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RAIN

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**RAIN**

ECO-NET

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# RAIN

APRIL  
1981

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Reagan Era Environmentalism  
Heat Pump Water Heaters  
Richard Merrill on Bioregional Agriculture

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cost and high marketing expense, the *Guide* has been fairly priced. (It may be interesting to note that we are not "crying all the way to the bank" — we are just crying!!!)

Warmest personal regards,  
Justin A. Bereny  
San Mateo, CA

Dear Rainmakers,

We at Vocations for Social Change (VSC) would like to thank you for the kind review that you gave the 1980-1981 *Boston People's Yellow Pages* in your January issue.

It is true that we are more political than most of the *People's Yellow Pages* in the country, and on this account we have been accused of being leftovers from the '60s, but from the way things are beginning to look we seem to be harbingers of the future.

Thanks for making one of the most important magazines around happen.

Pax,  
Tom Spriggs  
for the Vocations for  
Social Change Collective  
Boston, MA

Dear RAIN,

We saw your article in the December 1980 issue of RAIN Magazine on C.A.N.'s *Women's Energy Tool Kit*. Thank you for the nice coverage!

The marketing of the Tool Kit is in full swing now and we thought you might like to inform your readers that they can purchase a copy of it from C.A.N. for \$4.95 plus \$1.50 for postage and handling. If you do decide to do an article listing the price of the Tool Kit, would you tell your readers to make out their check or money order to Consumer Action Now and send it to Consumer Action Now, 355 Lexington Ave., New York, NY 10017.

We'll be sure to keep you posted on future C.A.N. programs that we think may be of interest to you.

Thanks again.  
Sincerely,  
Laura Denman  
Communications Manager  
Consumer Action Now  
New York, NY

**ATTENTION!! ATTENTION!!**

Due to some horrible screw-up with our computer mailing service, several subscribers have not been receiving their magazine. Others have been getting two or more copies. Please tell your friends that RAIN is alive and kicking. And let us know if you're having problems receiving the magazine. Thanks.

Dear RAIN:

We very much appreciated your complimentary review of our *Engineer's Guide to Solar Energy*.

There is one comment, however, with which we take issue, and that is that the volume is overpriced. The development of the *Engineer's Guide* was a major financial undertaking for Solar Energy Information Services (SEIS). It involved a collaborative effort of a number of people over a period of many months. In view of our high development

## RAIN Journal of Appropriate Technology

RAIN is a national information access journal making connections for people seeking more simple and satisfying lifestyles, working to make their communities and regions economically self-reliant, building a society that is durable, just and ecologically sound.

RAIN STAFF: Laura Stuchinsky, Mark Roseland, Carlotta Collette, John Ferrell, Kevin Bell. Linnea Gilson, Graphics and Layout.

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# ACCESS

## AGRIBUSINESS

***Animal Factories*, by Jim Mason and Peter Singer, 1980, 174 pp., \$10.95 from: Crown Publishers  
One Park Avenue  
New York, NY 10016**

If Gandhi was correct in his belief that "the greatness of a nation can be judged by the way its animals are treated" then we are in real trouble. Consider:

- veal calves are kept as anemic as possible so their flesh will have the desirable pale color. Their desperate craving for iron drives them to lick at nails or any other metal around them;
- cement dust may soon be used as an additive in cattle feed since tests have shown it to produce fast weight gains;
- several American universities are working to produce a truly global industrial chicken—one without any troublesome feathers;
- total confinement systems for pigs produce such stress that the animals are frequently driven to bite each other's tails off.

Frances Moore Lappé showed the absurdity of a food system which pushes many pounds of vegetable protein through an animal to produce one pound of meat protein. Jim Mason and Peter Singer take matters one step further by showing the absurdity (and misery) from the point of view of the animal which must go through a "total factory sys-

tem" which completely alters its normal life cycle in a topsy-turvy technocratic quest for "efficient" food production. It stands to reason that animals raised in such an environment will not be as healthy as animals raised naturally—and they're not. It also stands to reason that agribusiness logic will dictate that such animals will be pumped full of antibiotics to compensate for this deficiency—and they are. Anyone for a vege-burger?  
—JF

## COOPERATIVES

***"Futures" for Energy Cooperatives* by the U.S. DOE, 1980, 104 pp., free from: Ms. Kathleen M. Healy  
DOE Conservation and Solar Energy  
Forrestal Bldg., Rm. 6B-205  
Washington, DC 20585**

For those who have been looking for more information on how to fund and develop an energy co-op, here's the book for you. "Futures" is a collection of both funding and technical sources with profiles of energy co-op projects across the country. There are 26 federal programs listed, some of which you may already be familiar with, and others (like the Small Hydroelectric Cooperative Program of the Idaho Dept. of Energy) which may be less familiar. The listing for each program is accompanied by current budget

information, descriptions of purpose, and applications procedures. The 38 cooperatives mentioned, all new or in the planning stages, include consumer and worker co-ops in alcohol production, wood cutting and purchasing, solar greenhouse and solar hot water system installations, weatherization materials and bulk oil distribution. A brief summary report on the status of energy co-op development and a listing of U.S. Dept. of Energy Regional Offices concludes the booklet. The upcoming "how-to" manual from the Conference on Alternative State and Local Policies, should be a useful complement to the information here. —LS

