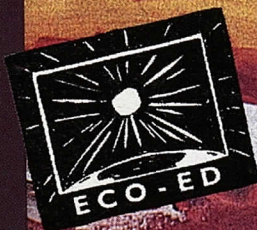


EDGES

NEW PLANETARY PATTERNS

This edition is Edges' contribution to ECO-Ed, the World Congress on Education & Communication for Environment & Development



JAMES LOVELOCK
Living with Gaia

Margarita Arias
Sustainability & the Human Factor

Willis Harman
RETHINKING ECONOMICS

Development Discovers Poverty
WOLFGANG SACHS

ALSO: INFOTOXINS
Arts of ECO-ED

VOLUME 5, NUMBER 2



OCTOBER-DECEMBER 1992

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Toronto: November 28, 1992
February 6, 1992

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ECO-ED: Life after the Earth Summit

The World Congress on Education and Communication puts the controversial global environment and development agenda right back where it belongs...into the hands of the people.

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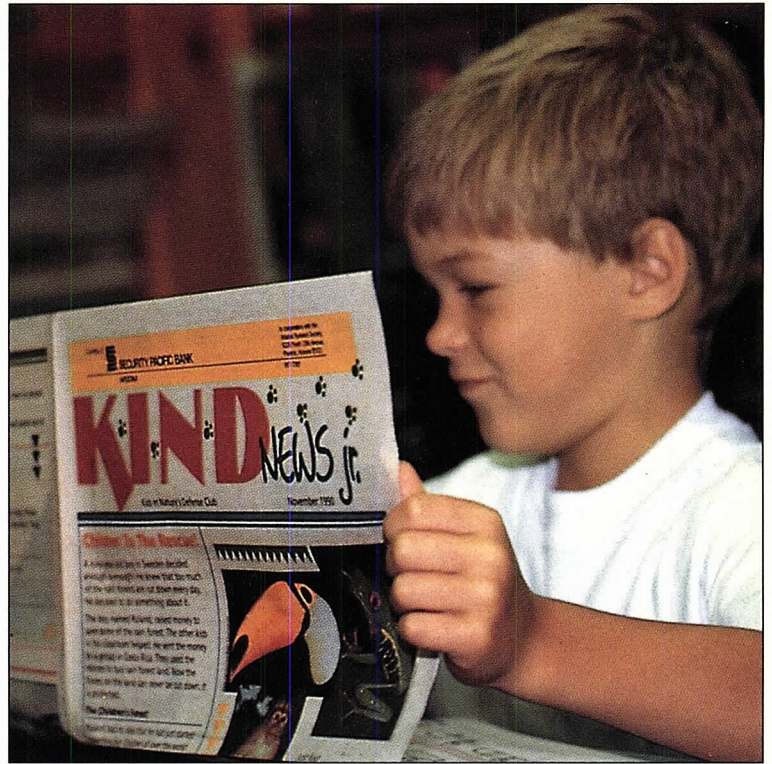
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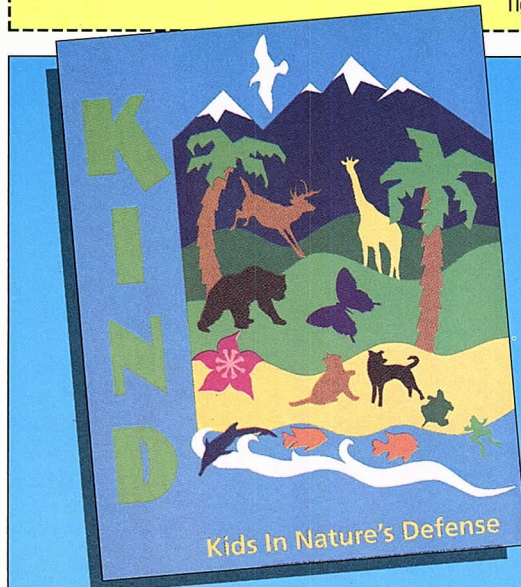
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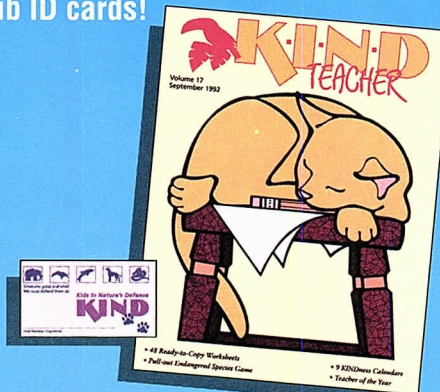
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Statement of Purpose A wave of change sweeping through societies has shaken the foundations of civilization. Every facet of existence is being challenged to evolve into new planetary patterns of knowing, doing and being. The Institute of Cultural Affairs weaves new relations between individuals, organizations and communities. At the core of ICA's work is spirit, sustained by the myths and techniques of many cultures, helping to shape social transformation. ICA's research, education, organizational change and international linking programs work together to elicit new planetary patterns.

The opinions in *Edges* articles do not necessarily represent the policies or views of ICA Canada.

Edges gratefully acknowledges the support of the Government of Ontario through the Ministry of Culture and Communications.

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Editorial

Whenever the many proponents of sustainable development and environment come together in the same place, there is the possibility of major disagreements. There is also the potential to initiate significant collaboration and partnerships of all kinds. But these become possible only when differing assumptions and contexts can shelter under a common umbrella of concern, large enough and compelling enough to make for concerted action rather than crippling disputes.

Today, we are fortunate enough to be clear about the umbrella; the all-embracing context is the future of planet earth. In the 1930s, the German ethical theologian Dietrich Bonhoeffer put it existentially in his question, “How are the coming generations to live?” And long before Bonhoeffer, North American Natives insisted that any decision must be made on behalf of the next seven generations. This on-behalf-of quality of thinking and action is a fitting umbrella for exponents of development and environment to dialogue, plan, collaborate and form partnerships.

This ethical umbrella is crucial, since both arenas of development and environment hold many perspectives, and quite different approaches to dealing with challenges. Environment has its preservationists—concerned with parks and species, or its conservationists (strong on frugal resource use), and its radical action movements, such as Greenpeace or Sea Shepherds. Then there are the Gaianists, with their scientific and religious wings, the ecofeminists, the deep ecologists and their commonwealth of all beings, and the wilderness folk, who despairing of finding meaningful life in big cities, find ecological salvation in the wilderness. Add to those the environmentally sensitized officials at many levels of government and business, and the multitudes of local people, who, for more personal reasons, insist on practising “the three Rs” and educating their children to care for the earth. Then there are the high tech folk who, while not denying the need for environmental measures, say we should be paying more heed to the new electronic environment.

Similarly, there are many mansions in the house of development, ranging all the way from CIDA, the World Bank, the IMF and the UN agencies to the micro-entrepreneurial efforts of the Grameen Bank in Bangladesh. There are the emergency aid organizations, the intermediate technology people, and the many thousands of non-governmental organizations and voluntary agencies. There are the bilaterally-funded megaprojects, and the integrated or project-focused community development efforts. There are the cultural survival efforts to preserve the way of life of indigenous people, and many more.

Major and minor differences exist among all these wings, branches, and points of view. But the common denominator that can unite them is their concern for the future of Earth's peoples. Each holds an essential set of values and each promotes a needed line of action.

(continued next page)



Edges magazine is printed on paper which contains over 50% post-commercial and 10% post-consumer waste. The printing inks contain more than 60% pine resin or vegetable oils.

But the differences are real. Those who believe government regulation is a key to environmental protection have one handle on the truth. Those who insist that environmental protection must become part of the market economy have another. The champions of local, indigenous development, doubtful about the strings attached to outside financial help, have a good point, as do those who value international development partnerships; while those who want to throw the whole economic development project aside in favour of a new global cultural project for civilization deserve a hearing. And even those who think the whole environment/development issue irrelevant, because we are all moving into electronic hyperspace, may not be as balmy as we think.

It is easy to get confused about the environment (witness the climate-change issue, for example); and it is easier to get cynical about development efforts. But confusion and cynicism are two a penny. The more difficult thing is to determine where

the areas of agreement and, therefore, opportunities for dialogue, partnership and collaboration lie. The ECO-ED Congress, the first major international followup event to the Rio Earth Summit, is specifically structured to this end. While giving due time to the inclusive review of the issues and challenges, most of its time will be devoted to delineating arenas for action and collaboration in its workshops and interact sessions. On top of that a series of partner events on energy consumption, waste management and computer networking, for example, immediately precede the conference.

This issue of *Edges* is dedicated to ECO-ED, and attempts to follow the major conference themes. These plenary themes are indicated at the beginning of each of our editorial features. Our line-up of excellent contributors include Willis Harman and John Croft who expose the soft underbelly of growth-dominated economics and focus new images. James Lovelock warns us about fiddling with the environment and trying to manage Mother

Earth. Margarita Arias, Vandana Shiva and Wolfgang Sachs reveal large gaps in the current perception and practice of international development. While, for communication and education, Jeff Phillips describes the dynamics of information pollution; Alan AtKisson provides some tips on how best to support social innovation; and Mitchell Gold, Tim Grant and June and Rob Hutchingson share their experience as environmental educators.

We take this opportunity to congratulate the organizers of ECO-ED and to greet all those attending the congress and hope that all the thinking and sharing of ECO-ED yield a great crop of cooperation and partnership on behalf of the next generations.

We wish to thank all those readers who participated in our readership survey in August. Results will be published in our next issue. We especially welcome all those new readers from the Education for a Global Perspective project in Ontario. ♦

—Brian Stanfield

A WELCOME FROM ONTARIO'S MINISTER OF NATURAL RESOURCES

It is a pleasure to welcome **ECO-ED** delegates to Ontario. At the Ontario Ministry of Natural Resources, we fully support the aim of this gathering.

In the ministry's strategic plan, entitled **Direction '90s**, the primary goal is to develop the sustainability of Ontario's natural resources. And the supporting strategies we've adopted include forming links with other organizations and developing an improved information base to help us achieve sustainable development.

All these elements are reflected in the **ECO-ED** conference.

We're also delighted to demonstrate one of our education initiatives by co-sponsoring, with the Canadian Wildlife Federation, a pre-conference event entitled "A WILD Experience."

This two-day event at the ministry's natural resource education centre near Algonquin Park brings together Canada's Project WILD co-ordinators and environmental educators from around the globe who are attending **ECO-ED**. Project WILD is an interdisciplinary conservation education program that utilizes wildlife as a learning tool. Since 1986, thousands of Ontario teachers have attended workshops to learn techniques for instructing students about wildlife populations, habitat, use, management techniques and research programs.

ECO-ED is a window on the world's best programs in environmental and conservation education — and an opportunity to meet the people who administer them. We are honoured that Ontario was chosen as your meeting place and we wish your conference every success.

Bud Wildman

C. J. (Bud) Wildman
Minister of Natural Resources





October 1992

Dear Friend:

It gives me great pleasure to contribute to this publication which will serve as the exclusive guide to the World Congress for Education and Communication on Environment and Development (ECO-ED).

Our collective resolve and individual actions can greatly influence our society and the world of tomorrow. For our part, Ontario continues to work with the Government of Canada to develop its position on climate change and biodiversity treaties. The Ministry of the Environment is acting on initiatives aimed at waste management, pollution prevention and waterfront regeneration. These issues and our demonstrated leadership in supporting the greening industry, energy efficiency, agriculture and forestry marks a beginning for our continuing efforts on behalf of the natural environment.

Support for our initiatives grows through awareness and education. I urge individuals and organizations alike to make environmental sustainability part of their lives, jobs and communities. Happily, there is increasing interest in our fragile ecosystems thanks in part to publications like Edges Magazine. I commend the publisher of Edges and the Canadian Institute of Cultural Affairs for their involvement in this conference and their efforts to facilitate environmental change in Ontario and abroad.

Congratulations to the organizers, sponsors and hosts of ECO-ED for opening this window of opportunity. I also extend a warm welcome to all of the participants who are joining this important gathering. We appreciate your attendance and hope you will visit the Ministry of the Environment's information booth while at the conference.

Yours sincerely,

Ruth Grier
Minister



The "Greenfreeze" Fridge

The world's first standard refrigerator, without any CFC-foamed insulation, without CFCs or CFC-derived cooling liquids, and without any effect on ozone depletion and global warming, is now available for German customers. Exclusively marketed by Greenpeace and DKK Scharfenstein, the refrigerator uses not polyurethane insulation, but polystyrene (EPS) foam, expanded with natural CO₂. This requires a slightly thicker insulation but avoids the use of CFCs for expansion. The first units will be delivered in a few months after final licensing by the German Technischer Überwachungsverein (TÜV). Prices are comparable to standard CFC units. For information contact Greenpeace Germany, Vorsetzen 53, 2000 Hamburg 11, FRG. Tel. 49 40 31186 0, FAX 49 40 31186 141.



Rio: The Ostrich Prize

Community and not-for-profit organizations at the Earth Summit in Rio de Janeiro devised the Ostrich Prize. The USA won top honours for opposing, blocking and undermining initiatives on climate change, biodiversity, biotechnology, consumption models, weapons of mass destruction and elimination of nuclear waste. Saudi Arabia came in second for opposing any development of renewable energy sources.

Source: web:en.unced.

Poker: Structural Adjustments

Item: The Globe and Mail reports that a group of women poker players in Chicago are making structural adjustments to the card deck. They have de-ranked the King as top picture card and replaced it with the Queen. In the same vein, they have replaced a few of the symbols with crescent moons and five-pointed stars.

Maybe the Jack is next on the hit list. What will replace it? How about Jill?



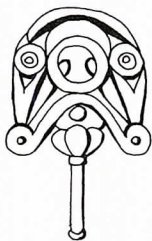
A Chameleon Spirit

The journalists of the Leningrad newspaper *Profsoyuznaya Gazeta* summoned the spirit of Lenin and held an interview. The spiritualist show took place under candle-light at two in the morning on the eve of Lenin's birthday with the help of a china saucer with an image of an eye. According to the publication, the main question the journalists asked was, "What will save Russia?" The spirit of outstanding Marxist practice answered as follows: "Marx recognized the market, there is strength in the market. Therefore, the main task is to destroy the last traces of the Communist Party." To the last question of the interview, if he believed in the future of Russia, the spirit of the leader of the proletariat replied briefly, "Yes." Source: Severo-Zapad Information Agency

Guerrilla Goodness

"Practice random kindness and senseless acts of beauty." So says one of those anonymous networkable blurbs that cross the desk from time to time. It continues: "A vision of guerrilla goodness is spreading." Apparently the sentence is getting spraypainted on warehouse walls, taped to refrigerators, written and then re-copied on table napkins. It tells how people are shovelling the snow gratuitously in their neighbour's driveway as well as their own, paying for plunking a coin just in time into someone else's meter, planting daffodils along a public roadway, collecting litter from footpaths in a shopping cart—all for nix. The word is that guerrilla goodness begins slowly with a single act.

Presumably, the habitually kind and the purposeful public beautifiers should just keep on plugging away.



Quail at the Thought?

And now, a profound geopolitical statement from You-know-who: "The global importance of the Middle East is that it keeps the Near East and the Far East from encroaching on each other."



How to Handle Stress

Stress management has become a multimillion dollar business. But Robert Spence of Hamilton, Ontario, gave this list of surefire stress-handling tactics to Jack Staples of Lindsay, Ontario for free.

Pop some popcorn without putting the lid on.

Use your Mastercard to pay your VISA.

When someone says, "Have a nice day," tell them you've made other plans.

Make a "things to do" list of things you have already done.

Retaliate for tax woes by filling out your tax forms with Roman numerals.

Pay your electric bill in pennies.

Have your surname legally changed to "Your Highness."

Brush your teeth vigorously with cheese whiz.

Take \$10.00 out of the offering plate at church and put in a note saying "You owe me, Lord."

Read the dictionary upside down and look for secret messages.

Pound your head repeatedly on a pile of lightly toasted Wonder bread.

Bill your doctor for the time you spend in his waiting room.

Stare at people through the tines of a fork and pretend they're in jail.

Gunpowder into Paint

Swords into ploughshares—why not gunpowder into paint? A Bulgarian scientist, Radi Ganex, has come up with a cheap, effective and ecologically safe method of making nitrocellulose paint from all kinds of gunpowder and explosives, including those from missiles. The paint, one-third gunpowder, is a tenth cheaper than normal brands. So, instead of blowing up tonnes of useless explosives, we'll be able to paint our houses with them. Source: Alternatives: Perspectives on Society, Technology and Environment, University of Waterloo.



Energy Gluttons

Per capita, Canadians are the greatest users of energy in the world.

Households, with an average annual output of nine gallons of toxic waste each, make up the largest single class of hazardous-waste generators in Canada.

The average Canadian produces 1.8 to 2 kg of household garbage every day, or from two-thirds to a ton per person per year. According to Environment Canada, we are the most wasteful country on earth. In the USA, per capita production of garbage is 1.8 kg daily; in Switzerland 1.1 kg, and in Norway, 0.77 kg.

In Canada, the average per capita daily household water use is 260 litres, about twice the amount of water used by the average European.

Every sixth truck on the road today is a garbage truck.

Source: Recycling Development Corporation; Harmony Foundation; Community Workshops for the Environment.



Biodegradable Coffins

Now recycling is really getting down to earth. An Australian firm, Sullivan Machinery, is developing a line of coffins made from recycled newspapers. The coffins are moulded from twenty pounds of paper mulch and a secret binding. They are biodegradable and less expensive than conventional caskets. A finish with a veneer sheen takes care of the aesthetics, making them look just like timber.

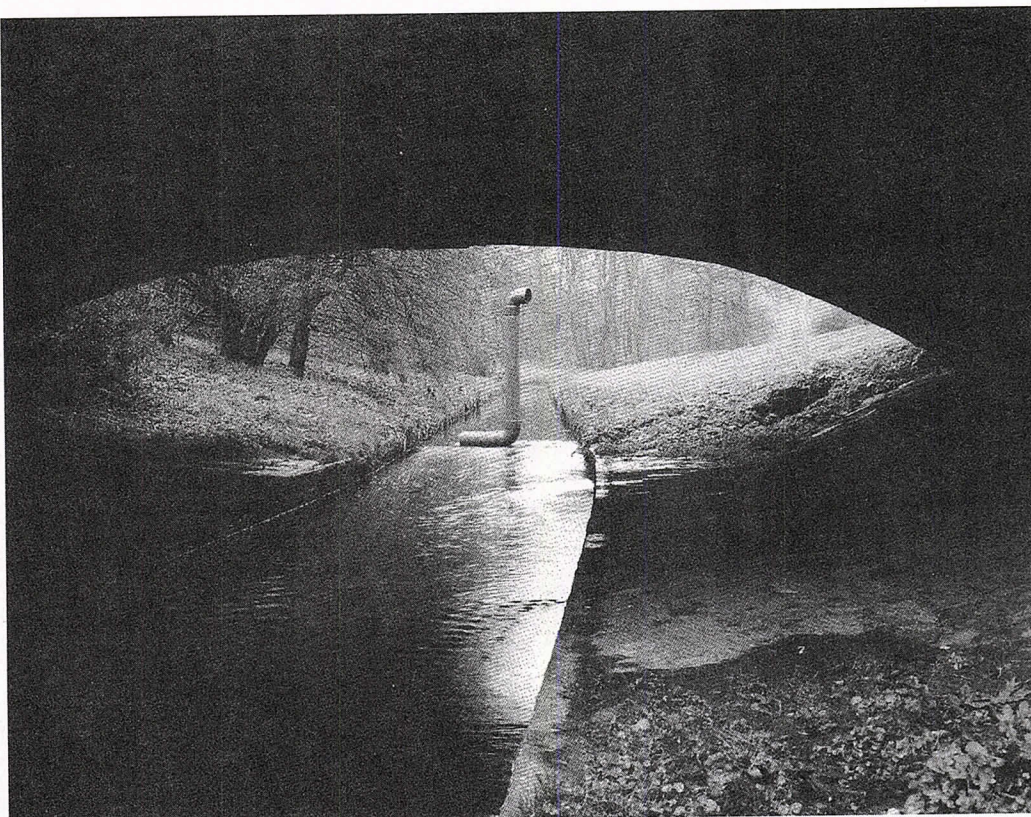
Source: Environment Network News

Technology: Is Nature Really Obsolete?

