two.

According to Lovelock, "The really critical areas which need careful watching are...the tropics (such as the above-

mentioned rain forest) and the seas close to the continental shores." Inappropriate sea farming of the continental shelf would thus be Step Three. "It is in these regions, where few people do watch, that harmful practices may be pursued to the point of no return before their dangers are recognized; and so it is from these regions that unpleasant surprises are most likely to emerge."

Because our planet is moving towards eight billion people and more than ten billion sheep and cattle as well as six billion poultry, freedom of action is being diminished. Much of our productive soil is used to grow a limited range of crop plants. Far too much of this food is processed inefficiently through cattle. As stated in *Trea Talk*: "In South America millions of acres of rain forests, which sustain countless numbers of animals and insects, have already been destroyed to make way for grazing lands to provide hamburger meat for fast-food chains in 'developed' countries...about four-fifths of the world's agricultural land is used for feeding animals which feed people and pets, while only about one-fifth is used to feed people directly."

Industrial agriculture is very productive but it can also be very destructive in a slow, quiet manner. One of the costs of this form of agriculture is soil loss.

Transport costs incurred in food distribution now almost match the cost of growing the original crops on farms. Thus bad farming is Step Four.

"To harken back to simpler times is an understandable urge in the tangled complications of a more layered one," according to Her Honour Judge Rosalie Abella. This type of nostalgic reverence for the past is perhaps an expression of our wish to return to Eden. We can't go back to Eden but we can, I believe, have our deliverance. Today, we are locked in a two-directional approach/avoidance conflict: we want and don't want Eden and we want and don't want the planetary guardian management responsibilities which go with that portion of deliverance that we can experience in this life.

Two insights of Lynn Margulis, as they relate to the Gaia theory, point to a way of knowing and doing that will result in a life-affirming alternative to the mostly *yang*-driven industrial civilization thrust. The first of these is seeing ourselves as products of cellular interaction. "Partnerships between cells once foreign and even enemies to each other are at the very roots of our being. They are the basis of the continually outward expansion of life on earth." The second insight, explored in *Symbiosis and Cell Evolution*, by Lynn Margulis, indicates that co-operation has as much to do with

evolution as competition.

Paradoxically, as William Irwin Thompson has said, "One often sees in history that a radical shift is often preceded by an intensification of the old." The "light bulb" of industrial civilization and its associated distribution of wealth is now burning brightest in the manner in which light bulbs typically burn before burning out.

At the end of *At The Edge of History*, William Irwin Thompson says: "We will have to come right up to the edge to find out where we are, and who we are. At the edge of history, history itself can no longer help us, and only myth remains equal to reality....But the time has come; the revelation has already occurred, and the guardian seers have seen the lightning strike the darkness we call reality. And now we sleep in the brief interval between the lightning and the thunder."

Industrial civilization is on its way out and an incoming planetary culture of humanity, attuned to all that lives, is on its way in. In this respect, William Irwin Thompson says in *The Time Falling Bodies Take To Light*, "The avatars of the New Age, as the Irish mystic A.E. realized in a vision fifty years ago, will not be the solitary male, but the male and female together. Myth is the history of the soul. Lest we think that Isis and Osiris, or Jesus and Mary, are only stories from the past, we should look around us to see that a new chapter is being written in our own time. Whatever names these two lovers take, when they come together it will be like the touch of matter and antimatter, the passing and the consuming passion of our world. In the origins of civilization is the overture to its end."

The industrial civilization mindset, the dinosaur of our times, fortunately has the ability to make the essential transformation to a sense of belonging to the commonwealth of all life that constitutes Gaia.

GAIAN LIGHT
Radiant love light
Transcendent vision of hope
Celestial song

In Virginia Satir's view, "We've been 'driven' for thousands of years. Now it's time for us to begin to do our own driving; to be what we really can be—full of radiance and love, as well as effectiveness and competence. For me...[this] means taking the next step toward being fully human."



Rain Forest. One of 13 hand-made Tapestries for the Environment by Toronto artist and designer Barbara Klunder.

One of our most important tasks as we become *yin-yang* balanced "drivers" is, via the work of biologists such as Robert Augros, Lynn Margulis, Humberto Maturana, George Stanciu, and Francisco Varela, to take a second look at Darwin's assumptions. Augros and Stanciu have concluded that "Nature is not at war, one organism with another. Nature is an alliance founded on co-operation." Humanity would do well to try to live in accordance with this Gaian co-operation.

Additionally, as we create our common future, we need to understand, as Maturana and Varela assert in *The Tree of Knowledge*, that "Everything we do is a structural dance in the choreography of coexistence....We have only the world we bring forth with others, and only love helps bring it forth." They further maintain that "If we want to coexist with the other person, we must see that his certainty, however undesirable it may seem to us—is as legitimate as our own because, like our own, that certainty expresses his conservation of structural coupling in the domain of existence—however undesirable it may seem to us. Hence, the only possibility for coexistence is to opt for a broader perspective, a domain of existence in which both parties fit in the bringing forth of a common world."

The broader perspective of the Gaian vision of an incoming planetary culture, based on an ecological economic order with human activity attuned to all that lives, will be brought forth as the reality of our coexistence as we accept the help of love, in the sense of Maturana and Varela's "acceptance of the other person beside us" in the world. "Love," after all, as nine-year-old Renata Donegani insists, is what "makes the world grow." ♦

Douglas Donegani is a social architect, freelance writer and editor with a background in environmental studies, psychology and film. He is president of the Ethos Cultural Development Foundation in Toronto, and was from 1983 to 1986 the publisher and an associate editor of Ethos Magazine.



PHOTO BY INTA, TORONTO

Facts about CFCs

CFCs (chlorofluorocarbons) are used in foam manufacture, in air conditioning and refrigeration, and as industrial solvents. When released to the air, they rise to high levels of the stratosphere where solar radiation breaks down the CFCs into chlorine particles which attack ozone molecules that form the now famous ozone layer—"Earth's fragile shield." (Ozone is a deep blue, explosive, and very poisonous gas. One molecule of chlorine can destroy many molecules of ozone). This allows more ultraviolet radiation to reach the earth's surface. Exposure to this ultraviolet radiation can cause an increase of skin cancer and cataracts, can damage crops, forests, and ocean ozone. But more important, as James Lovelock points out, the presence of CFCs in the atmosphere adds to the carbon dioxide greenhouse effect—a danger that is potentially more serious than that of ozone depletion.

Like all plastics, polystyrene foam, widely known by its Dow Chemical trademark, Styrofoam, is produced from petroleum. Styrene, from which the plastic is made, is highly toxic in its raw form. It is made usable when polymerized into polystyrene. The foam is created by blowing an agent through the plastic to create bubbles. The cheapest and most effective of these agents are CFCs.

Norman Soley of the Ontario Ministry of the Environment writes, "Little if any

[CFCs] are retained in the foam, most of it gets vented to the atmosphere during the manufacturing process. You can tell if CFC's were used in the making of any particular styrofoam by breaking off a piece and rolling it between your fingers. If it breaks into little balls then CFC's were not used in making it."

The amount of CFCs in the atmosphere has increased sharply in recent years as their industrial use grows. Aside from packaging materials, the gases are used in the manufacture of foam insulation and padding, as spray can propellants, as coolants in refrigerators and air conditioners and solvents for cleaning microchips and other electronic equipment. Indeed, the CFCs used to make packaging are only a small percentage of the total.