***History of Work Cooperatives in America* by John Curl, 1981, 64 pp., \$3.75 (plus \$.50 postage) available from: Homeward Press  
P.O. Box 2307  
Berkeley, CA 94702**

Two years ago, when a fellow co-op worker and I were struggling to co-author a column on co-op history in our monthly newsletter, I would have loved to see this book. John Curl has succeeded in pulling loose the thread of cooperative history from the larger tapestry, not losing sight of its twists and turns. *History of Work Cooperatives in America* begins by painting a picture of 18th century society influenced by the financial greed of the Old World, Native American traditions in the New World, and the religious colonialism of the pilgrims. It continues with an examination of distinct periods of American history, focusing on cooperatives and collectives. Reference is made to a number of well-known cooperative organizations such as the National Grange, the New Harmony Commune led by Robert Owen and the Farmers Alliance (Populist Movement, late 1800s, see review this issue). Alongside these are some lesser known though intriguing groups such as the Nashoba Community, organized by suffragette Frances Wright; a commune of blacks and whites committed to the liberation of black people; and Upton Sinclair's E.P.N.I.C. plan (End Poverty Now In California) that would have created self-sufficient "land colonies" for the unemployed (1933).

*History of Work Cooperatives* is a valuable historical document. The clear repetitions of history—the dream of a grassroots social change movement and the tension between those who advocate change from within and those who seek change from without—are patterns to observe and learn from. In sum, this history provides a powerful affirmation of the goals of the movement alongside a strong dose of caution for the struggles we will undoubtedly face again.  
—LS



"Silo-type" egg factory, New Mexico.

From *Animal Factories*

# REAGAN ERA ENVIRON

## *Reversing the Progress of*

by Alan S. Miller

*If you push a negative hard and deep enough, it will break through into its counterside; this is based on the principle that every negative has its positive.*

—Saul Alinsky

While still governor of California, Ronald Reagan once stated, "When you've seen one redwood tree you've seen them all." Whether apocryphal or not, President Reagan, and many of his key colleagues in government, in industry and the Congress are making sounds even more ominous to the ecologically minded. It is perhaps not premature for those concerned for a sound and healthy environment to begin to assess how the outlines of this emergent Reagan program may compare with the officially progressive environmentalism of the Earth Day decade of 1970-1980.

The task facing environmentalists is to develop a new strategy for encouraging citizen participation in the formation of social policy.

Will the Reagan administration in fact sound the death knell for any further development of a national environmental consciousness? What lessons can the past ten years teach us regarding the politics of ecology?