SOHAIL INAYATULLAH

New areas of technology are promising to change the world. For capitalism, they promise a renewal, a rejuvenation from the exhaustion that has set in. They also promise to revive the idea of progress. Thus it is not theologians who will provide the new spiritual basis for capitalism, but hackers, lab experts, and new age cultists.

Take virtual reality, for example. In virtual reality we can don a helmet and practise safe travel or safe sex. Indeed it is this that will bring computers into our homes in the next century, not banking, nor games, but virtual reality sex. Technology will have finally captured nature—making it obsolete. Distinctions between types of reality will be blurred. Maybe religions will offer virtual reality experiences of their image of God. Perhaps the redeemer, whether Jesus, the Mahdi, the *taraka brahma*, is returning



Jimmie Durham, *Untitled*, 1992. PVC, 165x20x120cm.

and will be available to all, at all times. Fundamentalists will have a hard time since distinctions between various types of reality will be blurred.

Or genetic engineering. While it will start out quite harmless, all of us want to avoid abnormalities or various genetic diseases; so we will all want to be checked out by our family genetic engineer. But soon this will lead not to disease prevention but capacity enhancement. Intelligence,

memory, body type and beauty will be open for discussion. Birthing will eventually be managed by State factories and we will be the last generation to produce children the old-fashioned way. It will be the final victory of the feminists and their final defeat. The biological cycle will have been terminated by technology, so that, once their reproductive capabilities become unnecessary, women will essentially not be any different from men. There are causes

for alarm (and the negative scenarios infinite), but, perhaps, when everyone can be beautiful, it will be moral and spiritual potential that will matter the most. Perhaps, then, with fewer genetic diseases, our differences will become once again charming, rather than manifesting as attributes that keep us from uniting as humans. Perhaps genetic engineering will lead, paradoxically, not to sameness, but to difference and a greater humanity.

Or robots. One way to stop the exploitation of labor (and to tame labor) is to increase the use of technology. In capitalist structures this means layoffs; under cooperative structures this means more leisure and time for philosophy and play, politics and love. Eventually, a robot will injure a worker—it has happened. And, concomitant with ways of thinking that see everything as alive (quantum physics, Buddhism, animism and Indian thought) and with advances in artificial intelligence, we can envision a time when robots will have legal rights as well. Their utility value will be surpassed by their existential value. While a robot uprising is unlikely, the move from viewing robots as machines to looking on them as dumb but lovable animals which, in time, gain rights similar to those of children, is easy to imagine. Robotics might also spur the developing world to become more self-reliant, since the first world won't need its cheap labour.

Or spiritual technologies. Also ahead are developments in mind technologies related to developments in human potential. If we assume that most of us use less than one percent of our brain and geniuses use two percent, then concentration exercises or technologies that merge brain with physical technology should take off. A more balanced worldview would en-

courage these developments rather than more chemical-based ones. These might also change our theories of the nature of science as we search for unities that are both mind and body. The Indian philosopher Sarkar, for example, posits that there exist *microvita*—basic energies that carry information and viruses and are capable of creating life. They link perception and conception.

Or, finally, biotechnologies. Freeman Dyson argues that we need to move away from metal-based technologies to biology-based technologies. He introduced the Astro-Chicken—a spaceship that is biologically grown rather than engineered. Already there are life substances that eat up bacteria. New life will soon be created for all types of problems—pollution spills, bad neighbours and possibly bad jokes. His point is that we are looking in the wrong direction for the future. Biological development will provide food as well. Then there is Eric Drexler and his work in nanotechnologies—minute technologies which in effect would break down matter and recreate it in any shape or form we want. Instead of growing food, we could create food by simply rearranging molecules.

These new technologies pose the most dramatic problems for those of us who consider the natural as fixed

instead of as constantly changing and in the process of recreation. Fundamentalists will find the next 20 or 30 years the best and the worst times for their movements. The best, because the forces of tradition will flock to them; worst, because the technological imperative and humanity's struggle to constantly recreate itself will not easily force nature back. Even biological spills will most likely be controlled, not by State regulations but by new technologies. The answer to these problems may be in newer advanced body-mind-spirit technologies. In this process, technologies themselves will be redefined as not merely material processes, but mental and spiritual processes embedded in particular cultures.

Rosy view? Then again, we may slide down into a long depression. Centre-periphery distinctions could worsen. Genetic or biotechnology could yield new viruses, new types of life that end our life. The planet itself, however, might not care. "Gaia," argues James Lovelock, "is a self-regulating mechanism that keeps life alive." Humans might not be needed; may turn out to be just an experiment that went wrong. She might choose rabbits instead of monkeys this time. ♦

Sohail Inayatullah is a freelance writer who lives in Hawaii and a member of the World Futures Studies Federation.

Fundamentalists will have a hard time

since distinctions between various types

of reality will be blurred.

Life after the Earth Summit

*The air was exhilarating
at the Earth Summit—
but very thin. We can now
see more clearly and much
farther.*

BRIAN STANFIELD

Thirty-five thousand people, over 100 heads of state (of whom only three were women), protected by 25,000 troops, with 9000 journalists trying to get stories from more than 500 conferences, meetings, panels, discussions and performances: the UN Conference on Environment and Development (UNCED) was "the biggest conference ever." The kids were off the street, having been exported to the *nordeste* for the duration.

Rio was eco-fied for the occasion with lots of clean-up, paint and new parks, and the *favelas* were, of course, off limits.

While representatives of the "global civil society" (representatives of 650 NGOs) were drafting their own set of treaties on the other side of the city, UNCED was busy with its stated objectives: signed conventions on climate change, biodiversity and forests, and nutting out Agenda 21 and the Earth Charter. It was also working through sixteen other major eco-developmental issues, ranging from marine pollution to urban environment. So, how did it do?

Did UNCED achieve its stated objectives? Well, the Climate Change and Biodiversity conventions were signed, and Agenda 21, a comprehensive blueprint for global action in all areas of sustainable development, was adopted; that is to say, representatives of 172 governments agreed to act to ensure the sustainable development of the planet. That was good. The Earth Charter was downgraded to the Rio Declaration, a statement of 27 economic and environmental principles, while the convention on forests became a set of principles to underlie the sustainable development of forests worldwide. Not too bad. But the United States did not sign the biodiversity convention—too restricting to the US

The Earth Charter

This Charter was prepared by the non-governmental organizations (NGOs) gathered in Rio de Janeiro during the Earth Summit.

Preamble

We are Earth, the people, plants and animals, rains and oceans, breath of the forest and flow of the sea. We honour Earth as the home of all living things. We cherish Earth's beauty and diversity of life. We welcome Earth's ability to renew as being the basis of all life. We recognize the special place of Earth's Indigenous Peoples, their territories, their customs and their unique relationship to Earth. We are appalled at the human suffering, poverty and damage to Earth caused by inequality of power.

We accept a shared responsibility to protect and restore Earth and to allow wise and equitable use of resources so as to achieve an ecological balance and new social, economic and spiritual values.

In all our diversity we are one. Our common home is increasingly threatened.

We thus commit ourselves to the following principles, noting at all times the particular needs of women, indigenous peoples, the South, the disabled and all those who are disadvantaged:

Principles

1. We agree to respect, encourage, protect and restore Earth's ecosystems to ensure biological and cultural diversity.
2. We recognize our diversity and our common partnership. We respect all cultures and affirm the rights of all people to basic environmental needs.
3. Poverty affects us all. We agree to alter unsustainable patterns of production and consumption to ensure the eradication of poverty and to end the abuse of Earth. This must include a recognition of the role of debt and financial flows from the South to the North and opulence and corruption as primary causes. We shall emphasize and improve the endogenous capacity for technology creation and development. Attempts to eradicate poverty should not be a mandate to abuse the environment and attempts to protect or restore the environment should not ignore basic human needs.
4. We recognize that national barriers do not generally conform to Earth's ecological realities. National sovereignty does not mean sanctuary from our collective responsibility to protect and restore Earth's ecosystems. Trade practices and transnational corporations must not cause environmental degradation and should be controlled in order to achieve social justice, equitable trade and solidarity with ecological principles.
5. We reject the build-up and use of military force and the use of economic pressure as means of resolving conflict. We commit ourselves to pursue genuine peace, which is not merely the absence of war but includes the eradication of poverty, the promotion of social justice and economic, spiri-

biotech industry—and, for the climate change convention it generously made reduction of CO₂ levels voluntary in the US—the world's largest auto user and manufacturer. Not so good. The Saudis, for their part, had problems with all the talk about new and renewable energy and reserved their posi-

tion on the entire text of Agenda 21. Other issues were ticked off either by consigning them to commissions and future conferences (Oceans and Desertification) or were relegated to the Declaration.

Inasmuch as just about everything on the agenda was dealt with in some way or other, the conference was a

tual, cultural and ecological well-being.

6. We agree to ensure that decision-making processes and their criteria are clearly defined, transparent, explicit, accessible and equitable. Those whose decisions or activities may affect the environment must first prove the absence of harm. Those likely to be affected, particularly populations in the South and those in subjugation within existing States, should have free access to information and effectively participate in the decision-making processes.

7. States, institutions, corporations and peoples are unequal in their contribution to environmental harm, experience of ecological degradation and ability to respond to environmental destruction. While all are responsible for improving environmental quality, those who have expropriated or consumed the majority of Earth's resources or who continue to do so must cease such expropriation or reduce such consumption and must bear the costs of ecological restoration and protection by providing the majority of financial and technological resources.

8. Women constitute over half of Earth's human population. They are a powerful source for change. They contribute more than half the effort to human welfare. Men and women agree that women's status in decision-making and social processes must equitably reflect their contribution. We must shift from a society dominated by men to one which more accurately reflects the valued contributions of men and women to human and ecological welfare. We have come to realise that the threats to the biosphere which sustains all life on Earth have increased in rate, magnitude and scale to such extent that inaction would be negligent.

Earth Charter Action Plan

1. We shall adopt the spirit and principles of the Earth Charter at the individual level and through concrete actions within our non-governmental organisations.

2. We will use existing mechanisms and/or create an international network of the signatories hereto to disseminate the Earth Charter as principles for action at the local, national and global level.

3. The Earth Charter shall be translated into all the languages of Earth.

4. We shall commit ourselves to the preparation of "Objective 1995" by which the United Nations will celebrate its 50th anniversary, at which time we want them to adopt this Earth Charter.

5. Non-governmental organisations worldwide shall initiate a combined campaign "We Are Earth" through to 1995 and the adoption of this Earth Charter by the United Nations.

6. Every individual, organisation, corporation and state shall dedicate a percentage of their operating budget and their profit as an "Earth Percentage" dedicated to the restoration, protection and management of Earth's ecosystems and the promotion of equitable development.

7. We call for a second Global Forum to be held in 1999 to evaluate and reaffirm our commitment to the relationships made, the accomplishments achieved and the goals sought at this 1992 Global Forum. ♦

success, but looked at more closely, the success lay more in the symbolics of Rio than in world-changing policies. Prime Minister of Norway, Gro Harlem Brundtland, summed it up: "We owe it to the world to be frank about what we have achieved here in Rio: progress in many fields, too little progress in most

fields, and no progress at all in some fields." The Earth Summit was not, and never could have been, the ecological messiah to solve all problems with the sweep of 172 signatures. First, the upfront money to make Agenda 21 work was not forthcoming. Maurice Strong estimated that \$125 billion would be required

Every individual shall dedicate an "Earth

Percentage" of their budget to restore Earth's

ecosystems and promote equitable development.

annually by developing countries in grants or loans if they are to implement the proposals in Agenda 21. So far only \$7 billion have been committed. Second, even though nearly three years of preparation had gone into document preparation, even Mr Strong admitted that "you can't save the world in a one-shot quick fix." Furthermore, the language of some prescriptions was so watered down ("maintain strong and sustainable economic growth"; "States have the sovereign right to exploit their own resources") that it produced semantic contradictions. Maybe all Rio did was to map out the next stage of the process and re-focus the world's attention on the eco-developmental part of its large agenda.

And third, as Willis Harman, Fritjof Capra and many others keep on saying, there can be no sustainable development without a global mindchange. It's fine to do our list of "Fifty Actions That Will Save the Planet" and important that we recycle our bottles, cans and newspaper, use a compost bin, etc. But the ecological crisis is a crisis of wisdom, a crisis of lifestyle, and a crisis of symbols. In

other words, it is a cultural crisis. Where the final wisdom is "economic growth," where the consumer lifestyle reigns, and where the Porsche or the big dividend is the ultimate symbol of going to heaven, sustainable development will not and cannot be taken seriously. A revolution in values is the key to a major environmental revolution.

Probably, the official part of the Earth Summit did what it could do within the parameters set by the current dominant (but fading) paradigm and ideology, and that will make a difference. But treaties and regulations can get only so far. On the citizen side, the Summit has created momentum behind a whole raft of follow-up conferences like ECO-ED in Toronto, implementation events, and renewed environmental campaigns. Meanwhile, across the globe, an invisible army of visionaries and practitioners are working to create future forms for economics, international development, environmental care, education and various aspects of social justice. It is this kind of political will and local innovation that will finally determine the real success of Rio. ♦

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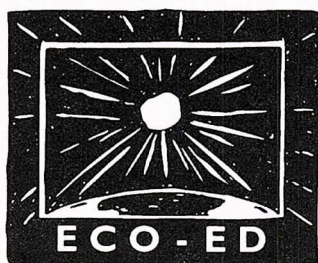
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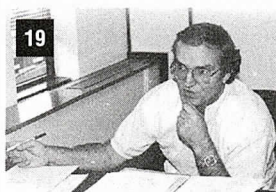
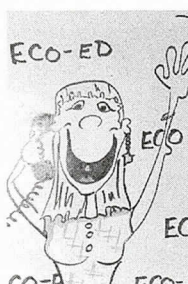
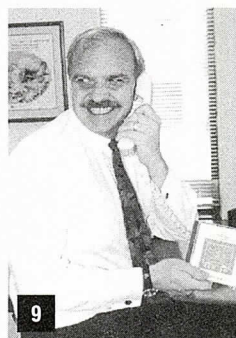
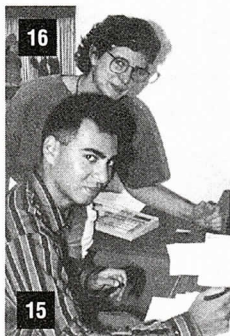
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pays tribute
to the staff
and to the
hundreds of
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A few politicians at the Earth Summit were able to see beyond environment as a "natural resource." ECO-ED participants will push that thinking much, much further.

Living with

JAMES LOVELOCK

If we accept that we humans have a finite individual life-span, and that no one can ever be immortal, then maybe we should keep in mind the thought that our species also has a limit for its span on Earth. Instead, in our optimism we imagine that if we could manage ourselves and the Earth well enough, we could, somehow, find ways of coping with a doubling of life span, or a doubling of population. We assume that the extra stress we should then place on the Earth's ecosystems could be prevented or alleviated by good stewardship or planetary management.

I think that this is the greatest of our errors. Consider how the well-intentioned application of the principles of human welfare and freedom that moved us all in the second half of the 20th century has failed our bright ex-

pectations. Cruel tyrannies now reign in much of what has been labelled the third world. In spite of modern medicine, in many places the quality and the length of life diminishes as the land dies under the weight of sacred cows and insupportable numbers of people.

Consider also yourself. You might suffer the misfortune of an accident that damaged your kidneys. Not fatally, but enough to cause those wonderful intelligent filters to fail in their task of regulating the electrolytes, the salts of your blood. You can survive, even live a normal life, but only by always taking care to monitor your intake of salt and water. A burden of this kind powerfully reinforces the wonder at how well our body manages itself when we are healthy. With disabled kidneys you would have to be the steward, the man-

Gaia



Illustration by Jerry Brodey

We cannot manage the Earth,

but we can usefully regulate our own lives and institutions,

ager, of your body. A permanent employment, not difficult, but life would

—Cars, Cattle and Chainsaws.

beginning with the "Three Cs"

no longer be carefree. An invitation to stay with vegetarian friends becomes a problem of salt balance, as would hard physical work, or a brisk walk on a hot day.

But in this example only one system is disabled. If several bodily systems were disabled simultaneously, then you really would have little chance to do anything but consciously regulate your bodily functions. This is the kind of burden or slavery I have in mind when I say there is no worse fate for humans than to so disable the Earth that to survive they must take on the task of running the planet. Just think of the task of managing even a developed nation so that the balance of carbon diox-

ide emitted by burning fuels and by agriculture was balanced by the uptake of planted trees. A task that would require the meeting and matching of the conflicting interests of the individuals and groups that make up human society, the resisting of the powerful selfish pressures of their lobbies, and at the same time coping with the haphazard changes of the political, economic and actual climate. That would just be the start of it, for then there would be the same and other problems involving the inputs and outputs of your nation with those of the numerous other national and tribal states of the world.

A planetary physician can only prescribe for your relationship with the Earth that kind of love and benign ne-

glect that characterizes the relationship of good parents toward their children. There are no nostrums or simple remedies for the ills of the Earth.

This does not mean that there is nothing that you or your society can do about the health of the Earth. A good parent does try to provide an environment that is not damaging to their children and allows them to gain the strength to heal themselves. There are many simple things that each of us can do to live better with Gaia. We cannot manage the Earth, but we can usefully regulate our own lives and our human institutions. I find it helpful, as a start, to keep an image of the three deadly Cs in mind: Cars, Cattle and Chainsaws. We need not be fanatical and ask for them to be banned; it wouldn't work. But we can remember the physiologi-

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*The de facto
assumption
that economic
production
is the core goal
of society
is no longer viable.
It is time
for the central goal
of society
to shift to human
development
and learning
in the broadest
sense
of the word.*

WILLIS HARMAN

Economic assumptions are not serving us well. The dominant values of acquisitive materialism, the faith in unlimited material progress and economic growth, the excesses of efficiency and competition, the assumption that we should guide social decisions by economic rationales and values, do not lead in the long term to a viable and sustainable society.

The origins of the present environment and development problems are found in the belief system supporting the whole economic structure—a belief system that all of us tend to buy into, at least partially. These symptoms will be healed, not when legislation and international agreements cover all loopholes, nor when the needed new agencies are created, nor even when widespread lifestyle changes are made, but only when people stop buying into the belief system that brings about the symptoms.