The other worrisome aspect of foam packaging is its bulk, and the fact that fast food containers and meat and vegetable trays for supermarket merchandise are made to be disposable. Although the plastics industry claims that only 7% of municipal solid waste is plastic foam, they cleverly cite its proportion by weight, neglecting to mention that these convenient products make up 32% of the volume!

—Dave Burman

Excerpted from an article written for Ethic Scan Report with permission by the author.



PHOTO BY INTA, TORONTO

Reduce!...reuse, recycle

PETER HUTTON

Almost every day, we see what our food stores, restaurants and supermarket industry are doing to help the environment. They are responding to the concern felt by virtually all Canadians. Yet, we in Canada remain the largest producers of waste in the world, and face a crisis that must be addressed before we choke ourselves with garbage. The waste doesn't, and shouldn't, have to be created. That's not the message that the food industry is presenting, but it is the position that we all need to understand and implement.

As North Americans, we produce almost twice as much garbage per capita as our European counterparts. That's a result of the flawed assumptions on which our society is built: that we have unlimited resources to produce goods and that we have endless places to dispose of so-called wastes produced by the process of production. Ontario's garbage problem is testimony to the fact that we can't continue our wasteful consumption habits. It's what other nations have already learned to do. Yet the food industry resists the change. They tout the language of the

environmental movement—the three Rs, and then offer the consumer only one option—recycling. It's the option that allows them to continue in their wasteful ways. They neglect the other two options, which come first and second in the equation—reduce and reuse.

Packaging makes up 50 percent of the volume of the material going into our waste dumps. It is here that we see most clearly, in our daily lives, the results of the above corporate culprits. The time has come for the consumer, manufacturer and retailer to address the environmental impact of

wasting valuable non-renewable resources on over-packaging practices.

Packaging is needed to ensure safe transportation, to avoid contamination and to allow companies to market their products. Too often, the long term environmental impacts of inappropriate packaging are not being considered. What are these impacts? Overflowing landfill sites are just one of the more visible symptoms, removing this land from agricultural and recreational uses. Dioxins and other toxic contaminants are produced by the incineration of all packaging, with the toxics

showing up in Ontario food-stuffs. Extra packaging further depletes our forest and petroleum reserves. Groundwater is contaminated by dump leachates. Transport of products with the unneeded packaging increases the air pollution from internal combustion engines. Litter in the environment is a threat to marine and bird life. These environmental problems are ample incentive to take that extra few minutes and forethought to consider our use of disposable materials and how that use relates to the three Rs.

Reduction In Context

You might point to the current industry and individual recycling efforts—a move away from ozone-depleting substances—as a solution to our garbage problem. But these initiatives are only “band-aid” solutions to the real problem—We Waste Too Much. The three Rs—Reduce, Reuse, and Recycle, in that order of priority, are very useful rules of thumb that everybody can use to develop their own environmentally sound lifestyle.

REDUCE the use of disposables, whenever possible, thus eliminating most of the impacts mentioned above.

REUSE containers, bags and use the other side of that piece of paper. This creates a closed cycle that reduces the environmental impacts to a minimal level, and conserves resources.

RECYCLE, but only when it is not possible to avoid or reuse. Recycling requires energy and resources to accomplish which have their own impacts. A viable end product is also needed. The most viable packaging alternatives then become glass and metal because they can be recycled to the same use. The jury is still out on plastics—the possibility that they can be recycled to the same use is slim.

TWO WAYS TO REUSE TIRES



An Indian entrepreneur can make sandals out of old tires—but no 10,000 mile warranty!



Parthenon, 1985, by British artist David Mach uses 6,000 old tires. Photo: Barbara Toll Fine Arts.

Remember, what is not reduced, reused or recycled will end up in a dump, an incinerator, or as litter on your street—only the three Rs will keep it out of the environment.

Reduction In Action

Yes, you can teach an old dog new tricks! “The throwaway society” is a product of our Post-World War II era. Here are some suggestions with particular reference to the food

industry.

In many regions, it is possible to buy food in bulk. Often farmers’ markets and whole food or health food stores are the places to look for. Also, look to ethnic supermarkets.

WASTE FACTS

Did you know?

- Only 2% of packaging is currently recycled.
- Most plastics can only live twice—plastics lose their colour and strength in reprocessing.
- Packaging is 33% by weight but 50% by volume of municipal solid waste.
- Plastic is currently 8% by weight of our municipal solid waste stream and 30% by volume.
- A 1988 Nova Scotia study revealed that 85% of littered items were packages.
- A 1985 California study found that 35% of fresh litter was plastic material. Seven other U.S. studies done in the last ten years have shown that 25% of litter comes from items related to the fast food industry.
- A California study determined that the scrap value of plastic would have to increase 400% in order for plastics recycling to be economically viable.
- In a December 1989 poll, 93% of consumers polled in British Columbia by the Environmentally Sound Packaging Coalition said they would support bans on some types of packaging. "Styrofoam" was most frequently mentioned in unprompted responses.
- Elaborate packaging increases the cost to consumers of buying products. For example, 35% of the price of baby food goes towards packaging.
- Between 300,000 and 700,000 seabirds and 100,000 marine animals have been killed in the North Pacific alone after ingesting plastic debris.
- It is estimated that 5,000,000 items—bags, bottles, syringes, boxes, etc. are tossed into the oceans of the world every day.



A Million Miles Away, 1988, by David Mach. On-site installation with objects and 12.5 tons of magazines. Photo: Barbara Toll Fine Arts.

Consuming local produce can reduce the need for packaging designed for transportation.

In the supermarket, do the same thing, avoiding individual packaged items whenever possible. Avoid the purchase of products boxed in tetrapacks which can't be recycled; the contents are not very tasty, anyway.

Think ahead! Bring your own reusable string, paper or plastic bags and avoid double bagging where possible. When in supermarkets, avoid buying your fruit and vegetables in trays with plastic wrap. When you have to, buy a card-

board or paper tray, not polystyrene. Paper or cardboard trays are compostable and provide an end use for recycled paper products.

If you have only a few purchases, do without a bag. When at the cashier, you may have to take the initiative to tell him or her that you don't need the bag, and take the time to inform them of why. When unpacking the groceries, save the bags for the next shopping trip or reuse them in the home.

Fast food restaurants are a significant source of unnecessary plastic and paper waste. If





CONSUMER MYTHOLOGY

Advertising has always depended upon a mythical construction of the "consumer," the cousin of that other mythic construction, the "public." In what is increasingly referred to as "life-style" advertising, we have what has been commodity advertising's secret promise all along: our sense of self and identity is procured through what we buy and what we own.

Increasing environmental concern has given rise to a new phenomenon of advertising: the marketing of social conscience. The "consumer" is now assured of not only the values of class and prestige when they shop but of environmental awareness.

Although recycling, reuse and bio- and photo-degradable products are of obvious value, advertising does not address the fundamental problem of over-consumption. What is needed is a reevaluation of a system that promotes consumption and then proposes a solution to its garbage by promoting guiltless consumption.

—Tom Folland

Photo: view of installation "The Design Series: Packaging Garbage" recently on display at The Power Plant, Toronto.

you are eating in the establishment, ask for reusable cutlery and tableware. Tell the staff and owner that this is your preference in dealing with the waste problem. Ask for reusable bottles for condiments, instead of individually packaged portions to again reduce the packaging waste. If you have to eat on the run, ask for minimal packaging on your purchase, preferably with paper products. Take home drink cans for your blue box if it's available to you. If it's coffee you're buying, invest in a refillable portable mug with a lid.