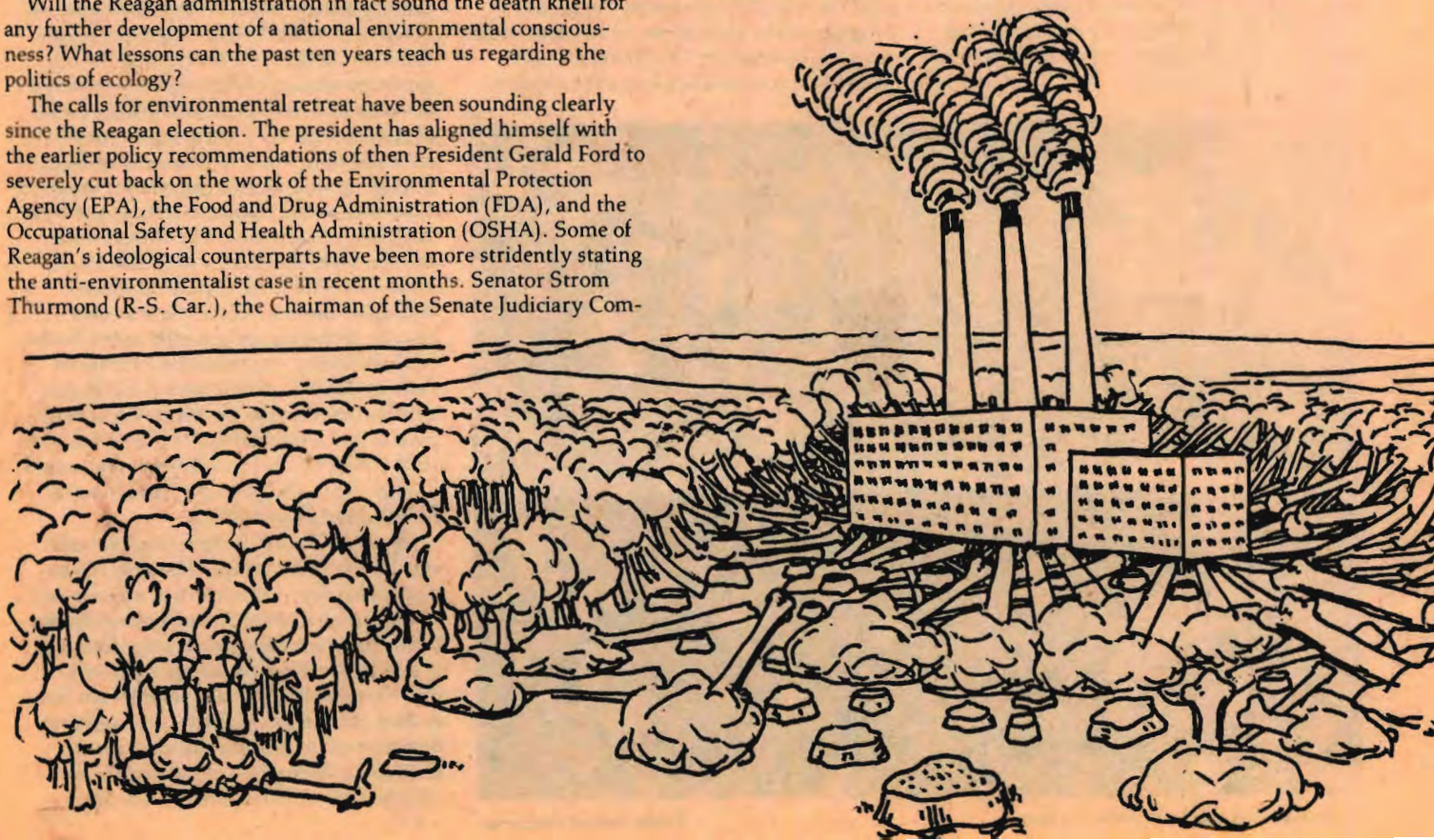
The calls for environmental retreat have been sounding clearly since the Reagan election. The president has aligned himself with the earlier policy recommendations of then President Gerald Ford to severely cut back on the work of the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), and the Occupational Safety and Health Administration (OSHA). Some of Reagan's ideological counterparts have been more stridently stating the anti-environmentalist case in recent months. Senator Strom Thurmond (R-S. Car.), the Chairman of the Senate Judiciary Com-

mittee and a primary Reagan spokesman on legal issues, recently let the ecological cat out of the bag. Speaking at a press conference in Washington, D.C., the day after Reagan's election, Thurmond stated that one of the priorities of his chairmanship would be the dismantling of any existing environmental legislation that is in "... conflict with the rights of the government or of the people."

On November 22, 1980, the Business Roundtable, an association of 200 of the top corporations in the nation and an ardent support group during the Reagan candidacy, released a \$600,000 study condemning the Clean Air Act and essentially demanding its repeal.

Exactly how these rumblings will be transformed into either legislation or administrative policy remains to be seen. It is important to note, however, that such tendencies are hardly new. Although shading a few degrees to the right of the Carter administration's environmental practice, the comments of Reagan and his friends are simply accelerating an already evident trend in government to relegate environmental quality and public health to the shadows of administrative concern.

There is a real sense in which the positive environmentalism of government during the seventies can be seen as an historic anomaly. The decade produced quite a remarkable array of positive programs for both ecological and public health and safety. The Clean Air Act



# ENVIRONMENTALISM a Decade

of 1970, now being attacked by the Business Roundtable, is estimated to have saved at least 14,000 lives. It has certainly made life more livable for millions. Unemployment is from 0.2 to 0.4 percent lower today than it would have been without environmental policy legislation. More than a million new jobs have been created by environmental programming at the cost of less than 25,000 jobs. But the possibility of any long-range continuation of an official governmental concern for ecological health is not in the cards.

Much of the hope of the environmental movement in recent years has been focused on providing legal remedies to ecological insult, but such efforts are generally out of step with the more traditional role of the courts in America, which has been to protect private property and individual rather than community rights. Since the primary cause for both pollution and natural resource exploitation is the economically appropriate effort of industry to maximize profits under a free market system of production, the courts can hardly be expected over the long run to take actions inimical to the welfare of the system of industrial production operative in this country.

Since the prospect for any near-range structural change in the government which might balance things out a bit and affirm the rights of nature and people over property and profit seems remote at best, it is important that environmentalists understand this basic limiting factor hindering government in such efforts. The first step in constructing an alternative environmental program is to look at some of the strategic errors of our past. It is still possible, in spite of governmental inertias past and present, to construct a real movement of political ecology in America.

Government in this country has long understood the wisdom in the old saw that "if you can't beat 'em, join 'em." In fact, there has been a rather large-scale effort in the last decade to co-opt the environmental leadership. A host of moral and political dilemmas have arisen from this effort. Almost from the very beginning of an organized environmental movement, government has sought to join the movement in order better to contain it. Those with short

memories may forget that it was, after all, Richard Nixon who verbally supported and financially underwrote many of the events of the first Earth Day in 1970. Given that this was no more than an effort to distract attention from the war in Vietnam, it did establish a pattern reinforcing an already evident anti-ideological stance of environmentalism which has continued to this day.