The June 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro was, at least symbolically, one of the most important events of recent years. For the first time the question of achieving a sustainable human economy on the planet was given legitimacy as a valid and important concern of governments, business and citizens. For the first time we had public and general recognition of the shocking fact that the present form of modern society does not lead to a viable planetary future.

Much of the emphasis at UNCED was on environmental issues. But the concept of a sustainable global society implies much more. It includes, at least:

1. A sustainable interactive pattern with the planet's life support systems

2. Sufficient fairness, as perceived by all people, to lead to stability and coherence

3. Enough diversity of cultures to lead to resilience, and to perceptions of individual and cultural susceptibility

4. Sufficient opportunities to contribute to the society and to be affirmed and appreciated in return, to create a sense of solidarity and sturdy social fabric

5. A fundamental change in the perception of national and global security such that there is an end to the folly of pursuing "national security" through military strength.

The world is rapidly dividing into two layers: (a) the modern economy of the industrialized countries allied with a few countries from what used to be called "the third world" and (b) the leftovers—the marginalized persons and cultures who have little hope of ever joining the first group.

The major threat to sustainability lies in the activities in the world economy, with a minor but still important threat coming from the poverty groups trying to survive (in the form of over-

Rethinking **ECONOMICS**

grazing, destruction of vegetation with consequent soil erosion in the quest for firewood, pollution of water supplies etc.). Thus, the sustainability picture involves the future development of both layers.

Most of the environmental awareness built up over the last quarter century still focuses on patching up environmental damage. Only recently has the linkage to development become clear to most people. This is the significance of UNCED. Development in the "developing" countries, but also in the industrially "advanced" countries, has been strongly associated with economic growth. Because of the strong correlation between economic product and environmental deterioration (including pollution, toxic chemical concentrations, forest depletion, desertification, ozone layer thinning, global warming, and so on), the goals of economic growth and desirable environment are in fundamental conflict. To be sure, the "pollution index"—the ratio of environmental impact per unit of economic product—can be decreased by changes in technology, consumption habits, transportation and packaging, etc. But if the economic product is to grow exponentially with time—an article of faith for over half a century

—then, just to keep the annual environmental impact constant, the pollution index must decrease exponentially with time *forever*. Since there is no way for that to happen, it follows that the only way to contain environmental deterioration is to halt or reverse economic growth. But economic growth is necessary to create employment, and the social and political consequences of reduced growth are such that even a debate about it is almost a political impossibility.

The logic underlying this dilemma is so important that it's worth repeating. We assume that practically everyone (or at least every household) should have a job in the mainstream economy. Since population is increasing, gross economic product has to increase to provide those jobs. Since every one of the competing industrialized nations has to keep on increasing labour productivity, economic product must rise even faster than population increase. Pollution (including waste, environmental destruction, and man-made climate change) is proportional to economic product and the pollution index. Thus, since economic product "must" continue to grow exponentially with time, to even hold the line on pollution requires that the pollution index must *decrease* exponentially with time. To re-emphasize, there is no way in the world that can happen.

In other words, our real economic dilemma is that we can't have "job creation" and a "sustainable economy" too, *within the present concept of an industrialized society*. The above paragraph can be summarized in two equations:

$$\text{Economic Product} = \frac{\text{Econ. Prod.}}{\text{Workforce}} \times \text{Workforce}$$

$$\text{Pollution} = \frac{\text{Pollution}}{\text{Econ. Prod.}} \times \text{Economic Product}$$

The italicized term in the upper equation is the labour productivity, and the italicized term in the lower equation is the pollution index.

This analysis of the fundamental nature of our dilemma goes contrary to the familiar political promises that measures will be taken toward job creation, environmental cleanup, hunger relief, etc. Thinking people really know in their hearts that such promises can't be fulfilled. Such measures are good things to try *while we are working at changing the context*. They are good interim measures, but we also need to get on with the more basic job of changing the context.

For the roots of this dilemma go deep. The fundamental concepts of business and labour, of employment and welfare theory, of liberal and Marxist analysis, are all based on *production-focused society*. It may have seemed to make sense in the past to think of economic production as the *de facto* goal of society; to think of an ever-increasing fraction of overall human activity being treated as commodities in the mainstream economy; to assume that the individual's primary relationship to society is through a job; to have social thinking dominated by concepts of scarcity, commercial secrecy, competition and money exchange.

However, this is not the case when one of our main problems is our capacity to over-produce. The fundamental question as we look ahead is not how we can stimulate more demand for goods and services and information, nor is it how we can create more jobs in the mainstream economy. The key question is much more fundamental. It is basically a question of meaning: What is the central purpose of "advanced societies" when it no longer

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ECONOMICS

RETHINKING ECONOMICS

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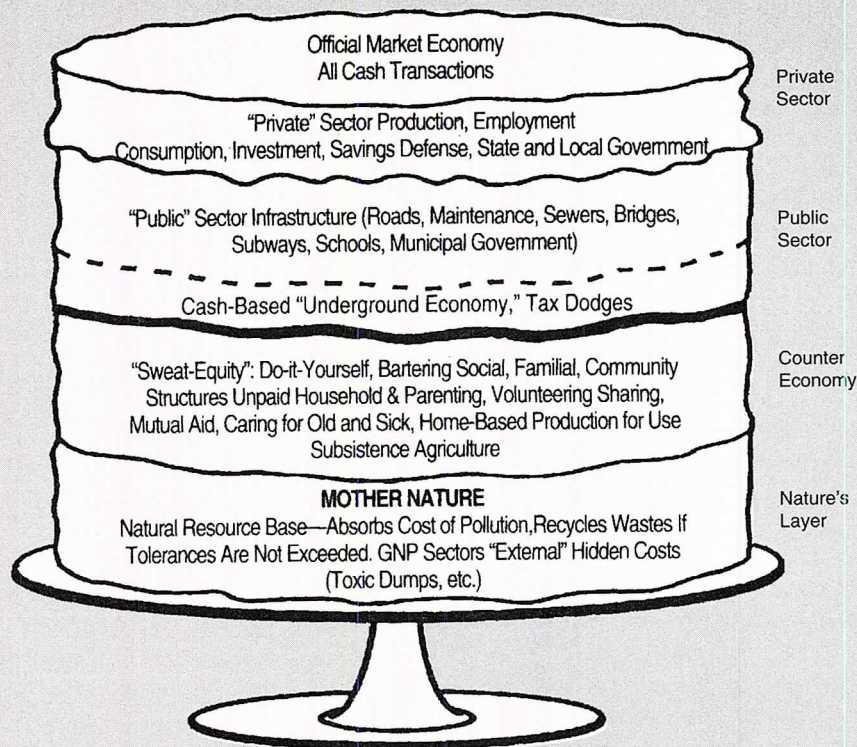
makes sense for that central purpose to be economic production? Because economic production is no longer a challenge and because in the long run focusing on economic production does not lead to a viable global future.

The answer becomes apparent from the emerging value emphases and beliefs about the nature of human beings. It is *to advance human growth and development to the fullest extent, to promote human learning in the broadest possible definition*. The motivations implicit in the emerging paradigm fit with this goal; they do not fit with mindless consumption, material acquisition and endless economic growth.

This answer only seems impractical and idealistic from the standpoint of our modern prejudice. Up to now it has been extremely difficult for a society or a nation to pursue a development path different from the path dictated by the mainstream world economic system. Diverse development paths will be more feasible in the future, partly because of the growing awareness that the economic growth concept of development is, in the end, not good for the planet and not even good for people.

It is tempting, once we have become aware of the predicament of the modern world, to want to contribute to efforts that will result in *action*. But we live in a world that is addicted to action. Many efforts towards greater environmental protection of more fairness are definitely worthwhile. But we need to temper our zeal for them, recalling that they will come to little, as they have in the past, if we do not also successfully challenge the widely accepted beliefs—in both North and South—that form the root cause of the environment/development dilemma. ♦

President of the Institute of Noetic Sciences, and writer of many books, including Global Mind Change, Willis Harman was senior social scientist at Stanford Research Institute for 15 years. He has also been Emeritus Professor of engineering and economic systems at Stanford and a member of the Board of Regents at the University of California. This article is excerpted from a presentation to a conference in Brazilia in May.



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Environmental Accounting

JOHN CROFT

The reductionism that treats the monetarized system as the total economy is being questioned in many quarters—economists, environmentalists and women's movements, to name a few. Recognition of all parts of the economy and taking them into account—literally—in costing production and in projecting future needs is long overdue. Here, John Croft sums up some of the salient arguments of this proposition in the context of a more closely defined sustainable development. John Croft is director of the Gaia Institute. He lives in Mirrabooka, Western Australia.

Our governments, their advisers and economists generally still do not understand the difference between "economic development" and "economic growth." It is clear that politicians, industrialists, economists and others are talking about "sustainable economic growth" rather than "sustainable economic development." We urgently need to distinguish between these two very different concepts.

One of the best ways to clarify the difference is to look at local community economics. Modifying Hazel Henderson's analysis somewhat shows that a balanced economy can be envis-

The free market pie-in-the-sky dream of "sustainable economic growth" is a cancerous condition that will produce disaster.

aged as a three-layer cake, with icing.

1. The bottom layer, the local ecology, is what keeps the air breathable, the water drinkable and the soils fertile. The ultimate health of the whole economy depends upon the continued viability of this level.

2. The second layer, the non-monetarized reciprocal exchanges within the domestic or community economies, is the key variable which maintains the quality of life. A breakdown at this level results in social symptoms—rising crime rates, increasing mental and physical ill-health or rising cost for sole-supporting parents caught in poverty.

3. The third layer, the monetarized system, is that usually considered by economic analysis. Economists consider the bottom two layers as "externalities" and have no way of dealing with them, except to try to artificially attach to them a monetary value. This is an abuse, both of the nature of our ecologies and of the structure of our communities. It perpetuates the mistaken belief of our current economic indicators that economic health is the result of growth in this third layer, often at the expense of the bottom two layers.

4. The icing is government spending. The chief function of the icing at the moment is to compensate for the collapse of the bottom two layers of the cake, providing structures which either "pick up the pieces" or which try, increasingly weakly, to prevent still further erosion of the bottom two layers of the cake.

Economic "growth" happens in the third layer of the cake. Economic "development" maintains the integrity of all three layers of the cake—particularly the viability of the bottom two lay-

ers. Politicians continue to talk about the need for "sustainable economic growth," without realizing that we are approaching the stage where the only sectors of the economy which show any real growth are those which are attempting to compensate for collapse of the bottom two layers of the cake.

"Sustainable economic development" is a wholly different type of system, where the exchanges between all sectors (i.e., the three layers and the icing), are worked out to enhance the viability of the whole cake. This scenario is possible—whereas the free market "pie-in-the-sky" dream of "sustainable economic growth" is a cancerous condition that will eventually and automatically produce disaster.

There is a widespread demand that economists should start "costing the externalities" and incorporating them into their cost/benefit analyses. Hazel Henderson, in Fritjof Capra's book *Uncommon Wisdom*, claims that in the future, such a costing will be mandatory, and no doubt stiff fines will be levied against any company caught fudging its figures. Japan and the Scandinavian economies, as the most highly regulated national economies left, are already moving fast in this direction.

At the same time, we seem to believe that each national economy is somehow able to independently manipulate the "economic levers" to maximize the well-being of the people within their borders, independently of any effects in other nations of the world. In actual fact, it is increasingly evident that the major factors affecting

one country now have their origin in another. Agricultural subsidies, which maintain the viability of the non-urban villages of Europe, have a major impact on grain farmers in Australia. Rising food prices that may benefit farmers in the USA, depress living standards in the Third World.

Five things are urgently needed:

1. a genuine way to estimate the full political, social and environmental cost of all of our economic processes, and to start factoring them in as a genuine cost of production;

2. attaching and collecting economic premiums from companies for the genuine cost of their products to the community; for example, to the tobacco companies for the health costs in treatment of lung cancer, heart disease and emphysema; to the breweries for the environmental damage;

3. start deducting from our GNP the costs of our growing crime rates, our escalating health costs, the costs of single parent family support and the costs of environmental repair, in order to give a true measure of the growth in our "wealth" as a community;

4. start devising methods for assessing the health, not just of the national economy, but of the international economy. No nation is isolated from the planetary global society, and we need ways of assessing the effectiveness of methods of this globalization in meeting people's needs; and

5. indicators of local community health based upon development rather than growth. How are goods being circulated in a local community? What effect is it having on the domestic economy and the local ecology? Who are the local "winners" and "losers" and why? ♦

LIVING WITH GAIA

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cal truth that the poison is the dose, and be moderate in our use of these and other dangers to the health of Gaia.

The advantages of moderation in the use of cars and chainsaws are immediately self-evident. The damage wrought by excessive cattle farming, though less obvious, is equally severe: to produce food as beef or dairy products requires twenty times as much land as its vegetable equivalent. I do not propose that we all try to become vegetarian. Better first to think about Africa. We know that famine is frequent there; yet few seem to realize that much of this distress comes as a direct result of land damage by primitive cattle farming. The human and natural ecosystems of that unhappy continent may soon disintegrate. In Africa it is not overpopulation with people that is the problem but overpopulation with livestock.

There are other ways of living better with the Earth. Most of them are personal and I do not see this as the place to list them. There is also plenty of advice around on how we could collectively, as governments and other institutions, act to solve the "environment crisis." Some of this advice is in principle good. We should, indeed, stop clearing the forest, reduce industrial and other pollutants, develop energy-efficient solutions, cut back on fossil-fuel burning, seek less damaging agricultural techniques, and try voluntarily to curb our numbers and consumption. But, in practice, even if we find the will to act, the trouble with

much of this advice is that, like some invasive medical approaches, it may do more harm than the disease. Our thinking is still deeply human-centred, based on short-term self-centred advantage, an overestimate of our powers, and a profound ignorance about the Earth.

I would particularly warn against imprudent planetary medication or surgery. There are, for example, proposals to "cure" the effect of greenhouse gas poisoning by applying medication to the oceans, to stimulate the algae there so they remove the excess carbon dioxide from the air. By irrigating the oceans with iron chloride solution dispensed from supertankers, we could, say the experts who dreamed up this idea, fertilize the algal blooms and remove enough carbon dioxide from the air to allow us to continue burning fossil fuels without restraint. By a fluke, this scheme might, in the short term, achieve its primary intention of reducing carbon dioxide in the air. But it would still be foolish—as unwise an act as taking thyroid hormone to increase one's metabolic rate so that a fancy for sugar cakes and hamburgers could be indulged without the penalty of obesity. Both prescriptions—iron chloride for the planet, or thyroid hormone for the fat person—fail completely to recognize that the patients—Gaia or a human being—are self-regulating living systems. To attempt control from outside by increasing or only decreasing one feedback loop is rarely successful, and carries with it the risk of dangerous and unpredictable instability.

I would suggest that our real role as stewards of the Earth is more like that of the proud trade union functionary, the shop steward. We are not managers or masters of the Earth, we are just shop stewards whom workers chose, because of our intelligence, as representatives for the others, the rest of life on our planet. Our union represents the bacteria, the fungi and the slime moulds, as well as the *nouveau riche* fish, birds and animals, and the landed establishment of noble trees and their lesser plants. Indeed, all living things are members of our union and they are angry at the diabolical liberties taken with their planet and their lives by people. A planetary physician observing the misery we inflict on them and on ourselves would support the shop steward and warn that we must learn to live with the Earth in partnership. Otherwise the rest of creation will, as part of Gaia, unconsciously move the Earth itself to a new state, one where we humans may no longer be welcome. ♦

James Lovelock is a Fellow of the Royal Society and the sciences consultant to the space program for Lunar and Planetary Research of the Jet Propulsion Laboratory in Pasadena, California. Among his many inventions is the electron capture detector which led to the discovery of the global buildup of fluorocarbons—critical to understanding the greenhouse effect and the ozone layer. Lovelock's Gaia hypothesis, the idea that Earth functions as a single organism, has dramatically altered views of evolution and the environment. This article is excerpted with permission from Lovelock's book Healing Gaia: Practical Medicine for the Planet (New York: Harmony Books, 1991).

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Ten Guidelines for a Green Recovery

We can talk all we want about ecological theory but what does it mean for our lives and what can we really do about it? Here is one set of suggestions from a local Ontario group. The Coalition for a Green Economic Recovery is a non-partisan network of individuals and organizations campaigning to restructure the economy in line with the needs of the environment. The Coalition wants to promote public debate on alternatives to the cutback and deficit options that now dominate the political agenda. It is attempting to provide alternatives to current practices in forestry, recycling, water management and more extensive treatment of transportation and agriculture. The Coalition welcomes input and refinement of its ten guiding principles.

1. Reduce, Reuse, Recycle

Public works programs should point the way to a conserver economy. Ecologically sustainable development, not make-work or growth for its own sake, is our goal. Baking a bigger pie will only cook the planet.

2. Settle Accounts

Full-cost accounting should inform government spending and taxing policies. Cars, cheap but inefficient products, dangerous production methods, throwaway goods, must pay their own freight. Taxes and tariffs should compensate society for the health and environmental ills and waste they create. These "environmental sin taxes" must be earmarked to finance alternatives with lower social costs.

3. Healthy Economy

Priority should be given to environmental programs that improve public health. Spiralling medical budgets are the penalty for neglecting the fundamentals of good health—fresh air, water and food, and healthful life styles.

4. Gifts of Nature

The poor and disadvantaged have equal claim on the gifts of nature and the benefits of an economy geared to nature. Public works fostering employment equity and new programs that lead to individual savings should be offered first to those most in need.

5. Put Our Money to Work

Priority should be given to projects that optimize job creation in Ontario. Saving on labour costs by using toxic chemicals and non-renewable resources is no more acceptable, and should be no more legal, than cutting costs by using child labour or neglecting health and safety. Public funds should not be spent on capital-intensive projects that rely on major expenditures for imported, non-renewable and toxic fuels.

6. Think Globally, Act Locally

Priority should be given to programs that give the biggest bang for the job-creation buck by creating self-reliant communities with diversified economies that keep the indirect and multiplier effects of public spending at home. We get the best return on job-creation investments when we "maximize the linkage and minimize the leakage."

7. Quality of Life

A government that promotes the quality of life, not just the gross domestic product, will put a priority on reducing the rat-race stress that leads to destructive behaviour. New public works projects should set standards for sharing opportunities for work and productive leisure by establishing the 30-hour workweek.

8. Infant Industries

All levels of government and government-funded institutions should use their purchasing power to create demand for a new range of green products that need the kickstart of assured markets to achieve economies of scale and opportunities for experimentation.

9. Walk Lightly

Appropriate technology can allow us to make do with less impact on the planet, without suffering any loss in basic needs. Government programs should promote training and education programs, leading-edge environmental regulations, and investment practices that sponsor environmental innovation and high value-added production that reduce our demand on natural resources. Outlets for artistic, cultural, craft and tourist-oriented talents should be considered on a par with other high value-added and green industries.

10. Small Is Beautiful

To escape the boom-and-bust economy of one-industry towns and one-crop farms and forests, public policies should promote diversified economies that optimize the variety found in nature. A new third sector of worker-owned firms, co-ops, and community-based businesses should be encouraged by legislation and equal access to government-funded programs. Tax preferences should be granted to community-based green victory bond ventures that keep money in home-towns and invest it in local, environment-boosting businesses. Local Employment and Trade Systems (LETS) that supplement money with skill exchanges also need to be explored. Ways need to be found to allow people to work more directly with public employees to bring about needed changes.