Compost your food wastes. Reuse packaging that you've got in making your purchases. That includes boxes, bags and plastic wraps. Reuse plastic containers when you can. Collect egg cartons, and take them to farmers' markets for the stall holders to reuse; do the same with bags. Work towards limiting what you put

out at the dump to a single bag, or better yet, what can fit in one reusable plastic or metal garbage can.

Disposable, non-reusable packaging materials are used in almost every aspect of our every day lives—at the supermarket in plastic bags, styrofoam, cardboard and plastic packaging; in the restaurant and local coffee shop as plastic, cardboard and styrofoam cups, plates and utensils. Even in our homes, we use throwaway cloths and paper towels, bottles and containers. Actually, just about all of our packaging practices and many of our "throwaway habits" can be adjusted to reduce our waste of non-renewable resources and minimize our impact on the environment. Start today at home, where you eat out, and where you shop. ♦

Peter Hutton is a member of several environmental groups in Hamilton, Ontario.

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Invasion of the Zebra Mussels

According to reports released by the Ontario Ministry of the Environment over the last two years, a tiny mollusc, the Zebra Mussel, has entered the Great Lakes system without any passport and is doing very interesting things in Lake Erie.

The zebra mussel, *Dreissena polymorpha* is a small freshwater mollusc native to the Black, Caspian and Azov Seas. It is cream-coloured with zigzag, wavy brown bands that form a zebra-like pattern: the basis for its common name. They tend to occur in deeper, larger lakes with a higher calcium content. They are extremely fecund—in her lifetime of 4-5 years, a female can produce up to 150,000 eggs. The ability to attach to each other enables zebra mussels to cluster in massive colonies forming extremely high densities of up to 30,000 per sq. metre (as in Lake Erie). It is able, through up to 200 threads, to

attach itself to hard surfaces.

Their presence in European lakes and rivers has been evident since the mid-sixties. Large numbers of *Dreissena polymorpha* were first discovered in 1988 in Lake St Clair. The zebra mussel is now present in Lake Erie and, by now, should be present in Lake Ontario. The introduction of the mussel into the Great Lakes of North America probably resulted from the discharge from ocean-crossing ships of freshwater ballast that contained the free-swimming larvae of the mussel.

The downside of the mussel invasion is its capacity to clog pipelines, and create some bad moments for heavy industry and powerworks along Lake Erie on both sides of the border. With its tufts, the mussel attaches itself to the insides of industrial and domestic pipelines and underground irrigation systems that draw water directly from the Great Lakes. A layer of mussels can be 1.5 metres thick.

Dead mussels in pipes eventually break away from the sides of the pipes and accumulate in the intake area, where they prevent water passage. Their presence in Lake Erie raises immediate concerns for users of raw water because they can become abundant enough to obstruct the flow of water through pipes, hoses, screens and condensers. Biofouling was observed at several power plants, water treatment plants, and food processing and industrial facilities along Lake Erie in 1989. In addition, large numbers were found in main steam condensers and in the service water system, threatening the water supply for cooling, fire protection, and dust suppression systems. In one southeast Michigan city, drinking water withdrawal from Lake Erie was reduced 45 percent by the mussel. The mussel colonies can also foul navigation buoys and eventually submerge them; and in this way can provide a hazard for lake navigation. They can also clog fishing nets that remain in the water over summer, which is their maximum breeding time. At present, these mussels are giving Lake Erie fishermen a hard time.

The increase of zebra mussels is often accompanied by an increase in the sizes of bird populations, especially in the winter months when the mussel protein content increases. Diving ducks (bluebills and canvasbacks) can feed on mussels collected at depths of several metres. Ducks may be the most effective means of

controlling the density of mussels in near-shore areas of the Great Lakes. Offshore diving ducks, such as Oldsquaws, can feed on zebra mussels occurring at depths of more than 30 metres.

The good news about *Dreissena* is its capacity to clean up water bodies. Studies in Soviet canals and Polish lakes indicate that *Dreissena* plays a substantial role in the process of biological self-purification and improvement in water quality in aquatic systems. In the presence of *Dreissena*, the removal of waterborne organic matter in canals proceeds more intensely and more completely. The mussels accelerate the conversion of toxic wastes such as ammonia and nitrites to consumable nutrients. In Soviet canals, *Dreissena* is considered to be an important biological plateau: a structure for prevention of water pollution in canals caused by algae blooms. Zebra mussels may cause a permanent change in the ecology of the Great Lakes.

—Brian Stanfield



Scientists predict the zebra mussel will eventually spread to all of the Great Lakes. Photo: Ontario Ministry of Natural Resources.

Waterfire

A report from an Australian periodical, *Nexus: New Times* explores what could be another piece of good news on the environmental front. An Australian inventor, Yull Brown, has developed a pollution-free energy system which replaces fossil fuels with *water* as an energy source. Bulgarian by birth, Mr. Brown was trained at Moscow University in electrical engineering, spe-

cializing in the work of Nikola Tesla. His *curriculum vitae* includes several years in a Soviet work camp. After Stalin's death he was released and came to Australia.

Over a decade ago, convinced that water stores enormously high energy, he developed a way to efficiently separate hydrogen from oxygen, using only water and a small amount of electricity to produce energy in the form of a gas with the disarmingly simple title of Brown's gas. A highly efficient electrolytic cell dissociates water into H_2 and O_2 without separating them with a membrane. The mixture is stable—it can be used and stored with safety—because the cell produces an exact 2:1 ratio of hydrogen and oxygen. Ignition would cause it to implode into pure liquid water, rather than explode.

Brown's Gas is used directly in a welding unit that Yull manufactures. Brown's Gas burns faster than any other gas mix—the flame-front propagates at 3 kilometres a second, compared with only 10 metres a second for oxyacetylene. The gas torch burns at the temperature of the sun at 5960 degrees and emits a long, relatively cool orange flame. It makes perfect welds without oxidization and seems capable of discriminating between different forms of metal. He has not been popular with the gas companies because they sell oxy-acetylene.

He also claims that "running cars on hydrogen is a piece of cake." He has run his own car on Brown's gas as an

alternative to fossil fuels. According to Yull, a gallon of water will power a car for 1000 miles. Yull Brown has converted cars including a Holden and a Mazda car to run on tap water. At present, a vehicle cannot produce enough Brown's gas to convert water directly to power, but the gas can be produced in the home or factory; it can be compressed and even sold at gas stations, or consumers can produce the gas themselves using only water and electricity. Rapid research is needed to iron the bugs out of vehicle conversion to Brown's gas—but the fuel is available now.

Yull claims that his process is able to destroy any type of toxic waste and PCBs, and render them harmless, leaving only water vapour and carbon. Tests have found that a regular internal combustion engine needs little modification to accept Brown's oxygen-hydrogen mix. The carburetor is simply replaced with a throttle valve and pressure reducer while the engine is retimed to handle the higher flame speed of gas. Engine output is higher and engine life is extended. There is no carbon build-up on plugs or valves and the absence of acid vapours means no corrosion of the exhaust manifold or muffler. And, of course, there is no pollution.