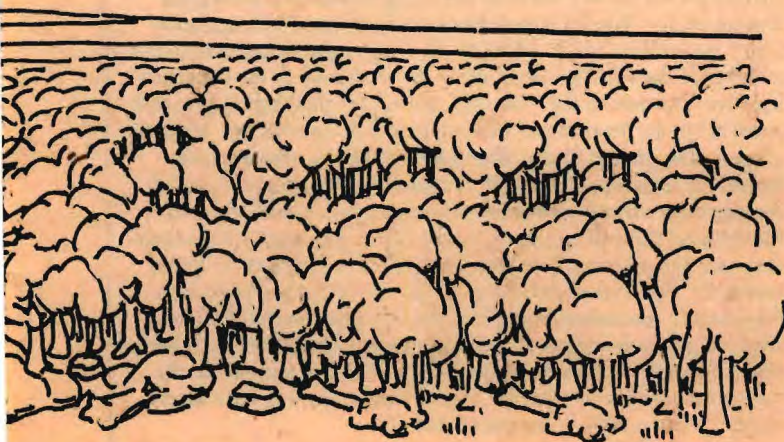
The cutting edge of the environmental movement seems to have passed in the past decade from those who understood the commonality of concern of radicals of all sorts—environmentalists, liberationists, people struggling against war and poverty and sexism and racism—to the more privileged managers in the bureaucracies, the conservationist environmental organizations, and the universities. The combination of the class nature of the movement coupled with its current leadership has made the ideological dimension of environmentalism even less important to its adherents.

Good theory is always the foundation of positive change. In an era when the distinctions between Carters and Kennedys and Reagans and Andersons are probably much less than we think, ideological beginning points ironically become increasingly important for those who wish to effect change. Given the relativizing effects of politicians, bureaucrats, industrial managers and the self-perpetuating tendencies of the machinery of government, conceptual clarity in the midst of the insistent demand for moderation and conformity becomes a first principle.

## It is still possible to construct a real movement of political ecology in America.

It should be clear to most people that there are real ideological differences in the environmental movement. Not surprisingly, for instance, Third World and working class people have traditionally had little interest in involving themselves with the standard brand ecology groups that are rightly perceived to have little concern for or sense of identity with the problems of working people. Too often an apolitical environmentalism has provided a diversion from the important task of building political power along existing class lines of American society. It is true, as earlier critics have noted, that some segments of the ecology movement have tried to shift people's attention from existing issues of power and class struggle to visionary models of a society gently tuned to the imperatives of nature.

Ideological clarity by no means implies that political ecologists need to be concerned for constructing massive theoretical frameworks. It simply means that we be concerned for the development of common-sense kinds of guidelines. Who should control natural resources and how? How does an organization go about coalition building? What should be the social and political grounds for coalition building? What are the primary and inescapable social and economic goals around which the strategies should be built? What are the priorities for education and action toward which the organization should devote maximum energy? How is it possible to utilize the strengths of the organization and minimize the negative effects of its weaknesses? As Saul Alinsky used to tell students enrolled in his organizing seminars: "Serious organizers establish early on who they can work with. They are clear about identifying potential friends and real enemies." Without clarity of purpose, such identifications become virtually impossible.



The nature of modern social organization makes problem-solving within government almost impossible. Too often, bureaucracies have no option but to drift with the tide of events since issues requiring immediate attention are realistically understood to be beyond the scope of correctable action. By the time policies at management levels are finally formulated, the issues themselves have often changed and require quite different answer formulations. President Reagan himself is now struggling with the task of making an unresponsive bureaucracy sensitive to the needs of his administration.

## It is too easy for comfortable reformists to construct post-revolutionary fantasies.

Kirkpatrick Sale has coined a new word for the governmental lexicon. *Prytaneogenesis* is the damage actually generated by the operations of government. Sale describes a process well known to most people; the larger governments get, the more likely they are to become autocratic, corrupt and wasteful. Rather than solving problems, government begins to create new dilemmas.

Social ecologists, therefore, face a dilemma of substance. We do

not wish government to bow out of the critical task of furthering environmental legislation. Neither, however, can we have much confidence that government will—regardless of who is in power—do much to extend its present limited concern for environmental quality. Other means must be found to enable the continuing concern of millions for ecological health to be realized regardless of the vagaries of domestic politics.

Ever the pragmatist, Saul Alinsky's counsel to always look for negatives in positives and the good in the bad needs reaffirmation today. Are there positives that can emerge from the environmental negatives of a Reagan administration? Perhaps the most self-evident truth is that environmental organizations will have to become more self-reliant, learning all over again how ill advised it is to place more than the most modest hope in either legal processes or the stated intentions of government.