The Coalition extends an invitation to join them in refining and extending their proposals. For information call (416) 699-6070. ❖



ECO-ED plenaries related to education & communication include:

The Arts as Agents of Change

Cecile Alvarez, Philippines
Patricia Castano, Colombia
Zeren Earls, USA
Julie Stanfel, Canada

Implementing Agenda 21

Adriana Santa Cruz, Chile
Yolanda Kakabadse, Ecuador
David McDonald, Canada
Sharon Venne, Canada
Jan-Olaf Willums, Norway

Implementing Sustainable Development through Public Awareness Programs

Noel Brown, Canada
David Gershon, USA
Bill Hammond, USA
Chief Bisi Ogunleye, Nigeria
Chodchay Soponpanich, Thailand

How can we use both mass communication and one-on-one heartfelt discussion to nurture commitment? The key is in the attempt to be relevant to individual lives.

Infotoxins

Polluting the Information Environment

JEFF PHILLIPS

While green movements rouse us to care for the natural environment, the question arises: what about cleaning up the cultural and information environment? As environmental policy-makers and citizens alike are constantly wondering who to believe, responsible communication is critical in educating the public. In this connection, Jeff Phillips has coined the name of a new discipline—information toxicology—dealing with the many ways in which media downgrade the quality and substance of information to the point of becoming a mental poison. But don't just blame the media, says the author—we are all responsible for accessing quality information. Jeff Phillips is a freelance writer living in Denver, Colorado and Atlanta, Georgia.

We have come to refer to the biosphere we are part of as our "environment." But, as important as our ecological environment is, our information environment is equally valuable. It consists of the sum total not only of our cognitive and perceptual space but also the contents of all our communications media plus the effects of their messages on our minds. While the thinking mind is aware of a serious array of biosphere problems in the natural environment (summed up in the word ecocide, literally, the killing of our home), this same mind is also beginning to realize the array of problems in our information environment.

As we wage our silent war on our own biosphere, at the same time we are experiencing a silent war of unreality, a war without immediate death, being waged on every newsstand, in every bookstore, on every radio station, and in our living rooms—on our own televi-

As every hardcore

advertising exec knows,

sion sets. This war uses—or, rather, abuses—our systems of mass communication.

you never sell the substance

Psychological warfare, as Army special operations expert E.W. Barret says in a 1953 book, is the one completely legitimate weapon which can be used on non-combatant populations. Herbert Schiller, author of *Culture, Inc.*, believed that psychological warfare can be used to disorient, confuse, upset and make more vulnerable those groups to

—you sell the sizzle.

which you wish to impart certain kinds of outlooks. He says, "Our own domestic population is regarded as a target for a whole vast range of these stimuli."

Noam Chomsky goes further in *Manufacturing Consent* and accuses the media of inculcating and defending the agenda of privileged groups through selection of topics, framing of issues, filtering of information and keeping debate within the bounds of acceptable premises." Stuart Ewen, in his *All-Consuming Images*, names the media as culprits for the victory of style over substance which has become the normative consciousness: "As access to coherent information has ebbed, the flow of stylistic information has become torrential...the truth is defined as that which sells." And as every hardcore advertising exec knows, you never sell the substance—you sell the sizzle. Gilbert Williams names the target in *The Image Makers*: "At the heart of

Avenue's new, elaborately engineered system of persuasion lies one fundamental premise: each group in our society has its weakness and deep-seated emotional needs."

In Berkeley in 1983 I was writing notes over coffee one September evening. Suddenly the concept of infotoxin sprang into my head, seemingly out of the blue. I wrote down my basic ideas in the form of a song lyric I recorded in 1985 which got airplay on several college radio stations over the next year. I didn't realize that I was laying the foundation for a new interdisciplinary science, information toxicology. Over the past few years I have been assembling ideas which back up my theory, which now seems to be turning into hardcore reality.

In 1990 I formulated my first broadband definition of infotoxin: "Misinformation, propaganda, most forms of advertising, as well as the sheer abundance of mediocrity and consumption persuasion which assault the mind from the face of the tube or the glossy pages of the high-glam magazine. It is not necessarily a conspiracy to subvert the global mind, but a systemic effect resulting from the net actions of many groups of like-minded people motivated by the same values, and attempting to proliferate these values through modern mass-communication techniques." Interestingly enough, the Greek root of "toxin" is *toxon*, an arrow.

M a d i s o n

A weapon.

Albert Einstein was aware of this concentration of power in the hands of small minorities. He feared that "the shrewd methods of intellectual and psychic influences that this concentration of power brings to bear will prevent the development of independent personalities" (*Bulletin of the Atomic Scientists*, 1952).

Noam Chomsky points out that in the democratic system, the necessary illusions cannot be imposed by force, but must be imposed by more subtle means. "In a democratic political order, there is always the danger that independent thought might be translated into political action, so it is important to eliminate the threat at its root....What is essential is the power to set the agenda."

The parallels between the degradation of the planetary biosphere and the pollution of our information environment are increasingly clear. And these are not things that are being done *to* us so much as they are things being done *by* us. We are all responsible for the health of both environments. As living beings we are an integral part of the biosphere. And the messages and technology of the media are ubiquitous. Life and health must consist of the proper flow of coherent, quality information on many levels. Communication, information and creativity are the tools we use to navigate our lives and our planet. The good ship Gaia has no passengers. Only crew.❖

*How do we inspire the next generation of social innovators?
We have to be able to willing to take some risks.*

Ten Tactics of Social Innovation

ALAN ATKISSON

Alan AtKisson is a writer and consultant, former executive editor of In Context magazine and a coordinator for the Sustainable Seattle Civic Forum. He is the inventor of the Innovation Diffusion Game, a training workshop for change agents now being used in social change groups as well as Fortune 500 companies. The article is part of a talk Alan gave at an ICA West members' meeting in June, 1992. In his talk, he spoke of two books which have been a springboard for his own thinking. One is Social Marketing: Strategies for Changing Public Behavior by Philip Kotler and Eduardo L. Roberto, Free Press, 1989. It's about how to market a new idea to a population. The other key source is in French, Innovations et Changement Social, by Michel Bassand and others in Geneva, Switzerland. It documents several case histories about cultural aspects of social change. Seminal to the development of the "ten tactics" were Everett Rogers' Diffusion of Innovations and Communication of Innovations as well as AtKisson's own wealth of experience as a change agent.

1. Introduce the Idea of Social Innovation

Introduce the possibility that new social forms can be created, that this is an acceptable thing. This might seem rather obvious, but that's not the case. I heard a wonderful story from my wife who is a massage therapist. She was telling a client about a woman friend who led bike tours through China. "I would like to have done

that," said the client. "I've had such a boring life. I'm just not creative enough." "What do you mean?" queried my wife. The woman replied: "It's not that I would have been afraid to lead bike tours through China. I just never would have thought of it." The idea that creativity—going off the beaten path and doing something new—is possible is itself a new idea to many people. To most people, innovation really is a novel thing.

2. Model Innovation

This is especially necessary if you're working with young folk. You have to show you are someone willing to adopt an innovation. If they hear you saying, "Do something creative," but they see you eating the same breakfast every morning for 20 years and not being curious about the music they are listening to, in their minds it will be one more example of "Do as I say, and not as I do."

3. Model the Adoption of Innovations

This and the previous point are two separate and different behaviours. One is to try something new yourself, which you just thought of; the other is to be willing to try something which someone else suggested as a new idea.

4. Embrace Pluralism

By this I don't mean simply tolerating diversity or even being the kind of post-modern person who tries on a new religion like a sports jacket every couple of years. I'm talking about ac-

cepting the fact that one's own limited world view is simply that, that there are billions of other limited world-views, and that they're most often not going to be in sync. That's the way of the world and that's good. It's getting beyond being "politically correct" and actually revelling in our differences.

5. Abandon Your Vision Once in a While

To innovate, or foster innovation, you occasionally have to let go of your sense of how the world ought to be. You have to be willing to step away from certainty and say: "I've got this vision, this star I've been following, and it's a beautiful star. But how does the world look if I focus on someone else's star for a while?" That's when you start reading the underground press and discover what the kids are listening to and you realize that the world you had in mind is probably not the same world they're busily constructing right now. It doesn't mean you let go of your vision. It means you are willing to set it aside. It's part of realizing there are other visions out there that are equally valid and maybe even ascendant at this time in history.

6. Embrace Error

This is a hard one for many of us because we are taught from day one in our schooling that any error is a blow to our self-esteem. I learned recently from a scientist friend of mine that in science, truth is not in "correctness." Truth lies in the *possibility for error*. This is the case in philosophy and mathematics also. Otherwise, you're

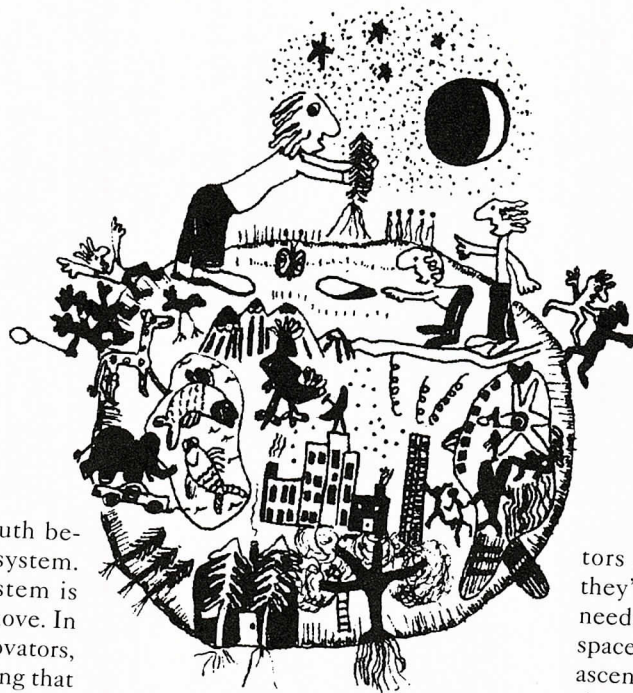


Illustration by Jerry Brodey

into tautology—there's no truth because it's a self-referencing system. Error is possible when a system is open, when there is space to move. In terms of inspiring young innovators, this means constantly reinforcing that it's OK to make mistakes and even rewarding mistakes by saying, "Wow, look what you've just discovered!" There's a David Wilcox song about a woman who is an artist. She has a jar of paint on the cabinet and her husband accidentally knocks it and spatters it all over her canvas. He says, "Oh my God, I'm so sorry" and rushes to clean it up. But she says, "No, it's perfect." The name of the song is *Leave It Like It Is*. It's that kind of wonderful embracing of error that we need to begin to teach and model and foster. And that's 180 degrees from where our culture pushes us.

7. Tell the Story

I mean this on a couple of different levels. One is to tell the story of past innovators. If you are going to be an elder, be the one who tells the story of how we arrived at the idea of giving women the vote or ending slavery. These were social innovations in their day. These ideas went through very lengthy diffusion processes against reaction and resistance. They were pursued by brave souls who were trying to promote them to people in ways they might grasp and accept. Inspiring people by telling the story of those who have modelled new progressive behaviour is important.

But on a more subtle level, this is about telling the story of where we're going as a culture. If you're not inno-

vating out of a cultural context, you're just spinning cotton candy. This is part of the difficult dialectic between having the vision, telling the vision, mapping the vision, and being able to step outside of it once in a while.

8. Visit the Margins

Take a young innovator to the margins. This is what creates a "polyvalent" person, as Bassand, *et al*, call it in their book, someone capable of communicating with a wide variety of people and in an increased number of contexts. We need to be constantly awakening ourselves from the mechanistic concept we've been raised with—that humans and human society are like machines. Our imagery for how society works is largely mechanistic. It's time to begin to think in biological terms. Innovation happens at the margins. Either in person or through books and other media, we can take people to the boundaries of mainstream acceptable experience and show them that it's not an abyss. ICA's Rite of Passage Journey program is an important example of this.

9. Make Space

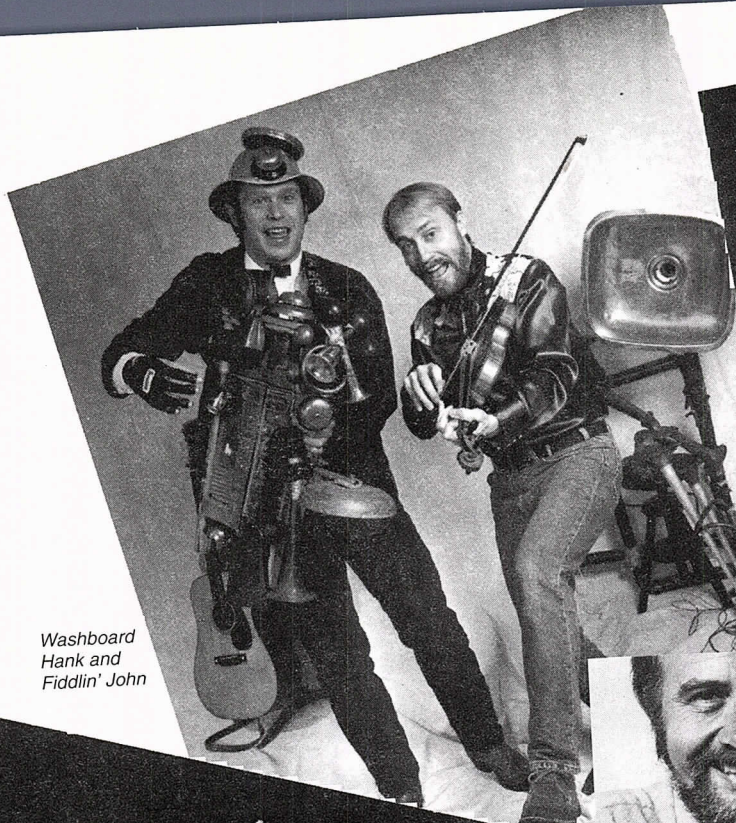
Be willing to step aside and let innovation happen. Part of inspiring the next generation of social innova-

tors is simply acknowledging that they're doing it already. Largely, what needs to happen is to create "cultural space" for their innovations to have ascendancy. A lot of us are locked into situations where, because of the work we are doing and the organizations we have been in for a long time, we have a lot invested in those organizations. It's very difficult, and often financially impossible, for us to consider stepping down. More subtly, it's harder to make psychological space for somebody younger than ourselves to show some leadership or to suggest an idea. We're quick to say "it won't work." and to give lots of reasons why. But without creating situations that are unsafe or relinquishing one's role as somebody who has earned wisdom, it's possible—and necessary—to create an "intentional" vacuum into which new innovations will rush. Then you just need to get out of the way of the innovation stream.

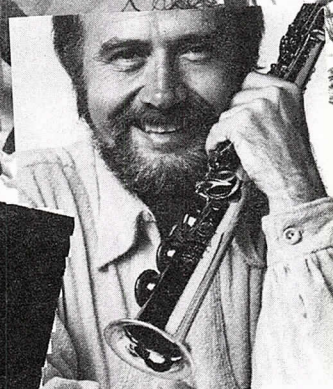
10. Inspire the Next Generation of Social Innovators

Just that. Inspire them, using whatever skills you have. Breathe energy into them as much as you can, through personal testimonial, encouragement, and providing opportunities. As poet Earl Pike said:

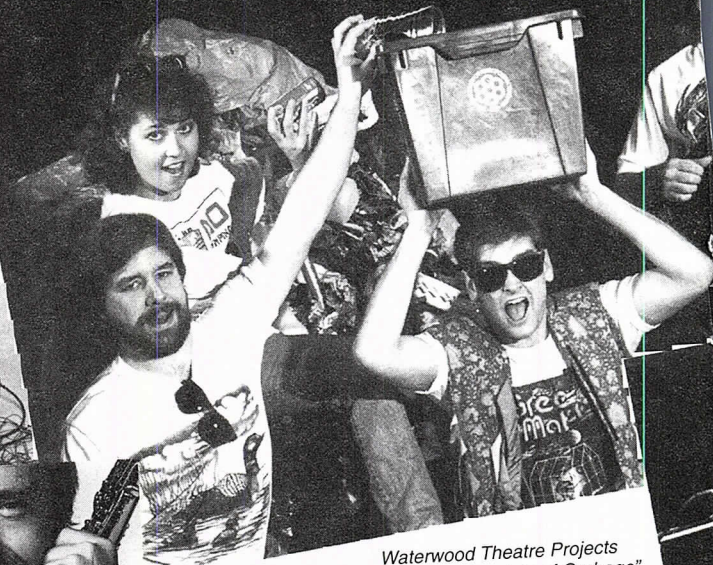
*I'm going to start shaking my fist at
timidity,
rail and thrash against caution.
I'm going to jump into my brave skin
and stalk out into the world
I'm going to wear my heart out front
and leap onto the planet's curve,
And damn, I'm going to love it. ♦*



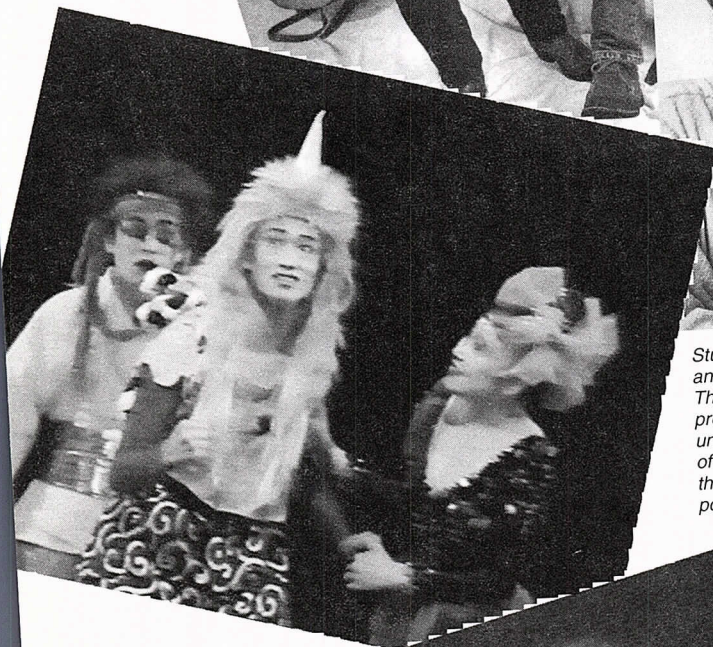
Washboard
Hank and
Fiddlin' John



Paul Winter has led Missa Gaia /Earth
Mass in cathedrals and concert halls
across Canada and the US. The ECO-
ED Missa Gaia will be at St. Paul's
Church in Toronto and tickets will be
available to the public.