Understandably, his work has received many setbacks including overt hostility from possible vested interests. But it seems there is a fifty per cent chance that the world will be using hydrogen as a

fuel. If so, Mr. Brown will emerge as a leader in his field. For further information readers can contact BEST Australia Ltd., PO Box 92, Concord West, NSW 2138, Australia or phone (02) 736 1274.

Rockdust: New Life for the Soil

Most of us are aware that the greenhouse effect is rapidly becoming a serious threat to our climate. It is caused partly by human activities such as the cutting down of rain forest and the burning of fossil fuels which put into the atmosphere carbon dioxide and other gases that trap additional heat from the sun. It is also happening because many of the earth's forests are dying; they not only stop consuming their great quantities of carbon dioxide, but the carbon that makes up their substance eventually goes back into the atmosphere and forms addi-

tional greenhouse gases.

The earth's forests are dying from both man-made and natural causes. It is well known that much of the minerals in the earth's soil has been gradually eroded since the last ice age. Since minerals like iron and calcium are essential nutrients for every form of life, the world's forests have been weakening and dying for hundreds of years.

When the glaciers build up during each ice age, they grind up the rocks in their path into a fine dust, called loess. This rock dust is then carried by water and wind to many parts of the earth. Since rocks are made of minerals, this is how the essential minerals are returned to the soil and the forests revitalized.

Experimental studies have shown that remineralizing the soil with finely ground gravel dust triples or quadruples the growth rate of plants.

By grinding up mixed grav-



Maria Felsenreich, one of Europe's foremost proponents of remineralization, spreads rock dust by hand on her woodlot outside Vienna.

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Maria Felsenreich, one of Europe's foremost proponents of remineralization, spreads rock dust by hand on her woodlot outside Vienna.

els (which contain the full spectrum of minerals) into dust as fine as talcum powder so that plants can make quick use of them, and by spreading this dust by airplane, blower-truck and every conceivable means over most of the world's remaining forests, the forests could become rejuvenated. We also need to plant vast quantities of new, fast-growing species of trees on remineralized soil.

As the revitalized forests thrive and spread, they would consume much of the excess carbon dioxide in the atmosphere, reducing the greenhouse effect substantially. This would decrease the possibility of a global food emergency and give us time to develop energy conservation, much more efficient machines, and non-polluting energy sources.

Remineralizing agricultural soils would enable us to grow much more food, enough to stockpile to get us through the coming climate crisis. It might also replace all the chemical fertilizers and pesticides which are poisoning the earth, the rivers, the farmers and ourselves. Remineralizing the soil produces plants so well-nourished and hardy they can resist most insects all by themselves. They are also better able to withstand climatic extremes, including heat, cold and drought, all the things which now threaten our ability to grow enough food.

Remineralizing most of the forests of the world and planting billions of new trees is obviously a major project, but it

is well within our industrial capabilities. It would cost about what the world spends on weapons and military activities every two years. There is evidence that it must be done quickly if we want to maximize our chances of stabilizing the climate before millions more starve to death, this time in every region of the earth.

The scientific evidence for remineralizing the soil can be found in *The End: The Imminent Ice Age & How We Can Stop It* (See "Good Reading" section of this issue). Some visual evidence of the dramatic effects of remineralization and the experiences of some of the people working in this area can be found in the video *Stopping The Coming Ice Age*.

—Larry Ephron

Both book and video are available from People For A Future, 2140 Shattuck Ave., Berkeley CA 94704. Toll-free 1-800-441-7707. In Calif. (415) 524-2700.

Getting Universities to Recycle

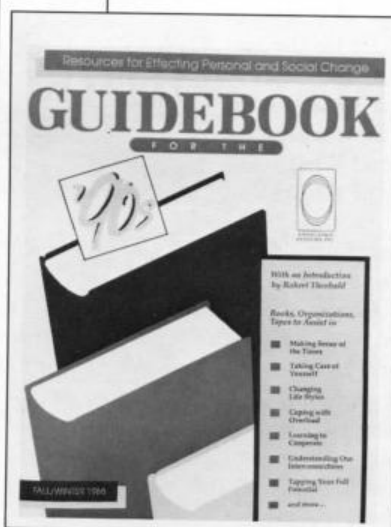
Staff and students at universities are taking the bull by the horns in wrestling the recycling problem to the ground. At Sonoma State University, California, students went out and got drums which they painted attractively, and got the Associated Students to fund a paid Recycling Coordinator Position. Departments gave students some academic credit as an added incentive. No one waited for the university to do it. Students receive the money obtained from sales of the paper, cans, laser cartridges, etc. that are recycled and use it to support environmental programs on campus. Some time ago, the students got the campus to stop using styrofoam through education efforts and by building a giant "Styrosaurus Monster" out of one day's

worth of styrofoam that went into the garbage.

Similar student-run programs are in place at Cornell University in New York State and at Rutgers in New Jersey. The University of Waterloo in Ontario has set up a program to recycle fine paper. Each office, library and computer output room has a bin or Blue Box for recycled paper. The material is collected by the University Maintenance staff (known for years as "green men") and recycled by a private hauler. In addition to the university-run program, many of the student associations have glass, tin and newspaper recycling initiatives in their coffee shops. The program at Waterloo works only because people care about the success of the project. ♦

—Brian Stanfield

Grateful acknowledgements to the IGC bulletin board, Webnet and the en.recycle computer conference, topic 88.

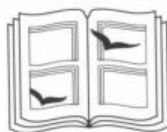


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Good Reading

WINNING THROUGH PARTICIPATION: Meeting the Challenge of Corporate Change with the Technology of Participation

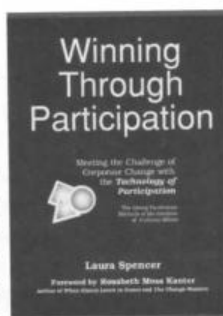
by Laura Spencer

Kendall/Hunt Publishing Company, Dubuque, Iowa, 1989. 185 pages.

Winning Through Participation is a practical and spirited presentation of the group facilitation methods of the Institute of Cultural Affairs (ICA). It deals with the practical realities of participative management. It is a "how to" book. The ICA has developed a system—the Technology of Participation (TOP)—a variety of participative methods, packaged into many programs, all dealing with involving employees of organizations in planning and problem-solving on an on-going basis. The main premise of *Winning Through Participation*, as stated in the Epilogue, is that it is possible "to create a climate that nourishes the qualities necessary for transformation—alignment, leadership,

communication, co-operation, commitment, creativity, innovation and implementation"—through the use of the TOP methods.

Winning Through Participation is organized into four parts. Part One, A New Generation of Participation, walks the reader through the changes that are taking place in the marketplace, among people, in the work environment, and in management style. It also tells the story of how one company dealt with a crisis and how TOP methods helped to turn the situation around. Part Two on Methods revolves around a case study that provides an overview of the TOP Strategic Planning Process and its results in a unit of a major oil company. Part Three on Applications describes the five steps of the planning process in precise and understandable language: first comes a mapping out of the practical vision; then an analysis of the underlying contradictions; third, a setting of the strategic directions. The fourth and fifth steps



are highly practical: designing the systematic actions and drawing up the implementation timeline. It points out the uniqueness of the approach, the sequencing of the process steps, and the way the group is involved in the planning process. Part Four describes what results when people have a sense of ownership and responsibility

for the organization.