The task facing environmentalists in the future is to develop a new strategy for encouraging citizen participation in the formation of social policy. Although always a promise in our less than perfect democracy, citizen participation has always been much more of a myth than a reality.

Organizational imperatives today leave critical decision making in the hands of an ever-decreasing number of people. At the same time, however, the more complex a society becomes and the more technical the issues it must face, the more critical it becomes that

# NEW FOXES IN THE CHICKEN HOUSE

Along with the Clean Air Act, the Reagan forces have let it be known that high on their environmental hit list are policies of the EPA and the Federal Trade Commission that interfere with industry prerogatives. Tartan-topped Republican Sam Hayakawa, California's sleepy senator and a Reagan confidant, may well represent the new environmental wave of the Reagan future. In line for the Senate Chairmanship of the Subcommittee on Environment, Soil Conservation and Forestry, Hayakawa is clear about where he stands. Opposed to the earlier Redwood Parks legislation and Alaskan Wilderness Protection, condemning any kind of environmentalism that might in any way slow down industrial growth, Hayakawa essentially believes in turning over the forests to the loggers and all natural resources to those who can stimulate economic growth.

More revealing, however, in terms of America's short range environmental future, was the elevation of James Watt to be head of the Department of the Interior. Director and guiding spirit of the Mountain States Legal Foundation, the most ideologically conservative of the anti-environmentalist organizations, Watt is now the boss of the people he has been fighting for years. Famous for supporting virtually unlimited commercial exploitation of America's natural resources, putting Watt in Interior was environmentally akin to putting the fox in charge of the chicken house. Some of the new Secretary's more important engagements in the past three years have been the following legal efforts: an attempt to limit federally protected wilderness areas, support of the state of Colorado's efforts to circumvent compliance with the federally mandated Clean Air Act, lawsuits to block the efforts of the Bureau of Land Man-

agement (a division of Interior) in enforcing grazing restrictions on federal lands, and to reintroduce the legal use of poisons to kill predators (in spite of overwhelming evidence that predator poisons kill more non-predatory wildlife than pest species).

Rounding out the Reagan environmental team, and powerfully symbolizing the President's intended new directions for the '80s, is Ann McGill Gorsuch, the new head of the EPA. Although Gorsuch, a corporation lawyer and member of the Colorado State Legislature, does not have much of a track record on environmental issues, a colleague who has worked with her suggests that she is a logical Reagan choice. Totally opposed to any environmental regulation which might limit the freedom of American industry, Gorsuch is a member of the small group of ultra-conservatives in the Colorado legislature known as the "House Crazies" for their not always tempered positions on attempts to regulate the private sector. Ardently supported by Joseph Coors, the Colorado brewer who has long fought for total repeal of all EPA regulatory procedures, Gorsuch should prove a companionable counterpart to Edwards and Watt. Most surely she will attempt to make EPA policy guidelines consistent with procedures of the New Task Force on Regulatory Relief headed by Vice President George Bush, and with the President's February 12 recommendation that the Occupational Safety and Health Agency withdraw all regulations requiring labeling of workplace chemicals. It is probable that she will be sympathetic to the mounting assaults on other EPA guidelines regarding auto safety standards and emission and noise controls.

—Alan S. Miller



some method be developed for the free expression of choice. Value questions—those arising from informed and objective analysis—are central to any society that gives even lip service to citizen control over decision making. Indeed, the more complex a society becomes, the more urgent is the need for this kind of popular planning. With the advent of a new anti-ecological national leadership, the nurturing of a new generation of grass roots, citizen-based organizations becomes a necessity. The positive emerging from the Reagan negative is the hard reminder that we no longer have an option to the tough and often controversial work of local organizing.

In a more profound fashion than ever before, ecology has now emerged as a truly "subversive" science, calling into question not only the technological practices, but the underlying values of the society. As always, the questions of ethics—the development of a systematic framework for analysis and the setting of standards for human conduct and action—are best dealt with by ordinary people facing up to the realities of survival in their own time. While governments can sometimes help to define such questions, they can rarely do much to implement a viable ethic in the national consciousness. Americans—reflecting back on the limitations of a Carter environmentalism and teetering on the edge of a Reagan *redux*—should find some comfort in the knowledge that ultimately power does rest with the people so long as the people are prepared to work to effect the changes governments tend to ignore.

## Those of us who feel that more decentralized public control over resource management and the means of production are requirements for ecological survival need to make our beginning points clear.

Environmentalists may find it uncomfortable to have to think about the need for both ideological reformulation within the environmental movement and the requirement for a new standard of self-criticism within it. Those persons who are essentially content within the existing economic and political orders (including perhaps a majority within the environmental movement) may resent the suggestion that we take our conceptual beginning points more seriously. What seems incontrovertible, however, is that much of the malaise of the age—non-limits to growth, underdevelopment and overdevelopment both domestically and around the world, poverty and disease, militarism, inequities within the global production and distribution systems, the double disadvantages for many of racism and sexism—all stem from the same social causes as the ecocrisis. No one of these problems can be solved apart from sound political and economic analysis and appropriate strategies for action. People who are concerned for the development of a more politically mature environmentalism will not content themselves with simply joining the nearest conservation group. They may do this, but they will become increasingly concerned for the struggle around what Andre Gorz has called "non-reformist" reforms, those efforts to resolve the contradictions and structural imbalances in the social order which lead to environmental disturbances.