Waterwood Theatre Projects
presents "A Mountain of Garbage"



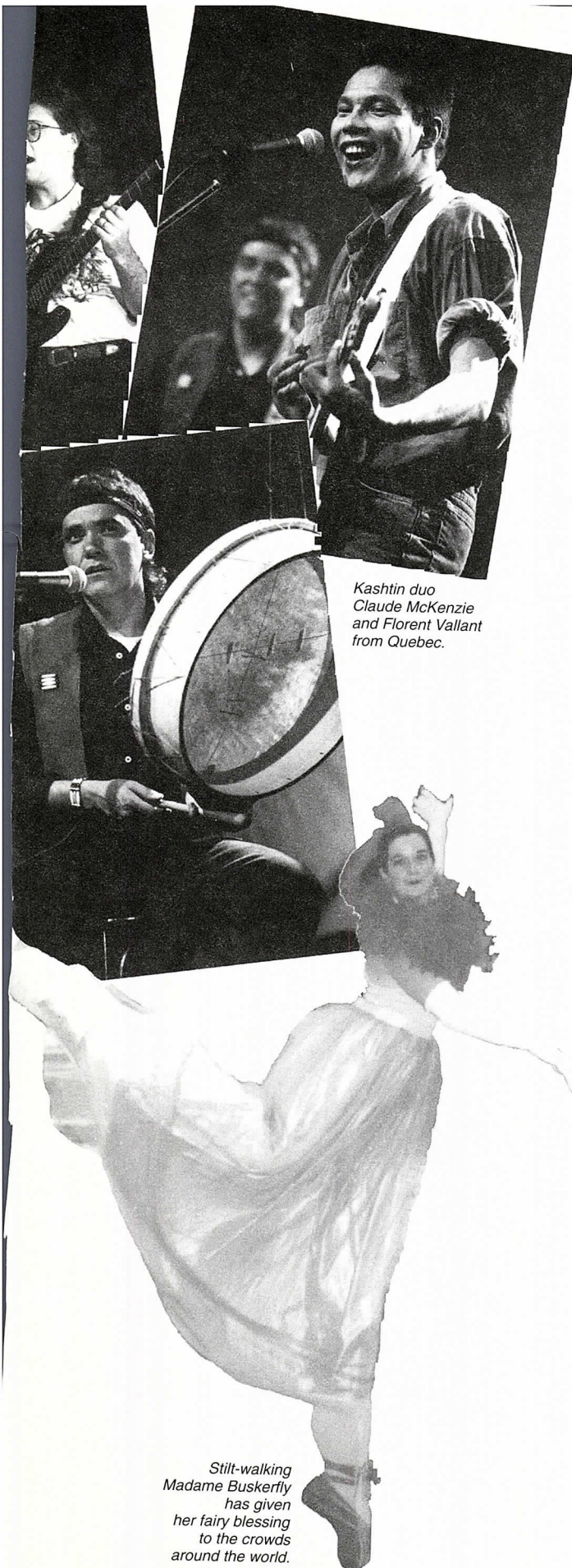
Studio Chizuko Sendai
and the SCS Musical
Theater Group will
present "Taroh," a
unique combination
of traditional Japanese
theatre, sci-fi and
pop music.



Music at Eco-Ed:

Coming down to Earth

Whether or not you see them in person,
you'll appreciate the work
of these fine performers.



Kashtin duo
Claude McKenzie
and Florent Vallant
from Quebec.

Stilt-walking
Madame Buskertly
has given
her fairy blessing
to the crowds
around the world.

Kashtin, Suwa Daiko, the Paul Winter Consort, the Esprit Orchestra and the Global Commons Bar, among other things, will ensure that delegates to ECO-ED are enlivened and delighted.

"People can get too much left-brain intellectual activity at a conference like ECO-ED," said Dan Wood, ECO-ED's artistic and festival event coordinator, "so in putting together the festival events we've decided to pull out all the right brain stops and have just one whale of a good time."

Sitting on the edge of a couch in the hectic ECO-ED office at T-minus-60 days while Dan rummages through a stack of brochures and press releases, I can sense his endorphin level running on high. "We're going to open the conference on Friday night with Kashtin, the incredible Native rock duo from northern Quebec, and then keep shifting the energy from one type of spirit to the next right through the conference. The closing on Wednesday morning will be accompanied by a children's choir led by Franko Richmond of New York in a song called *The Time Has Come*." (The song was also presented by 2000 children at the Earth Summit in Rio.)

Kashtin is the duo Claude McKenzie and Florent Vallant, two *Montagnais* singer-songwriter-performers from the Maliotenam reserve near Sept Iles, Quebec. Their two albums, *Kashtin* and *Innu*, have sold half a million copies—evidence of an amazing appeal.

Joan Thompson, for three years an ECO-ED volunteer coordinator, was just as enthusiastic. "I remember talking with Chuck Hopkins three years ago, when we were dreaming out loud about this congress. We decided that we had to have the Paul Winter Consort. I had been to his concert *Missa Gaia* (*The Earth Mass*) just months before and it really changed my life." The Paul Winter Consort consists of an eclectic mix of organ, cello, flute, percussion, guitar, soprano voices and, of course, Paul's sopra-

no sax. The darkened nave of St. Paul's Church will resound with the beautiful blending of the hundred human voices of the Opera in Concert Chorus and the Toronto Mendelssohn Youth Choir, as well as the voices of whale, wolf and loon. As Paul Winter says, "If I'm able to convey to indoor city people anything about the wonder of these wild creatures and their plight, I think I'll do it with their sounds, the closest thing to the spirit of those creatures that you can experience, short of being with them." The conductor for the evening is Robert Cooper.

On Saturday and Monday nights the Esprit Orchestra will play modern symphonies. The only full orchestra in Canada devoted to contemporary music, Esprit will play works by R. Murray Shafer of Canada and Toru Takemitsu of Japan, among others. In some of Shafer's experimental compositions, Nature joins the band—harmony and percussion from natural sources integrate with the symphony. The Monday evening program will be accompanied by NASA slides of earth from space.

In the congress itself, with heady discussions underway on global problems, policies and compromises, and with anxiety levels likely running high, the music festival should provide a way to come back down to earth. The basic heart-beat rhythm of the drum has become a grounding force at many environmental gatherings, a lesson learned from aboriginal peoples. But those same drums, faster paced, can energize the gathering and support memories of it for years to come.

But, as Dan Wood reminded me, "We are also going to have fun at this congress." He immediately engaged me, Joan Thompson and Director Nola Kate Seymoar in a quick brainstorm of the Global Commons, an after-hour bar at the congress for delegates only. No doubt, they will be able to let down their hair. An open stage will be provided with musical instruments where delegates can share their music and feelings in a fun way. ♦

BILL STAPLES



Values & Resources in Environmental Education

*Some organizations, programs, practitioners and
books for teaching care for the environment*

Illustration by Jerry Brodey

Three Mind-changing Programs

MITCHELL GOLD

The question I have been asking recently is this: how can we environmentally educate in an ever-changing world with so many different factions expressing so many diametrically opposed views? A look back at how educational change occurs reveals a pattern that requires a fifty-year timeline. Since, at every level, the systems of our world are breaking down, this rhythm of educational change must accelerate if we are to survive at all.

But how does a dysfunctional system change? By mandating change through legislation? Or by changing the single cells in the body politic? Reviewing environmental education conferences I have attended over the past several years indicates that the answer may lie in the latter; that is, what is required is a change in you and me. The pollution we experience in our daily lives is as much a statement about our *thinking* as it is about our environment.

This view was corroborated for me in one conference I attended recently, where US Senator Al Gore made the surprising comment that environmental awareness requires a spiritual perspective. This observation is surprising in that it comes from a politician, one who may be the next US Vice-President. His message is consistent with that of our native brothers and sisters around the world.

While many native leaders are speaking from this perspective, none make it as clear as Thomas Berry, who says, "If you want to heal the environment, ask the trees, for the trees know. If you want to heal the environment, ask the birds, for the birds know." Asking questions of the trees and the birds does not come naturally to anyone brought up on a fare of rigid western sci-

ence. Something has to change in one's images and sensibility before such behaviour is even possible.

However, ideas like these are echoed in *Thinking Like a Mountain: Towards a Council of All Beings* by Australian ecologist John Seed. Many educational workshops have been created by innovative teachers using the outlines in this book.

In addition, Stephen Van Matre, Chairman of the Institute for Earth Education, has created an Earthkeepers Program called Sunship Earth. This program of outdoor education also emphasizes a change in understanding and behaviour in both the students and teachers of the program as they get involved with experiencing the environment. This is environmental education through direct contact—not textbook learning. Textbooks can create the framework, but it is the individual experience that facilitates understanding and the learning experience.

Yet another approach in this direction is that of the International Association of Educators for World Peace (Vision-Changer Project) which underlines the effect on the environment of how we use language and imagery. For example, governments and institutions are *struggling with the problems of waste management*, whereas the Vision Changer Project suggests they ought to be *exploring the opportunity of resource management*. As long as we see "waste" as waste, it will always be a problem. The program also challenges current educational strategies that are tied to old clichés such as 'the three R's—reduce, reuse, recycle—and emphasizes rethinking the relationship between all our actions in order to achieve sustainable development; for example, what about the way we breathe, hear, see, taste, touch and smell? What about the power of thought energy? We also are part of the environment.

Programs like Sunship Earth, the Council of All Beings and the Vision Changer Project hold a glimmer of hope for integral environmental education by remembering that education is a process of learning, and not a goal in itself.

If we are to survive as a species, environmental education must involve a rediscovery of humanness and a sense of the radical interconnectedness of all things. As Peter Russell writes in his recent book *A White Hole in Time*, perhaps we need a new Manhattan Project to explore inner space, for in that exploration of inner space we may not only save humanity, but find, indeed, that humanity is worth saving.

Mitchell Gold is Canadian Chancellor of the International Association of Educators for World Peace. Vision Changers address is 2 Bloor St. West, Suite #100-209, Toronto ON M4W 3E2. Tel. (416)924-4449.

Five Environmental Educators

TIM GRANT

In my view, leading-edge environmental educators are those who not only promote a more ecologically sustainable relationship with the rest of nature, but who also understand that a more equitable relationship amongst the world's peoples is a crucial step towards protecting global ecosystems. Here's a sampling.

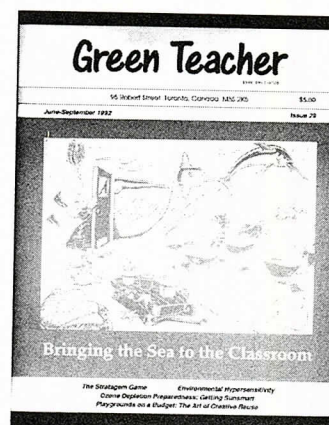
Guyanese-born Robert Moore is a captivating speaker who argues persuasively for education which illuminates global interdependencies (human and ecological) while fostering a passion for social justice. Moore argues for a multi-disciplinary approach—including a strong role for the arts—in marked contrast to the current conservative push in education towards more math/sciences.

UK authors David Selby

and Graham Pike have written (together) several teacher books including *Global Teacher*, *Global Learner* (Hodder & Stoughton, 1988), which are popular on both sides of the Atlantic. They've been instrumental in promoting 'global' education, a means of linking global and environmental concerns with a new, radical understanding of the learning process.

The founder of the original *Green Teacher* magazine, UK author Damian Randle wrote *Teaching Green* (Greenprint, 1989.) The book offers a broad vision of "green" education (inside and outside of schools) and then details how that vision might take root in various subjects and grade levels.

It's noteworthy that while most of these big names are men, the majority of environmental educators in North America are women. Toronto based authors, Susan Kiil and Della Burford stand out amongst many. Both target elementary-aged children. Kiil has written and published a



wonderful series of ecological activity books for EB Publications that reflect her emphasis that the learning process is *the* creative process. In the *Magical Earth Secrets and Environmental Activity Guide* (Azatlan Publishing, 1991), Burford brings her astounding artistic talents to the fore.

And last but not least, *To Heal the Earth* (Hancock House, 1990 by British Columbia author Robert Harrington) provides the most persuasive argument yet for a new ecological ethic.

Tim Grant is the General

Editor of the North American edition of Green Teacher.

A Note on Green Teacher

Founded in Wales in 1986, *Green Teacher* was a non-profit UK-based teachers' magazine focussing on global, environmental education. By late 1990, when over 1100 Canadian schools and teachers were subscribing, a group of Canadian educators decided to launch a separate edition. It continues to provide a balance of materials suitable for elementary and secondary/adult education. Each 52 page issue contains: school news, classroom-ready activities, perspective articles, a dozen pages of resource for more listings and reviews, Amnesty International letter-writing, and much more—all intended to bring readers up to date on the latest international and Canadian views and resources for a green classroom.

Subscriptions \$27/year (incl. GST) for 5 issues. For further information contact Green Teacher, 95 Robert Street, Toronto, Canada, M5S 2K5. Tel. (416)960-1244. ♦

THE GOOD OLD DAYS...OR WERE THEY?

Rules for Teachers in 1872

1. Teachers each day will fill lamps, clean chimneys.
2. Each teacher will bring a bucket of water and a scuttle of coal for the day's session.
3. Make your pens carefully. You may whittle nibs to the individual taste of the pupils.
4. Men teachers may take one evening for courting purposes, or two evenings a week if they go to church regularly.
5. After ten hours in school, the teacher may spend the remaining time reading the Bible or other good books.
6. Women teachers who marry or engage in unseemly conduct will be dismissed.
7. Every teacher should lay aside from each pay a goodly sum of his earnings for his benefit during his declining years so that he will not become a burden on society.
8. Any teacher who smokes, uses liquor in any form, frequents pool or public halls, or gets shaved in a barber shop will give good reason to suspect his worth, intention and honesty.

NOTE: The teacher who performs his labour faithfully and without fault for five years will be given an increase of twenty-five cents per week in his pay providing the Board of Education approves. ♦

These rules were on display at the Lang Pioneer Village. A copy was given to Edges by Jack Staples, a retired high school principal residing in Lindsay, Ontario. He got it from Robert Spence of Hamilton.



At the Heart Of every subject

*Knowledge without
a deep connection
to the earth has
led to the degradation
of the planet.*

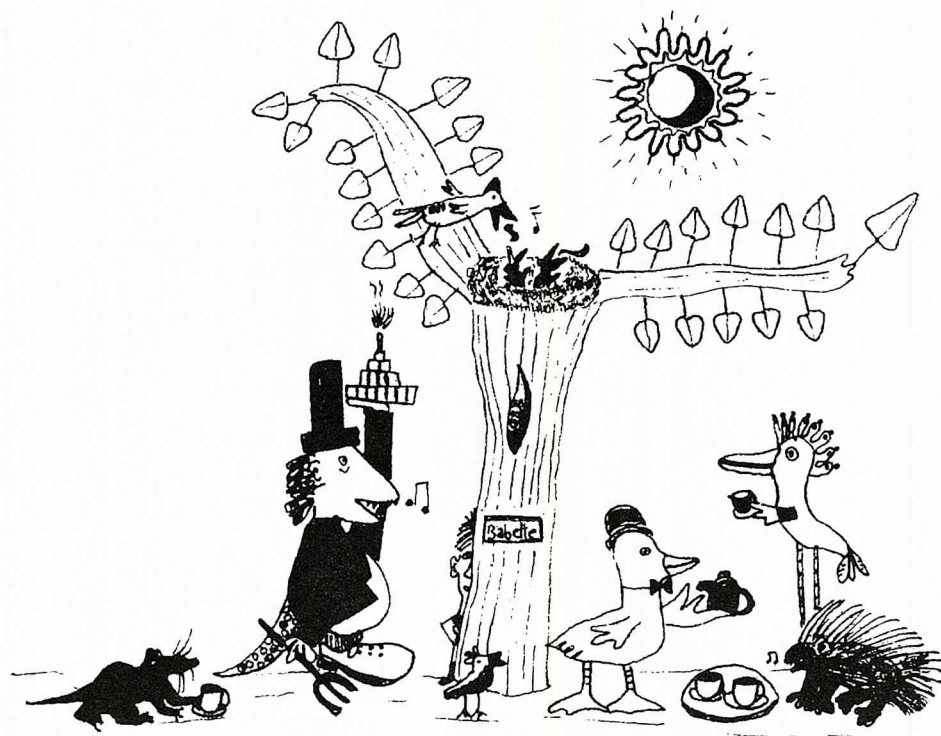
JUNE & ROB HUTCHINGSON

June and Rob Hutchingson are a husband and wife team with doctorates in gifted education and extensive experience in the Waldorf tradition of education. They are creating a Waldorf-inspired school in inner city Detroit, Michigan, as a new public alternative "school of choice." Here, they share how they make environmental education an integral part of the school curriculum, rather than a separate subject. There are over 500 Waldorf schools around the world.

Illustrations by Jerry Brodey

Being a Waldorf teacher makes it easy to teach environmental awareness. Waldorf education, with its creative, artistic and integrative methods of teaching, instills a sense of awe and reverence in relation to nature.

We begin with decor—we surround the child with objects from nature from the earliest years. We consider this the beginning of the study of science—knowing. All the children's senses—sight, hearing, taste, touch, smell and intuition—are saturated with the beauty of nature so that the children become aware of the bounty of earth's gifts. We find that a sense of



exquisite range of colours, patterns, textures and smells, they become one with their surroundings. Older children and parents find the room calming and inviting.

The environment, both inside and out, is of utmost importance to a Waldorf teacher. Many times the children and I spend hours after school preparing the room with objects from nature and planting the outdoor grounds so that we are surrounded with beauty. I believe that an awareness of beauty is a first step towards the protection of beauty or nature.

In the kindergarten and grade school, the children's hands feel fresh cotton, soft silks, cozy wool, real wood, beeswax and clay while doing their crafts. They witness the shearing of lambs, wash and card the wool, and learn to spin the yarn. They sit at real wood tables under real light, and enjoy real smells. You won't find plastic and polyester, styrofoam and typical bulletin-board art, puzzles or even computer games here. The love of nature comes first. The children have their first real architectural experience with organic chunks of wood from nature rather than Legos. They bake whole-

some bread and watch it rise. They have their tea parties from pottery or wooden bowls.

When we eat a snack or lunch, we say a verse of gratitude for nature:

*Earth who gives to us this food
Sun who makes it ripe and good
Dear sun, dear earth, by you we live
Our loving thanks to you we give.*

When telling stories in the first and second grades, I choose tales which show an appreciation for plants, animals and the earth, where the hero or heroine helps the apple-laden tree, or the caught birds, or the drowning ants. The children easily identify with the poor simpleton who shares his crumb with a poor animal, or with the youngest brother who wins the princess with the help of a bee, or the kind, motherless daughter, abused by her step-sisters but befriended by the animals and dwarves. We act out these stories with coloured capes, crowns and cloths for costumes.

The Waldorf third grade traditionally studies all aspects of agriculture—from weather, soil composition and crop rotation to grains and animal husbandry to composting versus chemical fertilizers, insect control and

gratitude for the gifts of nature soon follows. Gratitude is the basis upon which we build concern for the environment.

Our kindergarten is filled with items from nature—crystals, smooth stones, freckled feathers, pine cone whirls, acorn bowls, milkweed puffs, and the beauty of aged driftwood. The windows are full of shells, the lushness of green plants, hard seeds' potentials, bud beginnings, and flowers, colours and spicy odours. I slice apples sideways and show the star pattern of the seeds. No matter what their age, the children are fascinated. We use artistic natural displays for puppet shows, storytelling and celebrations of seasonal festivals. As the children play with the

weed identification. In addition we study farming round the world, why people eat what they do, the inequality of the third world countries, cattle grazing and rainforests, acid rain and the hunger problem. Naturally, we talk about the desirability of recycling. We separate the trash and try to re-use things before we throw them out. There comes an awareness so strong that we get reprimanded for throwing away a scrap of paper or forgetting to recycle one glass bottle or one can.