This was an exciting book to read. I was able to get the feel of the processes as they unfolded in the stories of case studies. *Winning Through Participation* makes a definite contribution to the world of organizational development. The methods outlined can help to facilitate groups and organizations as they work toward creating an environment of participation and cooperation. It is possible for our image of how the world works to change, and, in that changing, give everyone the possibility of having a say in the decisions that affect their lives.

—Beret Griffith

SERVANT LEADERSHIP: A Journey into the Nature of Legitimate Power and Greatness

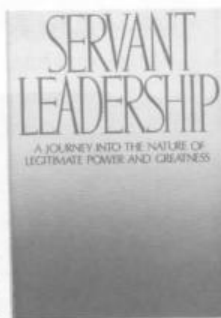
by Robert K. Greenleaf

Paulist Press, Toronto, Ontario, 1977. US\$8.95.

Robert Greenleaf, who worked for 35 years in the then giant American Telephone and Telegraph (AT&T) was described by a company executive as its "kept revolutionary." An outside observer described him as "the conscience of AT&T," a man who would "tell it like it is" regardless of the rank or status of the listener. Greenleaf's own description of himself was an "institution watcher," who was near the centre of power but never sought authority. The theme of his book is that to truly understand the servant as leader is to unlock a secret source of energy, legiti-

mate power and the kind of toughness needed to be an effective leader today. The book answers the following questions: What is a servant leader? What roles do the servant leader and the follower need to play in today's society? What are some examples of servant leaders? What is the inward journey of the servant leader?

Greenleaf attributes the concept of servant leader to a character in Herman Hesse's novel *Journey to the East*. The character is Leo who along with the narrator of the story, H.H., is on a mythical journey with a group of people. Leo is the servant doing the menial tasks, but he does the tasks with a spirit and with singing which sustains the other members. The others do not realize the impact that Leo has on the journey until



he leaves and the group slowly falls apart. Later in the story it is revealed that Leo is indeed the leader, a servant leader.

In the first chapter he paints the picture of his concept of leadership. Other books on leadership talk of vision, persuasion, methods and techniques. Greenleaf differs by talking about inner serenity, stepping back, pacing oneself, and the servant leader being one who loves himself—or herself, and also others. Chapter Two begins with his thesis: "If a better society is to be built, one that is more just and more loving, one that provides greater creative opportunity for its people, then the most open course is to raise both the capacity to serve and the very performance as servant of existing major institutions by new regenerative forces



Good Reading

operating within them." The major portion of the book deals with the application of his concept of servant leader in institutions, business, education, foundations and churches. It is his belief that if just one major institution in each of three types of institutions—churches, universities and businesses—"makes a substantial move toward becoming servant as leader, and if it sustains this performance and is able to communicate its experience, the quality of the total society—all of our institutions—will start to improve."

In the final chapter, "An Inward Journey," Greenleaf takes Robert Frost's poem, "Directive," and uses it to walk through the aspects of inward journey. He talks about symbolism, getting lost, and struggling in order to find ourselves, finding a mentor "who has at heart our getting lost," and having faith in the mystery of life. Being the servant

leader is not easy. These are chaotic times, times that give people little to stand on except their interiors. There are many good "how to" books on leadership that give good points on how to be a good and effective leader, but few books point to the deep spirit struggle and resolve of being a servant leader as well as Greenleaf has.

One helpful concept that he renews for us is that of "loss." Today we all are being stripped of most of the things we were taught were important in life. He says what is important is the leader's attitude toward loss and being lost. "A view of oneself in which powerful symbols like "burned, dissolved, broken off," however painful their impact is seen to be—do not appear as senseless or destructive. Rather the losses they suggest are seen as opening the way for new creative acts, for the receiving of priceless gifts. Loss, every loss one's

mind can conceive of, creates a vacuum into which will come (if allowed) something new and fresh and beautiful, something unforeseen—the greatest of these is love—What is tragic is the failure to grasp the opportunity which loss presents."

Greenleaf's insights have worked quietly but powerfully within American society for the past 15 years, influencing one individual or group here, another there, until finally extensive networks are forming to carry his message. An Institute for Servant Leadership is now in existence and seminars are being held in the United States for concerned people to explore the concept and the reality of the servant leader. Although Greenleaf, himself, is a deeply religious man who might even be described as a mystic, he has been careful to cast his message in secular terms.

—Dianne Francis and Joan Knutson

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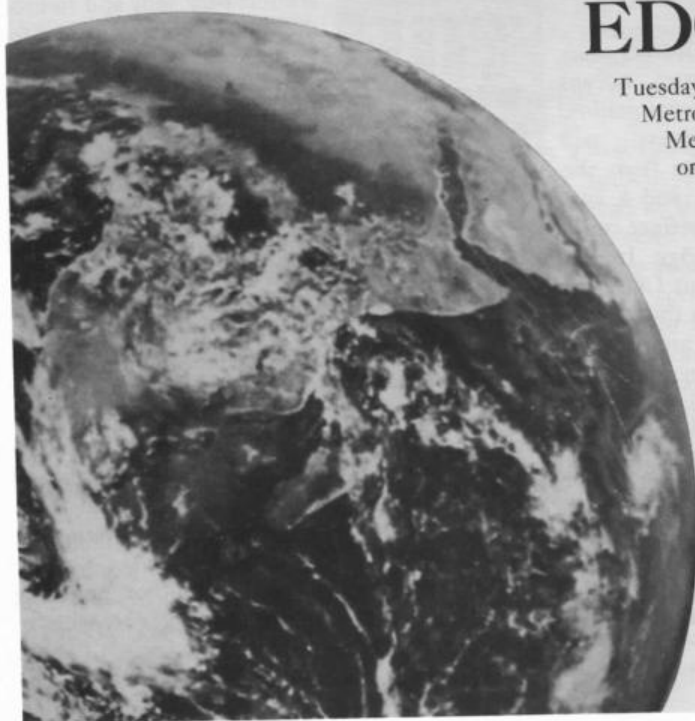
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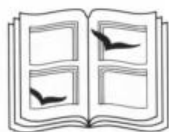
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Good Reading

THE INNER LIMITS OF MANKIND: Heretical Reflections on Today's Values, Culture and Politics

by Ervin Laszlo

One World Publications Ltd., 1989, paper,
146 pages.

As we have come to see with increasing clarity, the truly crucial limits facing humankind are not outer but inner. It is not the finitude of the planet, but the bounds of human will and understanding that obstruct our evolution to a better future. In a short and direct fashion, Laszlo delineates the options open to the human species: to deplete and despoil our terrestrial habitat, or to nourish the delicate balances that will allow a life of meaning and well-being for all of our fellow humans.

Half the solution to a problem is adequately identifying it. Laszlo exposes our "limits" not as a failure of nature nor

the finitude of the environment, but the failure of us human beings. Only by redesigning our thinking and acting can we redesign the planet. He pushes us to re-examine our vision, beliefs and values. These add up to the vast economic, political and cultural trends which determine the pathways humankind selects towards the future.

In six succinct chapters, Laszlo raises penetrating questions, challenges the age of eighteenth and nineteenth century modernism, outlines values for a global age, explores the power of vision, delves into the crisis of international political will and lays out the ground rules for a world to be. It is in the ground rules that Laszlo lays out his fundamental values to a world community—one that satisfies the need for life, progress and justice. Sustainability, development



and equity are universal and useful guidelines to meet these aspirations.