The old American idea that the pursuit of private gain will inevitably result in benefit to the society at large is, in spite of Reagan, the refuge of only a very small coterie of true believers. This means

that those of us who feel that more decentralized public control over resource management and the means of production are in fact requirements for ecological survival need to make our beginning points clear. This does not mean endorsement of the whole positions of the ideologues of either left or right. It is too easy for comfortable reformists to construct post-revolutionary fantasies. It does mean carefully assessing who are one's friends and enemies, when compromise is possible and when it is not.

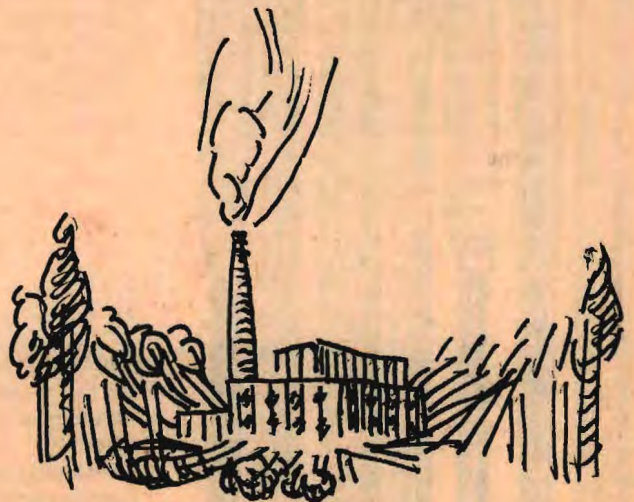
The second decade since Earth Day will surely see a continuation and a reinforcement of some of the negative emergent trends of the seventies: bureaucratic co-optation of environmental leadership, efforts to focus on single issues and opposition to the necessary process of linking environmental issues to other social problems, and ever more direct assaults on those entrenched environmental programs which threaten the profits of American industry. If such efforts can push us back to our roots, however—to local organizing, to the building of powerful community coalitions, to the development of broadly conceived social strategies and a more careful delineation of first principles—then the Reagan era may prove after all to be less an obstacle to the emergence of a national environmental consciousness than many are now predicting.

When Thomas Becket faced his tormentors in Eliot's *Murder in the Cathedral*, he stated, "The last temptation is the greatest treason, to do the right deed for the wrong reason." Only by being reasonably clear about both our environmental ends—and the political means to achieve biospheric integrity—will we be able to guard against the relativizing tendencies of those who seem increasingly indifferent to the possibility of nature's death. □□

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Alan S. Miller teaches Conservation and Resource Studies at the University of California, Berkeley. He is currently involved in the development of a new Institute of Political Ecology in the San Francisco Bay Area.

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# DO-GOODER DIALOGUE

Last November we ran Laura Stuchinsky's "The Do-Gooder Dilemma: Inappropriate Technology Transfer," on the problems involved in aiding developing countries with their technical support needs. Below are some responses to that article and a comment from Laura.

Dear Laura,

Before I get to the subject matter of this letter, let me say that several of my colleagues and I at ATI appreciate the crisp perspectives presented each month in RAIN. I personally have been a RAIN habitue since I worked with Farallones in its early days. However, I feel a need to register a response to your article on the foibles of foreign aid which appeared in last November's issue.

Essentially your article appears to reflect a lack of awareness of and/or sensitivity to the approaches and activities of ATI and other organizations (VITA and ITDG) mentioned. I do not feel that it is constructive to make a blanket association of our efforts with the frequently cited negative consequences of "development assistance"—donor manipulation, consolidation of elites, and technological irrelevance.

It may surprise you that ATI provides flexible program support to progressive indigenous organizations in the Third World. The relationships we have developed with these organizations are predicated on an analytical approach almost identical to IFDP's Ten Questions to Ask about a Development Project. Critical issues such as empowerment of the poor, democratic decentralized management, and participatory processes are frequently evoked in the context of our work.

I have few qualms with the substance of your critique. I wish, however, that you (and the folks at IFDP) would take the time to more thoroughly examine the institutions you appear to dismiss out of hand. The foreign aid system you so righteously indict may in fact contain alternative undercurrents and individuals with integrity, who need all the support they can get.

I would welcome further dialogue with you in the near future.

Regards,  
Thomas Fricke  
McLean, VA

Dear Laura,

I really enjoyed your article in the November issue of RAIN on international development; it was stimulating. You raise issues that we raise ourselves, particularly in our training of development workers.