We made up a story about the most important animal on earth—the earthworm. The story begins at the time of creation. A beautiful creature which looked like a butterfly and had a lovely song like a bird was the only one who offered to help the creator tunnel a space for the plants' roots to go. The other animals didn't want to mess up their feathers and fur. The beautiful creatures also offered to help make the rich topsoil so the earth could accept the rain and all the plants could grow as food for all the life on earth. In working underground day after day, they eventually lost their beautiful voices and their lovely eyes and wings. Today children pick up these little helpless creatures and often say "ugh." Little do they know that the worm was once the most beautiful of creatures. Later, we watch how worms fare under conventional and organic farming.

All the children and teachers in the school participated in planting an organic garden. We even learned which weeds put helpful minerals back into the soil. It was difficult to convince others we weren't being lazy when we left those weeds in the garden. We tilled the soil and made raised beds, hoed rows, and planted vegetables. We used biodynamic preparations as fertilizer. The garden looked great in June when we left for the summer. One year, no one took responsibility during the summer. The demoralizing tangle that greeted us when we returned to school after summer made us all vow it would never happen again.

When we first tried sorting garbage and making a compost pile, we soon had to dismantle it because the neighbours felt it was attracting rodents and



Illustrator Jerry Brodey works with his partner Kim Brodey. They perform concerts for families as well as leading workshops for teachers. They are known for their environmental music on the *Let's Help This Planet* cassette and teacher's guide. Their newest recording and teacher's guide *Can You Hear My Voice* examines prejudice.

flies and called the health department. Now we have a better designed box and no complaints.

In third grade we studied homes around the world and housebuilding with indigenous materials. Then we built a solar panel. We took discarded cans, painted them black, and nailed them to a black piece of plywood. We covered it with plastic and ran water over and around the cans on the panel. The children were amazed at how warm the water was when it came out the bottom of the panel.

We never moralize with the children. We just try to give a fair explanation and argument from both sides and let the children decide what they think is best. Sometimes the children know our preferences and many times they ask what Rob or I think. Yes, we do tell them, but we also encourage them to think it out for themselves.

In the fourth grade, we study animals in relation to humans. We study

how humans have personalities which are like animals, fostering a sense of the qualities and gifts of each animal and its need for a special environment. We refrain from putting animals in cages in the science room—"It's a bit like a prison"—so when animals visit, it is only for a short time, and then we put them back into nature. Because of the personal way we teach about animals, children begin to feel the interconnections of ecology and experience the web of nature. When they sense that all animals have personalities and idiosyncracies and their own place in nature, they understand that we should not interfere in that process.

In the fifth grade study of botany, we look at plants in relation to humans. We never tear apart a flower to teach the different parts; but we observe and examine it over time and form a relationship to the plant. We always work from the whole to the parts. We eat beans, see a bean field, and then we watch a

bean seed sprout. We learn about sprouting and planting. It's not so much the naming of plants but the love and gratitude for plants in our lives that we want to teach. When one has such a relationship to life, it is more difficult to exploit life.

In the sixth grade, when we study mineralogy in relation to humans, we introduce the earth as living (just as in Lovelock's book), teeming with life, excreting, spinning, rhythmic with inspiration and expiration, with all the cycles of a living, breathing entity. We present the minerals as wondrous substances to be observed and amazed at. Making pottery and using earth glazes, the children become familiar with names like cobalt, ferrous, copper and uranium. This approach gives a sense of the mineral kingdom that is magical and full of respect—certainly a different experience from merely memorizing the periodic chart.

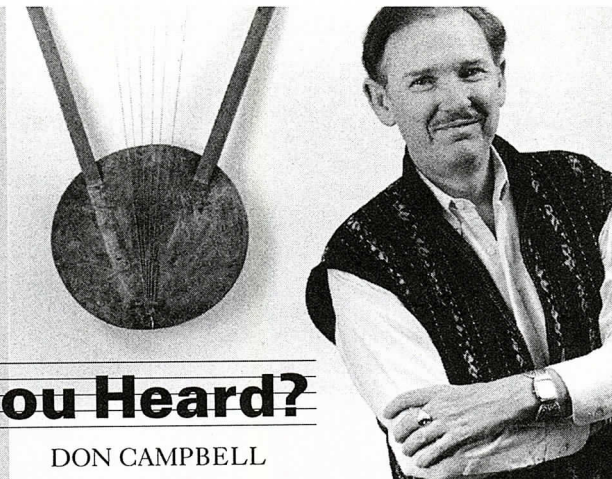
We study anatomy and physiology in the seventh grade and examine the delicate balances in the earth, nature and the human body. Eighth grade chemistry classes look more deeply at agriculture and the environment. We study Rachel Carson's *Silent Spring* and investigate how chemicals work. The students initiated a garbageless lunch for our school. They made it a point to bring cloth napkins and reusable containers. They also questioned whether or not the soap and hot water might be using more resources than throwing away a piece of waxed paper or plastic, and whether an electric weed trimmer might not be more harmful than some weed spray.

All the Waldorf students have to make their own textbooks based on their work. I tell the students that they are beautiful and that everything which issues forth from them should be done beautifully. This attitude eliminates wastebaskets full of scrap paper. When everything you produce is beautiful, you don't need much stuff. ♦

For more information on the Waldorf approach contact The Waldorf School Association of Ontario, 9100 Bathurst St., Box 220 Thornhill, Ontario L3T 3N3, or the Associations of Waldorf Schools of North America, 3911 Bannister Road, Fair Oaks CA 95628.

Have you Heard?

DON CAMPBELL



A hundred years ago, it was a dream to have any kind of recorded music. Twenty years ago, the recording industry was able to put vast amounts of auditory information on small discs. Now the world is filled with thousands of varieties of electronic instruments, auditory samplings, cassettes, CDs, lasers and telephones.

While electronic instruments are still exploring the new world of sound colour, there is a remarkable re-emergence of the natural, no-gimmicks, play-it-yourself instruments. Hundreds of new instruments are being invented by people throughout the world. Bladders and ballons are back in vogue as a post-bagpipe era begins.

Bart Hopkin, editor of the *Experimental Musical Instruments Journal* is one of the world's experts on the evolution of things that squeak, rattle, buzz, whistle, blow and gush. A wonderful and creative scholar on musical instruments, Bart has produced a magazine that is a must for inventors, futurists and jazz players. Write him at EMI, P.O. Box 784, Nicasio, CA 94946.

Now, with recorded music from all over the world, our ears are getting used to the new sounds created by Bulgarian women, Tibetan monks, Indian sitars, banjos, crumhorns and talking drums. The Paul Winter Consort has been blending sounds and styles for a decade. Sounds from nature, wildlife wolf melodies and dolphin themes have replaced the "concrete music" developed by composers in the middle of the century.

A new music is emerging that in-

tegrates the styles of many languages, rhythms and musical forms. Our ears are gradually getting used to an "All American Viennese Salsa Raga." Without losing the integrity of any unique folk or classical style, this intermarriage of national-natural sounds is creating a new lineage of music for us. At first it may sound foreign, but it is from our global neighbourhood.

Here are some suggestions to get your ears ready for the discovery of the new continent:

Missa Gaia/Earth Mass: Paul Winter's masterful tapestry of liturgy, world instruments, traditional chants, hymns and rhythms. A preview of 21st century sounds. Living Music CD 002.

Barcelona: Montserrat Caballé and Freddie Mercury. Opera, Rock, and Pop. Polydor CD int. 837277-2

Earthbeat: The Paul Winter Consort and the Dimitri Pokrovsky Singers. Folk, jazz, pop. Living Music CD 0015

Enigma performed by Enigma. Mythic, dark, evocative rock, Gregorian chant. Virgin CD 261209

China: Vangelis. The best of synthesizer, melodic, Chinese and new age. Polydor CD 813653-2

Dolphin Dreams: Jonathan Goldman's new-age collage of heartbeat, ancient voices singing Ursongs accompanied by dolphins and sea waves. It works. Spirit Music CD DD2300. ♦

Don Campbell is a writer, composer and researcher on sound, music and health. Don can be reached at the Institute for Music, Health, & Education, PO Box 1244, Boulder CO 80306, USA. Tel. (303) 443-8484.



ECO-ED plenaries related
to development include:

**Citizen & Community Action:
Grassroots Movements**

Margarita Marino de Botero, Colombia
Ed Garcia, Philippines
Ashok Khosla, India
Catherine Porter, USA

**Implementing Sustainability:
Economics and Financial Issues**

Leonor Briones, Philippines
Dian Cohen, Canada
Nellie Cournoyea, Canada
Robert Goodland, World Bank

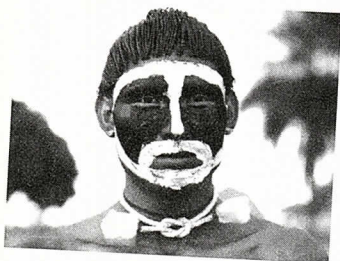
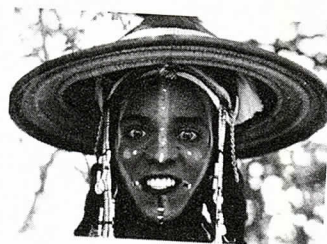
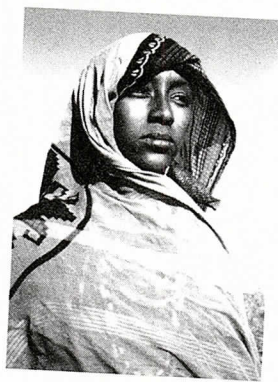
"Development" may be a dead concept. Whether we work in a Canadian office or in an African village, we are forced to be more careful and radical in our attempts at equity and equality.

Development Discovers Poverty

WOLFGANG SACHS

**"Poverty," as a stereotype that fails to distinguish between
frugality, scarcity and destitution, becomes a semantic
steamroller that flattens out real differences, and an excuse
for unasked-for Western economic intervention.**

Wolfgang Sachs is the author of a series of essays, On The Archeology of the Development Idea, which calls into question the reductionism of a development model based on the economics of growth. Mr Sachs is based at the Institute of Cultural Studies in Essen. An earlier segment of Sachs' work appeared in the March 1992 issue of Edges. Sachs argues that "poverty" on a global scale, was discovered after the Second World War, when it became evident to the World Bank that to increase production at a constant level, entire societies had to be overhauled. The experts were able to apply the same blueprint for institutional reform throughout the world, the outline of which was most often patterned on the American Way of Life. It became clear that the identification of social progress with economic growth was pure fiction. Furthermore, a rising environmental chorus noted that development was not meant to promote growth, but to protect against it. Thus, the semantic chaos was complete, and the concept torn to shreds. Development, in Sachs' view, always entails looking at other worlds in terms of what they lack, and obstructs the wealth of indigenous alternatives.



A Gabra woman of Kenya (top), a Xavante man of Brazil (left) and a Wodaabe nomad from Nigeria (right) are three of the many faces of Millennium: Tribal Wisdom and the Modern World, a Canadian-produced television series that aired in Spring 1992 on several networks. The series reveals the tremendous knowledge that traditional societies offer our modern world.

I could have kicked myself afterwards. Yet my remark had seemed the most natural thing on earth at the time. It was six months after Mexico City's catastrophic earthquake in 1985 and I had spent the whole day walking around Tepito, a dilapidated quarter inhabited by ordinary people but threatened by land speculators. I had expected ruins and resignation, decay and squalor, but the visit had made me think again: there was a proud neighbourly spirit, vigorous building activity, and a flourishing shadow economy.

But at the end of the day the remark slipped out: "It's all very well but, when it comes down to it, these people are still terribly poor." Promptly, one of my companions stiffened: "*No somos pobres, somos Tepitanos!*" (We are not poor people, we are Tepitans). What a reprimand! I had to admit to myself in embarrassment that, quite involuntarily, the clichés of development philosophy had triggered my reaction.

"Poverty" on a global scale was discovered after the Second World War. Whenever "poverty" was mentioned at all in the documents of 1940s and 1950s, it took the form of a statistical measurement of per-capita income whose significance rested on the fact that it lay ridiculously far below the US standard. When size of income is thought to indicate social perfection, as it does in the economic model of society, one is inclined to interpret any other society which does not follow that model as "low income." This way, the perception of poverty on a global scale was nothing more than the result of a comparative statistical operation, the first of which was carried out only in 1940 by the economist Colin Clark. As soon as the scale of incomes had been established, order reigned on a confused globe: horizontally, such different worlds as those of the Zapotec people of Mexico, the Tuareg of North Africa and the Rajasthani of India could be classed together, whilst a vertical comparison to the "rich" nations demanded relegating them to a position of almost immeasurable inferiority. In this way, "poverty" was used to define whole peoples, not according to what they are and want to be, but according to what they lack and are expected to become. Economic disdain had thus taken the place of colonial contempt.

Moreover, this conceptual operation provided a justification for intervention: wherever low income is the problem the only answer can be "economic

development." There was no mention of the idea that poverty might also result from oppression and thus demand liberation. Or that a culture of sufficiency might be essential for long-term survival. Or even less that a culture might direct its energies towards spheres other than economic.

Towards the end of the 1960s, when it was no longer possible to close one's eyes to the fact that "economic development" was patently failing to help most people achieve a higher standard of living, a new conception of "poverty" was required. Whoever lived below an externally defined minimum standard was declared "absolutely poor."

This readjusted idea of poverty enabled the development paradigm to be rescued at the beginning of the 1970s. In its official version, the fulfilment of basic needs strictly called for economic growth, or, at least, growth "with redistribution." The link to the previous decade's dogma of growth was thus established.

Binary divisions, such as healthy/ill, normal/abnormal or, more pertinently,

Destitution becomes rampant

as soon as frugality is deprived of its foundation

—community ties, land, forest and water.

rich/poor are like steamrollers of the mind: they level a multiform world, completely flattening anything which does not fit. The stereotyped talk of "poverty" has disfigured the different, indeed contrasting, forms of poverty beyond recognition. It fails to distinguish, for example, between frugality, destitution and scarcity.

Frugality is a mark of cultures free from the frenzy of accumulation. In these, the necessities of everyday life are mostly won from subsistence production with only the smaller part being purchased on the market. To our eyes, people have rather meagre possessions; maybe the hut and some pots and the Sunday costume, with money playing only a marginal role. Instead, everyone usually has access to fields, rivers and woods while kinship and community duties guarantee services which elsewhere must be paid for in hard cash. Nobody goes hungry. In a traditional Mexican village, for example, the private accumulation of wealth results in social ostracism—prestige is gained precisely by spending even small profits on good deeds for the community. Such a lifestyle only turns into demeaning "poverty" when pressurized by an accumulating society.

Destitution, on the other hand, becomes rampant as soon as frugality is deprived of its foundation—community ties, land, forest and water. *Scarcity* derives from modernized poverty. It affects mostly urban groups caught up in the money economy as workers and consumers whose spending power is so low that they fall by the wayside. Their capacity to achieve through their own efforts gradually fades, while at the same time their desires, fuelled by

glimpses of high society, spiral towards infinity: this scissor-like effect of want is what characterizes modern poverty.

Up until the present day, development politicians have viewed "poverty" as the problem and "growth" as the solution. They have not yet admitted that they have been largely working with a concept of poverty fashioned by the experience of commodity-based need in the Northern Hemisphere. With the less well-off *homo oeconomicus* in mind, they have encouraged growth, and often produced destitution, by bringing multifarious cultures of frugality to ruin. For the culture of growth can only be erected on the ruins of frugality; and so destitution and dependence on commodities are its price.

The core of the development idea was that the essential reality of a soci-

ety consists in nothing else than its functional achievement: the rest is just folklore or private affairs. From this viewpoint the economy overshadows every other reality: the laws of economy dominate society and not the rules of society the economy. This is why, whenever development strategists set their sights on a country, they do not see a society that *has* an economy, but a society that *is* an economy.

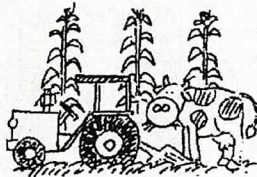




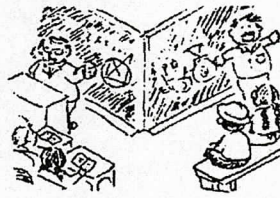



In societies that are not built on the compulsion to amass material wealth, economic activity is also not geared to slick zippy output. Rather, economic activities like choosing an occupation, cultivating the land, or exchanging goods are understood as ways of enacting that particular social drama in which the members of the community see themselves as the actors. The economy is closely bound up with life but it does not stamp its rule and rhythms on the rest of society. Only in the West does the economy dictate the drama and everyone's role in it.

It seems my friend from Tepito knew of this when he refused to be labelled "poor." His honour was at stake, his pride too; he clung to his Tepito form of sufficiency, perhaps sensing that without it there loomed only destitution or never-ending scarcity of money. ♦



Street family in Rio de Janeiro. Photo: ICA Brazil.

Components of Integrated Development

ECONOMIC DEVELOPMENT	CULTURAL DEVELOPMENT	SOCIAL DEVELOPMENT
FARMING SYSTEMS  <p>Diversity of Crops Soil Conservation Irrigation Systems Appropriate Mechanization Livestock Captation Dams Non-conventional Energy Cooperative Organizations</p>	ENVIRONMENT  <p>Improved Housing Public Buildings Public Services Access Roads Public Parks Community Beautification</p>	PREVENTIVE HEALTH CARE  <p>Nutrition Primary Health Care Public Sanitation Health Education Child Survival Preventative Medicine</p>
APPROPRIATE INDUSTRY  <p>Light Industry Handicrafts Cottage Industries Product Processing Appropriate Technology</p>	COMMUNITY ORGANIZATION  <p>Community Participation Community Promoters Community Workdays Leadership Forms of Organization Organizational Training Systems</p>	FUNCTIONAL EDUCATION  <p>Informal Education Formal Education Adult Education Technical Training Design of Education Programs Continuous Education Educational Communications</p>
COMMERCIAL SERVICES  <p>Marketing Consumer Cooperatives Savings and Loan Systems Transportation All Other Commercialization</p>	IDENTITY SYSTEMS  <p>Community History Customs and Traditions Celebrations Art, Music Information and Communication Means</p>	FAMILY WELL-BEING  <p>Early Stimulation Advancement of Women Community Youth Services Child Welfare Senior Citizen Care Family Life Education</p>

demonstration community projects. Using a participatory planning process, each of these communities, along with national and international advisors and experts, created three-year plans for its re-development. These 24 communities included 19 rural villages and 5 urban neighbourhoods. A similar planning process was conducted with the residents of over three hundred more communities in India, Kenya and the Philippines.

The Integrated Development Nine-Program chart shown here was one of the key tools which emerged out of all of this work and experimentation. It is not a "master plan"; every community should create its own unique plan. But it does provide a check-list for the comprehensiveness of programs for social change and a context for integrated development in communities. It is implicitly understood by ICA practitioners who use this chart that issues of gender and of environmental protection are to be carefully examined and addressed in all programs.

By changing the first box of the integrated development chart to "appropriate employment," it can be used in urban as well as rural communities. ♦

Guidelines, not Blueprints

JOHN BURBIDGE

Society is like the proverbial elephant being described by six blind men. None could see the whole elephant and no person has ever seen all of society. Yet society is one integrated whole and understanding social change requires some means of comprehending the whole.