This is a valuable complement to other eminent works raising ecological and environmental consciousness. I would hope that people would consider reading this book in small groups and discussing new attitudes and actions that will nourish our universe and protect it for future ages. Laszlo is challenging. In particular, he challenges those of us in the Western world with the concept of development. In our naiveté, we imply that industrialized society is already developed. Are ever increasing GNP and material benefits the apex of social desirability? If not, what, then, are the alternatives? As Laszlo implies, it is up to us, individually and collectively, to provide answers and soon.

—Robert Rafos

THE END and videotape HOW TO STOP THE COMING ICE AGE

by Larry Ephron

Celestial Arts, PO Box 7327 Berkeley 94707,
USA. 1988. 230 pages. US\$8.95. Videotape
US\$19.95.

Nothing like being *au contraire*. Just at the time when the public is getting geared up to face global warming through the greenhouse effect, along comes Larry Ephron and his mentor, John Hamaker, to convey the good news that the Earth is facing an imminent ice age. In *The End*, an exceptionally clear, readable, and well documented book, and in his 56-minute video, *How To Stop the Coming Ice Age*, Ephron says we are now at the end of a 10,000-year interglacial cycle. Following the work of John Hamaker, he shows how the earth has been getting colder since 1972, and the climate more extreme: more floods, more droughts, more tornados. The increase in carbon dioxide is warming

the tropics, resulting in increased precipitation in mid-latitudes and the building of polar ice caps.

The situation is further exacerbated by warmer oceans which maximize precipitation; increasing cloudiness will create a net cooling from the greenhouse effect, and a sustained greenhouse effect could trigger a new Ice Age. It gets worse: trees consume CO₂ and regulate the atmosphere but the increase of carbon dioxide in the atmosphere is more than the forests can presently process; the result is that a large part of Earth's trees are being subjected to *waldsterben*—"forest-death." Furthermore, soil leaching and erosion have demineralized Earth's soils which releases even more CO₂ to the atmosphere. The CO₂ widens climate differentials, evaporates ocean water faster, builds up the polar glaciers and brings on an Ice Age. The Ice Age glaciers slowly grind up miner-

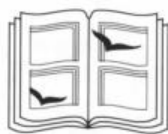


alized rocks to dust which is carried by wind and water to remineralize soils and forests, thus creating a new spring for Earth.

Thus, another Ice Age will mean on the one hand the end of most humans and the present civilization, but on the other hand the regeneration of the Earth's soils and forests. (James Lovelock in

The Ages of Gaia says with chilling nonchalance that the Earth as a whole system is at its most relaxed during an Ice Age period, and would welcome the rest.) Ephron similarly describes Ice Ages in the Earth's scheme of things as a strategy for remineralizing the soil and forests, and for giving the Earth some well-earned R and R in preparation for the next 100,000 year cycle.

Now when the author, quoting Hamaker, says that Ice Ages are wont to come on quickly over a period of about 20 years, and that we may be on the



Good Reading

THE END *continued*

verge of one, the reader is likely to sit up and take notice, especially when told that we are 14 years into a 20-year icing-up period. Ephron's conclusion is that we have until 1995 to get our human response together. We can avert the impact of an Ice Age by preempting the glaciers' function and remineralizing the soil ourselves by crushing existing glacial rock and spreading it on forest and farm land, by cutting back on fossil fuels, by stopping the cutting of forests, and by planting millions of new trees. If we do not respond in this way, warns Ephron, we could be in the middle of worldwide starvation by 1995. So the onus is on us humans to participate in concerted environmental action on a grand scale.

This is an apocalyptic and disturbing

message and this is a highly controversial book. The author makes some shrewd observations on why the established warming school of climate change and the politicians and State Departments that fund them have tended to come down on the side of Global Warming: it allows more room and reason for procrastinating!

Readers who wonder how atmospheric scientists like Hamaker and Lovelock can be predicting an ice age and other renowned scientists a greenhouse warming effect may find clues toward an answer in *The End*. What appears to be happening is that global climates are being pushed to extremes: summers and hot climates are getting hotter and drier, and winters and colder climates are getting colder: the trend is toward the desertification of tropical

areas and the glaciation of cooler temperate areas. To add to the total effect we can take into account increasing incidences of earthquakes, "storms of a century," and volcanic eruptions.

In this connection, the reader may wonder to what extent the *fin de siècle* desperation described in Hillel Schwartz's recent book, *Century's End* affects Hamaker's theory and Ephron's writing. But whether as a planetary civilization we get fried to death, or frozen to death, seems to matter little. Either way it seems that it's time to re-invent our lifestyles and create the structures that can bend the trend. Larry Ephron's book, *The End* and his video could just be the media that launch the reader or viewer on a journey to ecological sainthood.

—Brian Stanfield

HOME AND FAMILY GUIDE: Practical Action for the Environment

by the Harmony Foundation

Harmony Foundation of Canada, Ottawa,
Ontario, 1989.

As awareness of the environmental crisis becomes a part of all of our lives, we begin to ask the practical ethical questions of what we, personally, can do to respond. This book is one of an increasing number of books published to give us basic suggestions on how to reduce our negative impact on the environment. Its purchase contributes directly to support a foundation dedicated to environmental education.

The first half of the book gives the background knowledge needed to bring environmental concerns into daily activities, including chapters on energy, hazardous products, waste and water. The second half consists of a chapter for every room in the house (plus garage, lawn and garden and companion animals), giving practical tips, a few product ideas and criteria for choosing

products and practices. A glossary, reading list, and sources and contacts list round out its useful sections.

I found this book very helpful, hopeful and easy to use. The background theory is quite complete, considering the rapid changes in data available, and concisely creates a motivating sense of urgency without beating us over the head with guilt about how we got into this state. Visual symbols used throughout the book highlight tips with certain themes, such as waste reduction, or alternatives to hazardous products. Sidebars give more in-depth descriptions, recipes or examples. Facts and figures, for example, comparing the number of litres of water used per minute by a conventional showerhead and a low-flow showerhead, give simple ways to measure the impact a change will make. "Myths and other Misconceptions" panels ask questions about conventional wisdom and even new phrases such as "ozone-friendly" in such a way that you are given new data



that helps you make up your own mind.

I found the style of the book refreshingly objective—presenting facts, sometimes highlighting more than one option or presenting a dilemma rather than advocating a certain choice. Although I found the "A few product ideas" suggestions in each chapter useful, I did wonder

what the bias was in choosing the particular products listed. There is an extensive section in the introduction which disclaims endorsement of any of these products, yet their very inclusion gives endorsement. One hopes that readers will also use these as clues to other available products.

Although change must happen also on the macro level for constructive responses to the environmental crisis, this book helps a great deal in giving impetus to the vast effect that individuals and families can have in changing global trends through changing their own images and actions.

—Jo Nelson

☆☆☆☆☆
Good Viewing

WELL AND STRONG: A True Story

Video produced and directed by Karil Daniels

Point of View Productions, San Francisco, 1989. 28 minutes.

This documentary-style video is introduced by computer graphics of a moving figure accompanied by a background dialogue which discusses "peak vitality as a birthright" which should last into adulthood, and suggests that the choices we make every day contribute to the state of our well being.