Sincerely,  
Christopher Szeczey  
Coordinator of International Programs  
Farallones Institute Rural Center  
Occidental, CA

Dear RAIN:

Laura Stuchinsky's characterization of Volunteers in Technical Assistance (VITA) and other development groups in your November 1980 issue implies that we promote "appropriate technologies" without considering social justice or the real needs of poor people. This just isn't true.

First of all, VITA was not formed during the past decade, as Ms. Stuchinsky writes. It was started in 1959 by a group of scientists and engineers who wanted to share their technical expertise with poor people in developing countries. Long before "small is beautiful" or "appropriate technology" had become fashionable, they realized the possible impact that various small-scale technologies could have in helping ordinary people abroad.

VITA has responded to more than 35,000 technical inquiries since then. Its worldwide network of 4,000 volunteer experts, international staff, and extensive library enable it to provide useful information on almost any development-related subject.

Our emphasis has always been to provide information and promote technologies that will help the poor. We have close ties with hundreds of community groups throughout the developing world, and have devised many workable solutions with them. We know well that cultural and social questions are as important as technical ones.

At the same time, we consider it presumptuous for us to only respond to inquiries or project requests that come from countries that are somehow more "socially worthy" than others. Ms. Stuchinsky implies that we should help only those who are actively promoting social change or revolution. But who is to make those judgments? Her? Us? The CIA? And even if we did have a list of "acceptable countries," how are we to know whether the individual writing us is a true believer or just a bureaucrat? It is a hopeless task, and one with great potential for arrogance and self-righteousness.

We are proud of our record in responding to the real needs of people as they express them, not in telling them what they need or ought to be doing. It is not our place to shove our good intentions down the throats of others, nor to make development hit lists that preclude us from helping thousands of people who find themselves struggling with governments that neither they nor we like.

Best wishes with the magazine. We may not always agree with what is printed, but it is always interesting and provocative.

Henry Norman  
Executive Director  
VITA  
Mt. Ranier, MD



Dear RAIN,

I would like to congratulate you for the hard-hitting combination you offered in your November issue: a review of *Aid As Obstacle* and the article, "The Do-Gooder Dilemma."

I have been working in development very much at household and village level for the past fifteen years in Kenya, Tanzania, and Mozambique. My experience echos your strong emphasis on the political dimensions of technology generally and A.T. in particular. I don't believe one can overemphasize the political in this area.

But let's be clear about the meaning of "political." First, in the international power arena it is very clear that A.T. can be used just the same as energy-intensive, centralized, precision technology in the process of entangling underdeveloped countries ever deeper in dependence on former colonial and present-day technology-exporting countries. This process is a complex and sometimes subtle one, but the effect is always the same: dependency. How else are we to understand the role of such an agency as the international department of SERI acting as a go-between linking "potential customers" in Jamaica with the affiliates of major U.S. energy corporations who now "happen" to be producing A.T.? They "happen" to be producing A.T. because it has become profitable, and they are "selling" it in the same ways and with the same dependency-perpetuating consequences as any other "product."

On the national and local levels within the Third World country it is clear that *any* technological change which raises productivity of land or labor or cuts resource costs will tend to accelerate the process by which the gap between rich and poor increases. Village electrification had this effect in India. Who denies in the face of hundreds of studies that the Green Revolution packages had this effect? Without the structural changes in power and control over resources you refer to, A.T. will widen the gap at village level.

To turn away from these consequences and say, "we can't deny our A.T. assistance to regimes that don't guarantee such social and political preconditions" or, "we just want to reduce the burden on the poor with our A.T." is at best professionally irresponsible.

I would, in fact, go further than your article in suggesting one question *all* technology transfer, including A.T. transfer. Following on from the notions in *Aid As Obstacle*, I think our major task is trying to ensure countries like Mozambique, Nicaragua and Grenada *time* to evolve their own social reality (and A.T. in the process). We can do that by challenging militarism, military industrialism, and the New Right offensive here at home.

Yours sincerely,  
Dr. Ben Wisner  
Madison, WI

Dear Laura:

Congratulations on a good critique of A.T. in "The Do-Gooder Dilemma" (RAIN, Nov. 1980). There are certainly many so-called A.T. groups who do not get beyond the hardware stage of thinking. There are also many "Beltway Bandits" around Washington who use the terms "A.T." or "basic needs" to win large contracts from government agencies. And, there are many development agencies who recognize the failure of "trickle down" development but are unable to change their own structures to become "appropriate."

But, your analysis tends to give too much weight to political solutions just as some A.T. critiques (e.g. "Paper Heroes" by Witold Rybcynski) gives too much weight to hardware solutions. There is, in fact, no political system which does not have its share of poverty. Your examples, "Cuba, Tanzania and Nicaragua," are notable failures, as are Vietnam, Libya and Mozambique, which are often touted by the political left. Even China has shifted its development strategy to one of hi-tech, industrialization and modernization.