This material on Integrated Development comes out of the ICA's practical research efforts in applying participative processes to local community situations, beginning with the Fifth City urban community in Chicago in 1962. This effort was intensified in the mid-1970s with the launching of 24

from *Approaches that Work in Rural Development, Vol. 3, Institute of Cultural Affairs International, ed. Munich: K.G. Saur, 1988. Available from John Burbidge, ICA West, 1504 25th Avenue, Seattle WA 98122, USA. Tel. (206) 323-2100.*

Where Is the Wisdom?

SUSAN KIIL

In Morocco, a woman living the traditions of Muslim life is given a radio. As if by magic, a voice speaks when she presses a button. It says things she cannot translate into her reality, into her codes of ethics and behaviour. As time goes by, she learns to live with the radio, and then a telephone, and now this new way of life. She buries her old possessions and traditions so no one will know who she used to be.

In Canada, a class of urban children visits an outdoor education centre. As they walk through the fields, the long grasses brush their skin and the insects hum around their heads. They don't like the feel of the grass. They are frightened by the insects. They want to go home to their own reality.

In India, a man has an export clothing factory. From it, he earns enough money to keep his young family and to fund local projects. The women and children in his factory work long days in dim light and poor air. The man has provided them with jobs while other children live in the streets of the city with little hope of survival.

In the United States, a woman cries for the rights of children. She holds two jobs while bringing up a family of three, alone. The children seldom see her, and she's too tired to care when they do. They make their own way through the maze of consumer products and promises, looking for the sense in it all.

Where is the wisdom in this? What is the future? How can we change the system? Which traditions do we need to break? Which traditions should we keep? How can we be responsible for all of this? ♦

Susan Kiil is a Toronto-based environmental educator and owner of EB Press. The selection above is taken from her upcoming book on environmental education for children: What We Can Do for Our Children's Environment: a Holistic View.

MIT and Chipko: Two World Views

VANDANA SHIVA

The Chipko Movement

India's forests are one of the principal bases of subsistence of the rural population, especially in the mountainous regions. They provide food, fuel and fodder, while they prevent soil erosion and ensure water supplies. As ever-increasing areas of forested land were felled for commercial and industrial interests, Indian villagers began to try safeguarding this basic necessity of life by Gandhi's method of *satyagraha*—non-violent resistance.

The first Chipko action began spontaneously in April 1973. In five years it spread to many Himalayan districts of Uttar Pradesh. "Chipko" is derived from an Indian word meaning "embrace": the villagers save the trees by putting their bodies between the trees and the tree-fellers' axes. Chipko protesters won a major victory in 1980, when then prime minister Indira Gandhi imposed a 15-year ban on tree-felling in the Himalayan forests of that province. Work continues toward a more viable forest policy. ♦

from Gate, published by Deutsches Zentrum für Entwicklungstechnologien, March 1988.

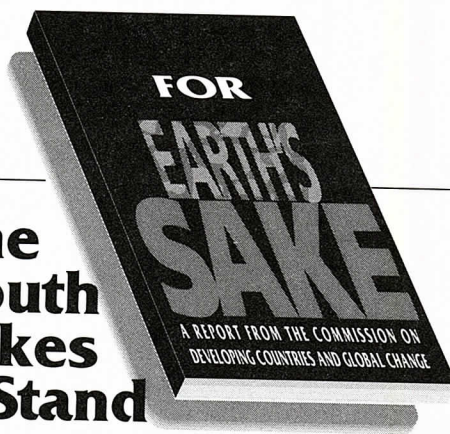
In December 1987, two prizes were awarded in Stockholm: the Nobel Prize for economics was given to Robert Solow of MIT for his theory of growth based on the dispensability of nature. In Solow's words, "The world can, in effect, get along without natural resources, so exhaustion is just an event, not a catastrophe." At the same time, the Alternative Nobel Prize (the popular name for the Right Livelihood Award), instituted "for vision and work contributing to making life more whole, healing our planet and uplifting humanity," honoured the women of the Chipko movement who, as leaders and activists, had put the life of the forests above their own and with their actions, had stated that nature is indispensable to survival.

The two prizes dramatically pose the two oppositional worldviews grappling with each other. These worldviews hold opposing assumptions of the worth and

value of different kinds of work and existence. In the worldview personified by the MIT professor, only that counts as knowledge which is produced by male western experts, and only that counts as wealth which such knowledge produces. The economic "growth" that the masculine model of progress has sold has been the growth of money and capital based on the destruction of other kinds of wealth such as the wealth produced by nature and women. In this view, nature in itself has no value, unless controlled and exploited by western masculine science, and women and non-westernized peoples have and produce no value, because they, like nature, have no intrinsic intellectual or economic worth: they are the bearers of ignorance and passivity while western man is the bearer of knowledge and progress.

In the worldview personified by the Chipko women, nature is *Prakriti*, the cre-

The South Takes a Stand



Le sud prend position

ator and source of wealth, and rural women, peasants and tribals who live in, and derive sustenance from, nature have a systematic and deep knowledge of nature's processes of reproducing wealth. Nature and women do not acquire value through domination by modern western man; they lose both through this process of subjugation. The domination of nature by western industrial culture, and the domination of women by western industrial man is part of the same process of devaluation and destruction that has been characterized in masculinist history as the "enlightenment." With the Alternative Nobel Prize, part of the world's community is joining the Chipko women in challenging this notion of progress and enlightenment. A decade after the women of Henwal Ghati came with lanterns during the day to show forestry experts "the light"—that forests produce soil and water and not just timber and revenue—they have been joined by others in challenging the enlightenment symbol of "light" as the exclusive monopoly of the western expert.

The old assumption that with the development process the availability of goods and services will automatically be increased and poverty will be removed, is now under serious challenge from women's ecology movements in the third world, even while it continues to guide development thinking in centres of patriarchal power. Survival is based on the assumption of the sanctity of life; maldevelopment is based on the assumption of the sacredness of "development." Gustavo Esteva asserts that the sacredness of development has to be refuted because it threatens survival itself. "My people are tired of development. They just want to live." ♦

from *Staying Alive: Women, Ecology and Survival in India*, Kali for Women Press, New Delhi, 1988.

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Sustainable Development and the Human Factor

MARGARITA ARIAS

The former First Lady of Costa Rica, Mrs Margarita Arias is widely known for her pas-

sionate concern about

global issues. This is an extract from a pre-

sensation made by Madame Arias to the

World Women's Congress for a Healthy

It was a woman who first warned us about the silent spring. It was another woman worker who sacrificed her life to alert the world to the danger of nuclear reactors. The ills of our planet are now matters in the public domain. For some 20 years, we have been conscious that we are living in the present at the expense of the future. Current needs are being satisfied by exhausting the resources that will be needed by future generations. The contamination of the air, land and water caused by uncontrolled waste disposal, the dramatic destruction of our forests, the erosion of our fertile soils, the disappearance of planet and animal species, the destruction of the ozone layer, the changes in our climate and the extinction of non-renewable resources are all part of the anxieties of modern life.

This bleak picture is not, however, unalterably fatal. We can and must act, because we have created this situation ourselves. At one point it was believed that environmental problems were attributable to ignorance on the part of the citizenry, or inadequate government administration, or perhaps even bad faith on the part of multinational companies. There is some truth to these claims. Some countries still lack established emission-control standards. Others continue to profit from the sale of dangerous pesticides, long banned in their own countries, to the developing world.

But that era is rapidly coming to a close. As awareness has grown, citizens have pressured their governments into

implementing legislation regulating the use of natural resources. Innumerable laws have improved forest management, regulated the use of cultivable land, controlled factory and automobile emissions and harnessed the indiscriminate dumping of human and industrial waste. Despite these gains, large-scale environmental destruction has continued its course.

We then understood that the problem of the environment was a global phenomenon that could not be

resolved simply by the passage of laws in individual countries. This was an important lesson. Since then, environmental issues have become international concerns, the subject of multilateral treaties. But despite the gains in the defence of the Earth which have come about as a result of international collaboration, there is a growing awareness that these efforts haven't gone far enough.

We women of the world want to call attention to the fact that environmental issues have to do with human solidarity. We women want to remind the world that the problems of the environment also have to

do with the distribution of wealth and equity. In Central America, where some 50 percent of the population lives below the poverty line, 20,000 hectares of forest land are sacrificed each year to support cattle-raising. But the children of Central America consume 52 times less meat than those of the North. The average citizen in the industrialized countries releases 27 times more carbon dioxide into the atmosphere, uses 115 times more paper, and consumes 35 times more commercial energy. A social order created by a culture lacking fundamental values of human solidarity gives rise to the conditions that perpetuate poverty. Both poverty and environmental

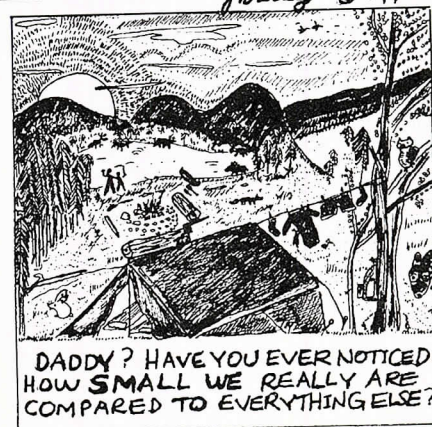
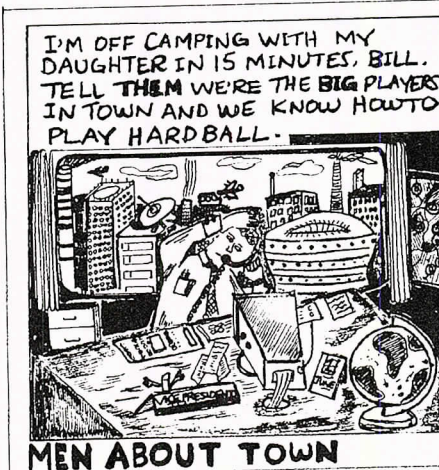
deterioration are products of the same world view of how human beings should cohabit the earth.

The concept of sustainable development emerged out of this flawed vision. However, sustainable development in itself is not the answer to the environmental dilemma we face, as it does not touch upon the root of the problem. Nothing short of a transformation of our culture is needed to carry out the kind of development that we are proposing.

Without changing the culture that equates consumption with human satisfaction in the industrialized countries, it

Environmental problems are a measure

of the ethical dimensions of our civilization.



will be impossible for New York to cease to produce three times the volume of garbage as Calcutta, a city of the same population.

Without enhancing opportunities for human development in rural areas, Mexico City's population will continue to expand, and all the economic resources it can marshal will be insufficient to process the volume of human and industrial waste it will produce.

We seem not yet to have found other means besides repression to deal with the social and economic necessities of peasants who grow coca crops in the Andes. The problem calls for more complex solutions than mere enunciations of ideal formulas for development.

Environmental problems are a measure of the ethical dimensions of our civilization. The governments of the world have not found it within their hearts to allocate the 2.5 billion dollars necessary to eradicate infant malnutrition. This is less than the amount spent on arms in a single day. Yet it is less than two percent of the yearly military expenditures of the developing countries where the malnourished children live.

These problems are human problems; they cannot be solved simply through technical or legal means. It is our civilization, our culture, our values, the way we live side by side that is endangering our Earth. We women of the world are calling for an integrated approach in which the themes of environment and development are two sides of the same coin. It is for this reason that I fully concur with Richard Jolly when he states that "every environmental issue has a development aspect, particularly a human development aspect, to it." ❖

This passage is excerpted from Annals of Earth, subscription US\$15 per year, published by Ocean Arks International, One Locust St., Falmouth MA 02540, USA. Published with permission from Womens' Environment and Development Organization, 845 3rd Avenue, New York NY 10022, USA.



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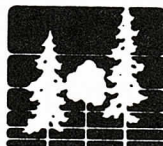
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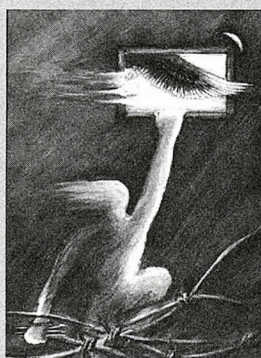
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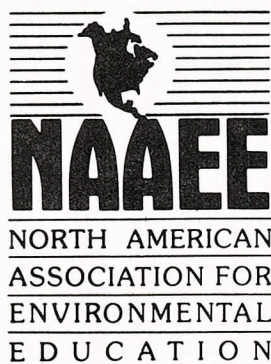
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The Culture of Permaculture

It is not unusual, at least once a day, to hear someone say, "I'd like to do something about the state of the world, it's in such an awful mess, but I'm only one person, and what can one person do anyway?"

Here's your answer. Tell them about two Toronto people who are making a difference, together with the people in the groups they spearhead. Simon Fell, among many other things, ranks as a charter member of the permaculture movement as well as a spokesperson for the budding Club Cosmicos, described as "a sort of grassroots, everyone-can-belong, United Nations." Barbara Stocking provides the leadership, along with fellow leaders in the field of integrated learning, for a wholistic and experiential approach to growing and learning called Future Builders.

As in undertaking which gets its inspiration from the inherent design found in the natural world, Permaculture and Future Builders complement each other. Fell, born and raised in Australia, is the kind of character who could put Crocodile Dundee to shame. Rather than a big knife, he carries a tremendous energy coupled with a deep desire to get the planet and its peoples back on track. He is a walking invitation to join him in co-creating the world as it was meant to be. While still at school and working several jobs on the side, he had bought his own 40-

acre farm. One day, he found himself face to face with Bill Mollison, the brain behind the creation of permaculture. With Mollison, Fell became a co-founder of the Tagari Intentional Community in Tasmania with a mandate to develop, promote and celebrate the principles of permaculture. From that was born the Permaculture Institute, and the rest is history.

Permaculture involves the conscious use of ecological principles to design self-sustaining food, fibre and energy-producing systems for human use. The word permaculture is shorthand for "permanent agriculture"; the concept is not about specific techniques, but rather design—natural design. Permaculture is a commitment to care of the earth—its soils, species, atmosphere, forests, waters, people and every living thing. It involves wise and frugal use of resources and helping others. As Mollison says, "The philosophy behind permaculture is one of working with, rather than against, nature; of protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems in their functions, rather than asking only one yield of them, and of allowing systems to demonstrate their own evolutions."

One of the myriad examples of the influence of permaculture is in New York City where garbage and waste materials, formerly shipped out by barge to pollute the ocean, are now used to compost inner-city vegetable

gardens to feed the poor and provide green places where empty lots and rubble once stood.

Fell is equally enthusiastic about Club Cosmicos.

"The word *cosmicos* is latin for 'citizen of the world.' Club Cosmicos is about creating a 'work-net' rather than just a network. It is *about getting things done*, about caring for people and caring for the earth.

"The elaborate fiction is that the economy is the prevailing system, and that fiction is upheld by our society, our governments, our political leaders. But underneath this belief comes the nagging fear, 'What about the environment?'" With Cosmicos we can apply sound business principles to vital issues to create sustainable economic development and financially empower our worknet members—without compromising our values.

Future Builders, founded by Barbara Stocking, is addressing that same question in a unique and very productive way.

Stocking, who has long been involved with using and teaching communication skills as a tool for helping young people is now setting her sights on the population as a whole, with adults as her primary target group.

"There has never been another time in history, at least the history that we are conscious of, where we have had to reassess our perceptions of things so radically. And there is nothing out there to help us except perhaps some new skills training, a few discussion groups on changing

roles, that sort of thing.

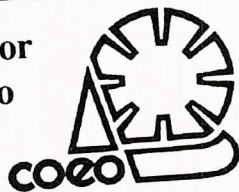
"The purpose behind Future Builders is to create a new way of making things happen with the people who are already doing something about it. By providing think-tanks and innovative programs, we can develop a support system for those who are looking for new approaches."

Future Builders is designed to be an environmental resource, an exploratory learning network, and a clearing house for exchange of education and wisdom. To that end, an Ontario-wide Integrated Learning Centre is being developed on 420 acres of farm and forest land within a two-hour drive of Toronto.

Because a key component of Future Builders is to involve and work with the whole community, this new Learning Resource Centre will provide a setting where kids, adults, grandparents, *everyone*, may experience, *through demonstration*, environmentally sound ecological land, energy and water use. The vision includes possible joint-venture projects with provincial government departments such as the Ministries of the Environment, Natural Resources, Agriculture and Health and Welfare, as well as various universities, local community associations and private corporations.

The day of "a leader plus followers" is over. Future Builders, Cosmicos, the Permaculture Movement all represent groups of leaders co-creating with other leaders. The invitation is not to

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- Summer Institute for Environmental Values Education, annual 8-day program for school and community educators
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come and "join" a group and ask what you can do to help. Today, each one involved brings creative ideas, quality of leadership, and a deep sense of responsibility to see things through.

For those who hear the call, the invitation to co-create with Barbara Stocking and Simon Fell and the "work-net" they represent couldn't be clearer. Barbara can be reached at (416) 691-7743 or through *Edges* magazine at (416) 691-2316. Simon may be contacted through the Cosmicos office at (416) 260-2428.

—Sherry Stewart

Bioremediation: Decontaminating the Earth

Nature does not know waste. Life is one long food chain—everything is something's lunch of food or energy. One organism's poison is another's food. BUGS—short for "bacteria under guidance and supervision"—will munch their way through gasoline spills; others will digest crude oil, diesel, coal tar, industrial solvents, and many other varieties of gunk which they break down into carbon dioxide, water and benign organic compounds. Enter a new game, bioremediation—matching organisms to digest one another.

How do we clean up the massive pollution endangering our water, soil, air and health? Bioremediation does it by using the biomorphic technology of Natural Treatment Systems to

mimic nature's own cleansing processes with constructed wetlands and indigenous microbial ecologies to eat the waste products. These living filters are ecological and economic measures of purifying the environment.

The approach has been approved by the US Environmental Protection Agency for treating sewage and by the US Bureau of Mines for treating mine wastewater. Successful pilot remediation projects are well under way for a broad variety of other applications including septic tanks, urban stormwater runoff, landfill treatment, agricultural runoff, pulp paper mills, food processing and a variety of other industrial uses.

In the forefront of this effort are "bioneers" like Dr John Todd, a visionary biologist whose non-profit Ocean Arks International designs simulated ecosystems to purify sewage, septage and dairy waste water in greenhouses. The founder of the legendary New Alchemy Institute of appropriate technology, Dr Todd has given new meaning to the "greenhouse effect," treating waste water while creating an exotic environment resembling the hanging gardens of Babylon.

Dr Donald Hammer is an expert on the use of constructed wetlands for waste water treatment. He has successfully applied these systems in sewage, mining, agricultural and industrial sites on three continents. Bill St John is the microbiologist founder of Ecova, the first company to demonstrate successful microbial technology on 16 US



Father Earth pleading with future citizens to help him out of a mountain of garbage. Scene from the musical "Mountain of Garbage," performed by Waterwood Theatre Projects (Toronto) at the ECO-ED Congress.

Superfund hazardous waste sites during the mid-1980s. Doug Kepler is an award-winning biologist who is the primary contractor for constructed wetlands to treat acid damage from the coal mines in Pennsylvania. His Damariscotta Company recently completed a landmark project of community empowerment by performing a "marsh-raising" that drew together the local community, the National Guard and environmental groups to clean up a watershed polluted by an abandoned mine site.