Well and Strong tells the story of Verna Henderson, a California wife, mother and school teacher, who found herself facing surgery and made the decision to change her whole approach to health care. The video follows her experiences as she becomes involved with the Berkeley Holistic Health Centre. Verna narrates her own story, recalling her fear of surgery, of ineffective drugs which caused side effects and her feeling that there must be another answer. A number of modalities are explored as Verna becomes involved with them, including the use of a machine which measures muscle tension, showing that much of her difficulty arose from tensions and an inability to relax. She is shown using thermometers to raise the temperature of her hands, being led through guided imagery and

experiencing deep breathing.

Other therapists are shown as they instruct Verna in massaging the diaphragm area, autogenic training and reflexology, which enable her to leave the Valium in the bottle, and to "feel in control." The nutritionist accompanies her to a store, where they discuss the benefits of fresh whole foods. She does gentle, stretching exercises daily. Hair analysis reveals high mercury content and it is suggested that she reduce her high intake of fish.

Verna becomes a proponent of holistic health care and shares her interest and experiences with her friends and teaching colleagues, some of whom think she is a bit "weird," but who nevertheless admit that she indeed looks healthier. Verna also shares her new knowledge with her students, and gives them rest periods where they listen to relaxation tapes.

Verna's story is inspirational. She has successfully controlled her illness without resorting to surgery. She has learned the value of preventive medicine and we feel that her life will continue to evolve into a higher level of wellness. Verna is a believable woman, with a gentle sense of humour and quiet dignity. It is quite frankly a relief to see the leading figure in a health video as a 40-plus woman with an admitted weight



problem, rather than the usual anorexic 20 year old. (Verna manages to deal with her addiction to ice cream by making her own!) This very fact makes it a video that general audiences relate to, and see themselves, while less than perfect, being able to affect their health positively.

The length of the video limits its use as a discussion/education tool for small groups, or for use with clients. At times it tends to drag, particularly since Verna's voice, indeed all the voices, are relaxed and soothing. The one-camera taping makes the editing uneven, and the characters often "shift" in mid-conversation. Although Berkeley Centre is mentioned only briefly, I had a vague sense that this had originally been a promotional video for the Centre. The number of alternative/complementary modalities are limited, but those which are discussed are believable and non-threatening to the newcomer to holistic health concepts (it includes a physician doing the usual brief examination!) The limited number of techniques also tend to stress the relaxation, nutrition and gentle exercise, with the added dimension of "mind-work" as a tool. Not only is the average person able to relate to these, but they are not overwhelmed by being given too much information. The dialogue is clear and understandable.

My initial viewing of *Well and Strong* left me quite delighted with the presentation. It was only during subsequent viewings that I became aware of its flaws. Its overall content and presentation is good and would be well received by audiences new to the ideas of holistic health, and, with a resource person, would be an excellent introduction to a presentation on holistic health to a novice audience.

—Mary Simpson, R.N.

Mary Simpson owns and operates Positive Alternatives, a wellness education centre in Brampton, Ontario and offers workshops on therapeutic touch.



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Good Listening

THE FIRE MASS: The Star-Scape Singers directed by Kenneth G. Mills

by Christopher W. Dedrick and Kenneth G. Mills

Sun-Scape Records, Toronto, Ontario.
Digital cassette, \$14.95.

You must give yourself up to *The Fire Mass*.

This one and one-half hour *a cappella* setting of the Mass, performed by the Star-Scape Singers and written for them by Christopher Dedrick and conductor Kenneth G. Mills, is not background music.

The music is difficult, uplifting and astonishing. It begs to be heard with complete concentration. Played while the dishes are being washed, its magical qualities can become aggravating. It will not do what you expect, and if you fight it, you can feel taken against your will.

The Fire Mass is an *a cappella* contemporary mass in six sections, using the traditional Latin text of the Ordinary as well as selected verses from Mills' published poetry. Its history has been an honourable one, including a 1986 premier at New York's Carnegie Hall, the national broadcast on the CBC of a 1988 performance at Toronto's Roy Thomson Hall and an international airing by Radio Vatican on Easter Saturday, 1989. This 1990 cassette version is the Sun-Scape Records re-release of a 1988 performance, directed by Mills and recorded live in a thirteenth century basilica in Tallinn, Estonia.

The Star-Scape Singers were created by Mills in 1976, and the unique style of these five female and five male voices is created by exceptional vocal range, marvellous harmonies, a kaleidoscope of tonal colouring and the ability to achieve, when wanted, the sound of instruments. In fact, in the Credo and Agnus Dei of *The Fire Mass*, it is impossible to believe that you are not hearing instrumental accompaniment. A critic from the *El Paso* (Texas) *Herald Post*,



has written, "To compare them with traditional choirs is like comparing a Moog synthesizer with a mouth harmonica."

The Fire Mass, described in words, might appear so strange as to be off-putting. I must admit that, reading through the material given to me with the cassette, I felt some trepidation before actually listening to the Mass. It described "broken vibrato brought to the edge of hearing...rasp-like dissonant elements...(and) not much wallowing in melodies."

That is all true, but they are components of an other-worldliness which triggers the imagination and throws the listener into new spiritual and emotional realms. The challenging start of the Gloria, for instance, made me think, "Is this what it is like in dimensions beyond the five senses?"

Many powerful moments in *The Fire Mass* are due to the remarkable presentation. In the Gloria "Where the Father...beckoned and called" conjures up images of just those movements. In the Sanctus, the "Remember" is very like a memory flitting around the edges of the mind. And the Cosmic Dance section of the Benedictus is truly dancelike.

And it is deeply moving to hear the singers go effortlessly from "Amen" to "Omm" and back again, demonstrating

how closely related is the emotional impact of different religious holy words.

But I have one serious problem with *The Fire Mass*. I do not like Mills' poetry. To me it is uninspiring and detracts from the splendour of the voices. Several times I needed to ignore the words and go solely on the strength of the music.

In the Gloria, for example, Mills has taken the Our Father, which owes its magnificence to its simplicity, and expanded on it. Gilding the lily is the only way I can describe, "Thy will be done, on earth as it is in heaven at present."

As well, his created words are jarring, as in the Credo, "...you seem to be an *earthian*," (italics mine). That stiltedness also results from attempts at loftiness, as in the Benedictus, where the too-grand imagery is simply bothersome. (eg. "woven on the looms of the mills where the Light of the 'I' is bound.")

As a conductor, however, Mills is exceptional, and that skill, along with Christopher Dedrick's score and the wonderful voices of The Star-Scape Singers, make *The Fire Mass* intoxicating. Their collaboration leaves you, to quote a line from Mills I do like, "on the window ledge of time."

—Maxine Sidran

LETTERS *continued from page 6*

One form the quilt can take is the mandala—a circular representation interpreted by Carl Jung as a symbol of human wholeness. Mandalas also serve the creative purpose of giving form to something that does not exist, creating something new from within.

I am interested in developing a network of artists. I deeply believe every human being is artistic. However, I am clear that people need to explore their own individual medium of expression in ways that open their own consciousness and release form. This network of artists could act as guides in the process. Perhaps *Edges* could provide the conduit for linking this network.

Claudia Cramer
Seattle, USA

[Edges would be happy to "provide a conduit." Claudia Cramer would welcome correspondence. Her address is: 2558 Dexter Ave No. 204, Seattle WA 98109, USA. (Ed.)]

Operation Impact

Five years ago I had the good fortune to discover, here in Tokyo, a program offered by Azusa Pacific University of

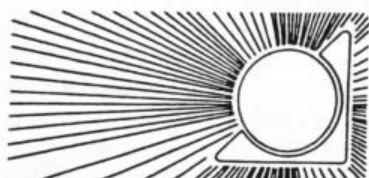
Azusa, California. The program sounded interesting and was reasonably priced, and I had to attend classes for only two consecutive weeks a year here in Tokyo. I found this a tremendous experience that I wanted to share. You might find it useful as well.