The emerging technology of bioremediation represents a revolution in modern scientific thought. The game of cleaning up the environment becomes one of matching toxins with organisms that "eat" them.

For more information, contact Gila International Centre of Diversity (GICD), PO Box 8627, Santa Fe NM 87504-8627. GICD is a project of Southwest Learning Centers, Inc.

Landfill Archeology

If you have sometimes wondered whether all our scrupulous recycling efforts are getting anywhere, here's a sign of hope.

Dr William Rathje, a "garbologist" from the University of Arizona, has been digging up landfills for some time to answer the question, What happens to our wastes after 10 years, 20 years or more? Invited to Toronto by Jack McGinnis of the Recycling Development Corporation (RDC)—Jack initiated the blue-box recycling system in this area—Dr Rathje has participated in four digs in the Greater Toronto Area.

One finding is on the impact of recycling. "In the Burlington landfill," says Jack McGinnis, "the amount of newspaper in landfill dropped from seventeen percent to six percent after the implementation of the Blue Box program. In the same period, glass volumes were cut in half. We are making real progress based on what we saw in these landfill excavations."

Mr McGinnis said they also found that many of our beliefs about "the garbage crisis" are incorrect. "We believe that landfills are loaded with packaging, but what we found is that nearly 30 percent of what we dug up was construction and demolition debris."

The analysis from the digs will allow RDC to prioritize tar-

gets as we move beyond the blue box in our effort to reduce waste. RDC works with both governments and corporations to develop new waste reduction, reuse and recycling programs designed to change the way in which we handle our natural resources. Says McGinnis: "We have traditionally harvested our resources and managed our wastes. In the 1990s, we must learn to manage our resources and harvest our wastes."

The Harmony Foundation's Summer Institute

"I cannot think of another way I could have been exposed in only eight days to such a panorama of ideas, personalities, issues, expertise, all of such high calibre," said one participant in Harmony's Summer Institute for Environmental Values Education, a program of the Harmony Foundation of Canada.

Since the first such Institute in 1990, and each year subsequently, between 45 and 60 teachers and community educators have come together to attend sessions by leading environmentalists, philosophers, politicians, activists, business people, artists and others. Participants hail from across North America, South Asia, Africa, Latin America and Southeast Asia. The format of the Institute encourages dynamic interaction between resource people and participants.

The curriculum challenges

participants to examine their own values and how they are related to actions. The approach is to grasp environmental issues using global, cross-cultural and artistic modes and to underline the importance of personal and community action for the environment.

For more information, contact The Harmony Foundation of Canada, Summer Institute, 501-225 Metcalfe Street, Ottawa, Ontario K2P 1P9. Tel. (613) 230-7353.

Earth Chronicles

And here's a project that gets local people's voices on the air.

Work began in May of this year at McMaster University on *The Earth Chronicles*, a 40-part series of half-hour radio documentaries that will give voice to people's concerns about the environment directly without any journalistic narration. They will be broadcast by a confirmed network of 17 community radio stations stretching from Vancouver to Halifax. The series will also be made available to commercial broadcasters by Canadian Artists and Programs on Satellite (CAPS).

Accompanying the series will be a study resource kit of program transcripts, activities, short essays and bibliography related to the topic of each show. These will be organized to encourage action by individual listeners, community groups and school programs.

The programs will highlight four areas: 1. earth as a life-sus-



taining body; 2. the bio-ecology of animals and plants; 3. the impact of human behaviour on the earth and other life forms; 4. Local environmental approaches that are working.

The series is based at McMaster University, Hamilton, Ontario.

For more information, contact: *The Earth Chronicles Radio Project, P.O. Box 15, McMaster University, 1280 Main St. West, Hamilton, Ontario, Canada L8S 1C0.*

Alternative Medicine at University of Toronto

At the University of Toronto, for the first time, the Faculty of

Pharmacy will offer a course on alternative models of health and healing. Dr David Burman is spearheading the course introduction which will be part of the programme in social and ethical issues in pharmacy aimed at second-year pharmacy students. It will explore alternatives to orthodox medicine, the impact of social issues on health, and the relationships between holistic medicine and pharmacy. It will include comparisons of how health and illness are imaged across different cultures; it will cover Chinese medicine, North American Native medicine, acupuncture, naturopathy, homeopathy and the body-mind continuum. ❖



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Applications for September 1993 should be received by March 1, 1993.

The Faculty also offers an undergraduate degree programme leading to a Bachelor in Environmental Studies (BES). Information for all programmes can be obtained from:

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The Canadian Teachers' Federation which represents 240,000 teachers across Canada is pleased to support the ECO-ED Conference.

CTF is proud of the work being done by teachers to help young people learn about, understand and respect the environment and become good environmental citizens who will work for its preservation all over the world

A special welcome to international participants from many countries where Canadian teachers have shared their expertise for over thirty years in teacher training programs through the CTF International Development Assistance Program.

Best wishes to ECO-ED for success in all its activities.

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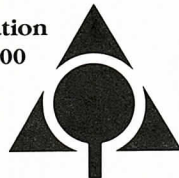
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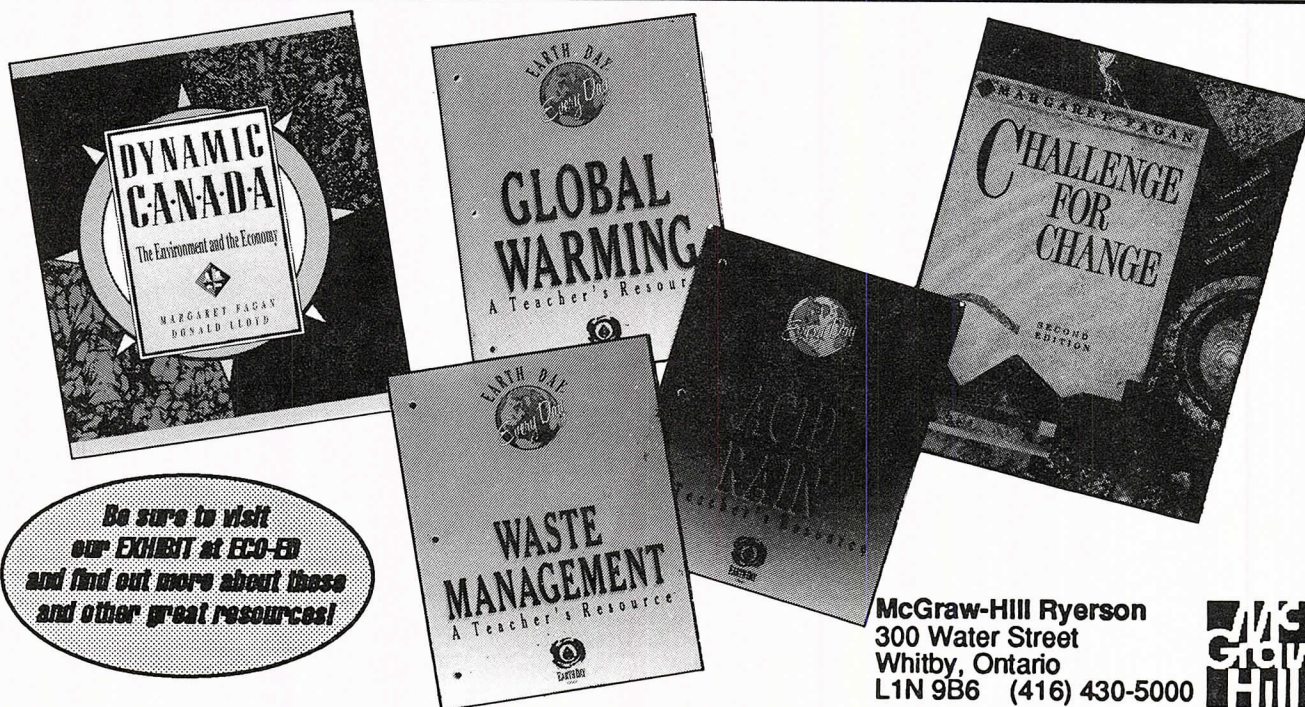
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Good Reading

MURDER & WALKING SPIRITS

by Robertson Davies

Toronto: McClelland and Stewart Inc., 1991.
Hardcover, 357 pages; Can\$28.

When a new book appears by Davies, I anticipate being entertained by the author's lucid, lively intellect, superb wit, amusing irony and concise, colourful prose. I expect to be enthralled by drama, intrigue, fateful turns and dark currents of love, ambition and vengeance. I have come to expect memorable, fascinating characters portrayed with mature psychological insight. This book fulfilled my hopes and immodest expectations.

The plot allows Davies to act as a great film director, presenting dreams and reverie in a puzzle of ambiguity and omission. Drawn into half-darkness, a tunnel-like auditorium, we witness a phantasmagoria of shifting images, a replay of the past, a visit by ancestors, fleeting and heavily cloaked, speaking in voices only partly understood about the ambiguities of human existence.

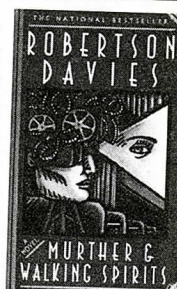
Gilmartin, a man who died, is watching with us this movie about his ancestors. He is now a spirit, realizing how little he knew about his forbears while he lived. He assumed that the sufferings and inadequacies of humanity came for the first time in his own experience where he himself was centre stage. Now he finds out that his family is made up of players supporting his personal drama as well as starring in some deeply felt show of their

own. Their life was a heroic fight, whether won or lost. His admiration, pity and, finally, his love are aroused, a love he shied away from in his civilized life, like his contemporaries. He observes that his own lapses have been rooted in stupidity rather than evil—he has been a man always trying to do the decent thing.

This powerful sense of the decent thing at whatever the cost he recognizes as puritan Methodist morality, persistent, even after the religion has wizened. Self-love does not intrude into this morality—even self-approval is looked upon with suspicion. "Self respect—ah yes, that is another thing, a cooler thing," he says, as he comes to realize that the unconscious acceptance of this assumption was the greatest folly of his life. In this sense he is a modern version of Dickens' Scrooge.

After losing his life, but not his sense of humour, he wonders: "I am still a green hand at this business of death, without a clear idea of what my powers may be. Can I haunt my murderer? To be a crude spectre, discovered squatting by the fireside is out of the question for such a spirit as I. My intended prey lives in an apartment without a fireside, and I shall certainly not make a fool of myself, squatting by his thermostat."

Davies' approach is one of balancing polarities. His answer to profound questions is often a qualified Yes, conditioned by a prudential NO. He reminds us that



high hopes often soar on the wings of ignorance and high adventure can lead to disaster. As his plotline shifts from the deadly earnest to the freakish or uproariously funny, his version of the Golden Mean comes through clearly: anything pursued beyond a reasonable point turns into its opposite; so excess—even in virtue—can be ruinous.

One of the most endearing characters in this saga of the rise and fall of a Methodist family is a great grandmother who believes that Love in its manifold forms is the begetter of all that makes life sweet. Her simple goodness keeps her big family afloat and frequently laughing. Her motto is expressed in this song:

"There's an excellent rule
I have learned in life's school.
I'm ready to set it before you.
When you're heavy at heart,
and your world falls apart,
don't pity yourself I implore you.
No, up with your chin,
meet bad luck with a grin,
and try this infallible trick
—it will never fail you.
Whatever may ail you
—do something for somebody quick!
Oh, do something for somebody quick.
To banish your cares in a trick,
don't fret about you,
there's a good deed to do,
do something for somebody quick!" ♦

—Susan Lanczi

Susan Lanczi is a freelance writer in Oakville, Ontario. Her background is in mathematics and Jungian psychology.

WORKPLACE GUIDE: Practical Action for the Environment

Ottawa: Harmony Foundation of Canada, 1991. Softcover, 150 pages, Can\$21.40. Harmony Fndn, Box 3444, Stn D, Ottawa, Ontario K1P 6P9. Tel. (613) 230-7355.

This practical and comprehensive book is an exhaustively researched, factual, 176-page "how to" manual for any organization, from corporation to small business to school to home-office to corner store.

It contains over 500 specific actions, 24 pages of worksheets, an action planner, success stories and resources. It deals with nine target areas: energy, hazardous mate-

rials, waste, water, transportation, purchasing, property management, education and training, and excellence beyond the workplace.

Each chapter begins with a "quick start" introduction listing a number of immediate areas for action, even before you begin to read. The text shows the cost to the environment in that arena, indicates research that needs to be done before acting, then demarcates target areas and action in several arenas. The chapter concludes with a series of success stories and a large list of resource organizations by province. Red



headlines on a beige, 100-percent-recycled bond make for an attractive presentation.

Environmental officers in corporations looking for a handbook from which to plan a long-range campaign, or a school or small business looking for a way to deal seriously with their own environment, need look no further. Assembled by people who know the ropes and have been through the fire, this masterful environmental handbook deserves the widest circulation. ♦

—Brian Stanfield

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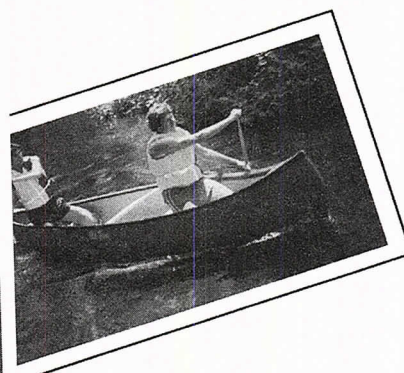
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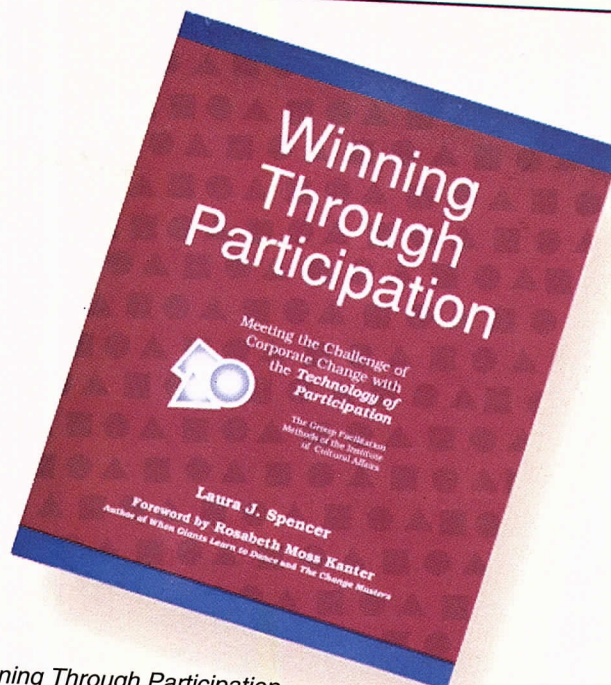
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To Russia with Love

During the attempted coup in the Soviet Union August 19, 1991, Moscow's citizens became the symbol of the coagulation of historical, psychological and mythological forces which are working a powerful alchemy on the people of the planet.

The hapless leaders of the coup trembled with fear, fumbled incompetently, ignored the power of grassroots communication, and finally caved in to the clear consensus that change is not the enemy. The people themselves erected barriers out of junk and stuff, brought flowers and food to the soldiers, and placed their own bodies between the tanks and the walls of the underpass on Tsaichovsky Street, near the Russian whitehouse. When submachine guns were fired Tuesday night, the people did not collapse. When the armoured personnel carriers confronted the barricades, they did not crash through as they easily might have done.

The atmosphere of Moscow was charged with the tension of human will and choice, and the many foreigners like myself who were present, found it impossible to stay away from the barricades. But as the machine guns ratta-tat-tatted not more than 50 feet from where I stood in awe just after midnight on Wednesday August 21, 1991, considerations of safety took precedence over curiosity and adventurism. I found myself saying, "I had better go. This is not my revolution." I have discovered since that this is not true.

Something happens to people who discover that they are not, in fact, enemies. When walls artificially built of ignorance and propaganda crumble, a kind of psycho-historical attraction seems to occur that defies common sense, rationality and any attempts to moderate it. It is as though the very forces of repulsion which are raised up between people ensure that in the fullness of time, when people are allowed to find their own connections, there will be proportionate forces of reunion which draw them together again. The experience of joy at family reunions seems also to apply to relations between peoples. How else are we to explain the passionate interest in sister cities, citizen diplomacy and travel abroad.

But this is not just a force of attraction; it is also a medium of communication. The capacity of Russian people to communicate emotion and states of being is unparalleled in the world today.

Powerful energies are at work which surprise people aware of this capacity and terrify the unsuspecting. I listened to a song sung by a Russian friend, and, without knowing any of the words, described the emotional content with sufficient accuracy to startle the singer. Ten time zones away, I have felt the pain and alarm of my friends in Moscow when they haven't enough food, or when they are frustrated in their attempts to create new projects with colleagues. Riding a bus for the first time in Moscow the day before the attempted coup, a wave of such intense emotional pain rolled through my body that I dissolved in tears for several minutes, not knowing what was happening to me.

It is unsettling to personally experience the emotional power which has been used for ill for so many years. But it is also exhilarating. It is possible to sustain deep friendships and collegiality on this wave of energetic connection, like a carrier wave for creativity and constructive purpose.

It is clear these days that all of us are living in a kind of global soup, a global culture in which the new mythology, new social forms and new human connections are growing toward each other as each develops momentum and connections. The global brain is not just an esoteric theory. It is a very personal experience of intimate connection with many other minds and hearts in different locations. Curiously for Western rationalists, the global brain is made possible and tangible by an opening in human hearts and an awakening to the deeper realms of human experience. This realm of the heart is now also the challenge of the body politic. If nations are to be connected with nations, then people must be connected with people and heart to heart.

We live in an intimate world in which our own emotions are deeply influenced by the condition of acquaintances on the opposite of the planet and in which injustice anywhere is experienced as personal assault everywhere. We live at a juncture at which history has become again, not a study of the past, but a kind of confluence of forces within which we swim, some desperately trying to keep their heads above water and some riding just below the crest with elation and terror. ♦

—David Dunn

David Dunn is a writer and consultant in Denver, Colorado and a longtime member of ICA.

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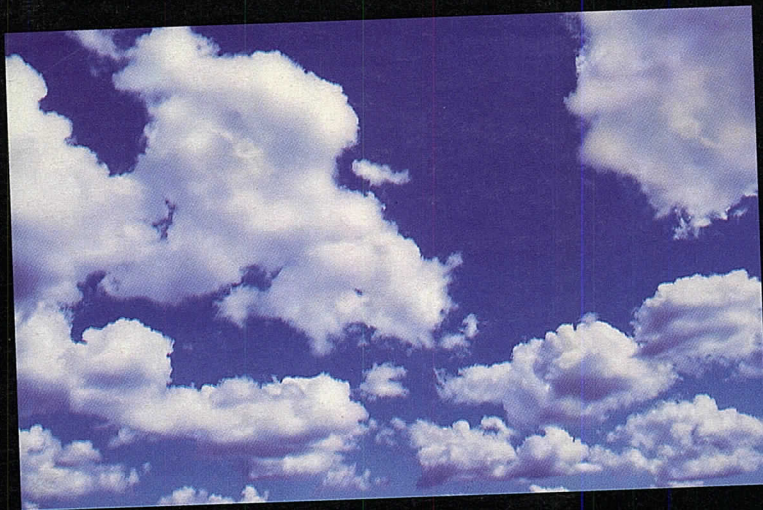
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