The Operation Impact program is designed to be helpful to the students, enabling them to do what they want to do professionally. A student begins with a two-week period of concentrated classroom instruction, usually in June. Two courses are taken concurrently per week, one in the morning and one in the afternoon. These intensive sessions are followed by year-long study projects contracted for each course. These projects, like the classes themselves, are designed to be directly related to each student's occupational responsibilities. This format allows the student to earn up to twelve semester units of credit annually. You can earn your Master's degree in three years and you are encouraged to finish within five years.

The Operation Impact program aims to equip individuals with the knowledge, competencies and attitudes needed to function as change agents in

their organizations. Students have opportunities which can enable them to understand and apply the process of human resource development to organizational problems and development. The program is intended to enable organizations to more effectively fulfil their mission, goals and objectives and to use change agent skills in the design, implementation and evaluation of programs. It also empowers individuals to create strategies for personal development that enhance both their own lives and the life of their organization.

The designers of Azusa Pacific University's Operation Impact program intended it to provide continued educational support to leaders worldwide committed to the growth and development of others intellectually, emotionally, interpersonally, culturally and spiritually. They adapted this degree program to the caring professions which directly, or indirectly, deal with the development of human resources internationally. Through Operation Impact, a person living abroad may obtain an M.A. in Social Science over a three-year period. Some of the locations where Operation Impact courses are being given at this time are



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the Philippines, Taiwan, Japan, Hong Kong, Indonesia, Ghana, Kenya, Côte d'Ivoire, Ecuador, Costa Rica, Guatemala, Peru, Bolivia, Brazil and Papua New Guinea.

It is important to note that Azusa Pacific University is a Christian university and this is the perspective from which many of the courses are developed. It was my experience that students who were not Christian did not appear to have difficulty in assimilating the courses. These students were predominantly extra-nationals, but there were some Japanese, and I was impressed by the support that the Japanese students were offered by the other students during and after the classroom sessions. These courses are designed for students who are fluent in English.

Now, I know you are probably saying, "This sounds great, but I couldn't possibly go because I have to work." Well, I said the same thing at first, but, since I was really motivated to find a way to go, I made a proposal to my employer emphasizing how our school would benefit by the projects that I would do as a result of course work. After talking it through with him, it was very clear that this was an arena that we needed a lot of help in. I really do believe that the organizations reap many benefits from this program.

If you don't have time for the course projects, or don't need the credits, you can audit the courses. Particularly when you are out of your own culture, it is very good to take time for input and refreshment. One builds a whole new network of colleagues through the program.

For contact names or to find the program nearest you, write Grace Barnes, Azusa Pacific University, Department of Human Resource Leadership, Citrus and Alost, Azusa, CA 91702, USA.

Joan Knutson
Tokyo, Japan

Can't Put It Down

I find *Edges* so very interesting to read. Once I pick it up, it is very difficult to lay it aside.

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Laboratory guide Jeanette Stanfield, MA, is an educational consultant with ICA Canada specializing in leadership development programmes which occasion creative, participatory learning experiences for individuals and groups. She has designed curriculum, trained faculty teams, and taught people of all ages in multi-cultural situations in Australia, India, USA, Mexico and Canada over the last 20 years.

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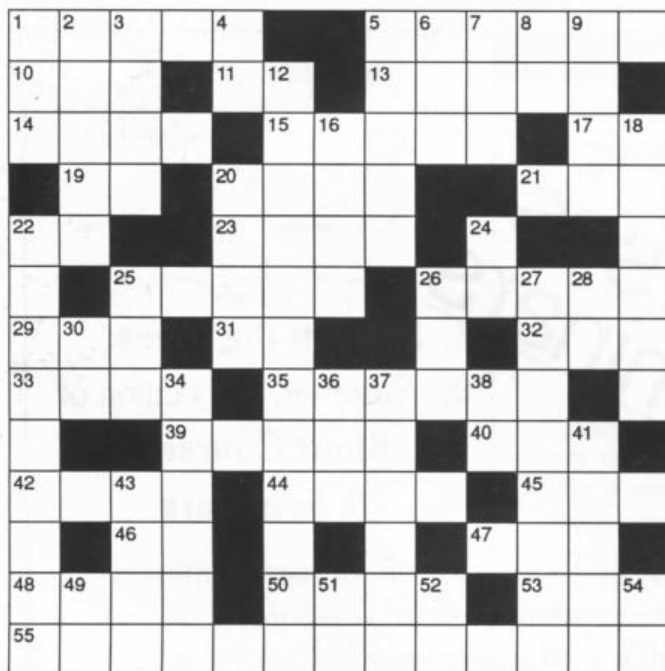
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Planetary Crossword

by Sheighlah Hickey



ACROSS:

- 1 of mother earth
5 venerated, hallowed
10 final point
11 ostmark

DOWN:

- 13 vices or molluscs
14 manner or way of carrying oneself
15 endangered ecosystem
17 prices current

19 manuscript or muscular dystrophy

20 at another time

21 county in Scotland

22 exclamation expressing wonder

23 a bowl usually of stone

25 raise the spirits of

26 a recess or hole in a wall or a place suited for

29 one's portion in life

31 blood's negative factor

32 a staff, wand or scepter

33 famous cookie

35 to flow, drain or leak away

39 person below the abbot

40 rested on the haunches

42 give moral support to

44 statuary

45 zenith

46 7th tone of diatonic scale

47 blend together in a single mass

48 of the Chinese people

50 one of the ultimate principles, apprehended by reason

53 lubricant

54 surpassing the limits of possible experience

4 type of Japanese play

5 give fragrance to

6 mode

7 have power to

8 reichsmark

9 catch sight of

12 having belief in a god

16 holds a scoop of ice cream

18 statements of belief

20 from a distance

22 great or widespread destruction

24 Chinese measure of distance

25 (Fr.) summer

26 national education association

27 the universe and everything in it

28 Stop! Halt!

30 owner's risk

34 the liberty of choosing

36 an habitual drunkard

37 abjectly afraid

38 post script

41 deadly quality of some waste

43 a lamp for heating liquids

49 Iridium

51 French thimble

52 bill board

54 in football; left end

ANSWERS ACROSS: 1 gailan, 5 sacred, 10 end, 11 om, 13 clam, 14 mien, 15 ocean, 17 pc, 19 ms, 20 anon, 21 ayr, 22 ha, 23 font, 25 elate, 26 niche, 29 lot, 31 th, 32 rod, 33 oreo, 35 escape, 39 prior, 40 sat, 42 abet, 44 stat, 45 top, 46 ti, 47 mix, 48 sino, 50 idea, 53 oil, 54 transcendence. ANSWERS DOWN: 1 gem, 2 anima, 3 ideas, 4 no, 5 scent, 6 a la, 7 can, 8 mm, 9 espy, 12 monothelistic, 16 cone, 18 creeds, 20 afar, 22 holocaust, 24 il, 25 ete, 26 NEA, 27 creation, 28 ho, 30 or, 34 option, 36 sot, 37 craven, 38 ps, 41 toxic, 43 etha, 49 lr, 51 de, 52 ad, 54 le.

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