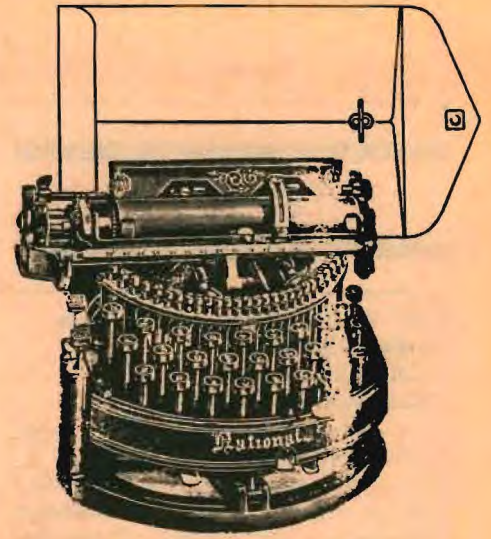
There is leeway within any political system for appropriate technologies to ease the burdens of the poor. There is a place in the A.T. network for the ITDGs who see their role as developing small and intermediate scale technological options. There is a place for the VITA's who leave the choice to the requester and do not push only small-scale solutions. There is a place for the development agencies who are attempting to redirect their programs to aid the poorest of the poor.

There is also a place, as you correctly point out, for the too-often-neglected non-governmental agencies who are best equipped to work at the grass-roots level. There is a greater need for all of us do-gooders to listen to what the poor say they need and help them obtain it rather than to assume our own definition of basic needs. And, a point you overlooked, there is a need for affluent Americans to eat fewer bananas, use less oil, stop drinking tea, reduce our consumption of rubber, and, in general, leave more of the world's resources for broader distribution.

The point is, we are in an era of transition toward a New Age. Every one of our institutions needs to be, and is being, reformed. There are many, many roles to be played and functions to be performed. We need to help one another fill the different niches, not just criticize them for trying.

Our views are not too far apart. You tend to be more up front with your political push. I tend to see that as only waving a red flag for the establishment who want to shout "conspiracy," "socialist," or any other label they think inappropriate.

Keep up the good work!  
Bill Ellis,  
TRANET  
Rangeley, ME



Dear Friends,

Thanks for the candid responses to my November article, "The Do-Gooder Dilemma: Inappropriate Technology Transfer." Obviously the concept of technology transfer evokes strong feelings on a number of levels, the themes of which are clearly demonstrated in your letters. I still maintain the need for a political evaluation of technology transfer. Welcome or not, the results of our efforts have political, social and economic ramifications. Many groups seem willing to talk about the cultural impact of technology, but rarely are the broader questions of social organization and power structures examined. My intent was not to invalidate well-intentioned efforts but rather to point out that good intentions and ideas can be used counter to their original purposes. While it is true that we cannot define the needs of the poor, it is important that we examine who and what does define those needs. More often than not, the poor do not have the power to define the development process, as their own needs are in conflict with the interest of ruling powers. Along with good intentions, we have responsibility for the long-range impact of our work and influence—on the poor as well as on those in power.

Tanzania, Mozambique and Nicaragua were given as examples of countries that are striving toward greater democratic participation and equitable distribution of resources. Though they have not resolved their numerous problems of development or poverty, I have recognized them for the struggle they are undertaking to ensure a higher quality of life for *all*, not just a select portion of the population. Only time will tell how well their goals are realized.

Clearly, the question of appropriate and inappropriate technology transfer will not be resolved here or now. Hopefully through continued dialogue we will be able to work toward better understanding and cooperative effort.

Sincerely,  
Laura Stuchinsky

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## ACCESS

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### ENERGY

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**WISE (World Information Service on Energy), U.S. Office:**  
1536 16th Street N.W.  
Washington, DC 20036

With its offices in nine countries and its global network of grassroots contact people, WISE serves as an international switchboard for information on the nuclear industry, the anti-nuclear struggle, and renewable energy alternatives. Access to the switchboard is available through the bi-monthly *WISE Magazine* (\$7.50/yr. individual; \$15.00 institutional), an exceptional resource, both for news and for network building. If you're involved in any branch of the safe energy movement, get to know WISE—and let WISE get to know you! —JF

**"Wood: An Ancient Fuel with a New Future" by Nigel Smith (*Worldwatch Paper #42*; January 1981, \$2.00 from: Worldwatch Institute 1776 Massachusetts Avenue N.W. Washington, DC 20036**

In the first paper of the *Worldwatch* series, published in September 1975, Erik Eckholm described how concern with dwindling petroleum reserves was overshadowing another energy crisis with a more immediate impact on a third of the world's people: population was outpacing tree production resulting in "soaring wood prices, a growing drain on incomes and physical energies in order to satisfy basic fuel needs, a costly diversion of animal manures to cooking food rather than producing it, and an ecologically disastrous spread of treeless landscapes." Averting catastrophe, Eckholm believed, would require both a new environmental ethic and tree-planting efforts on a massive scale.

In "Wood: An Ancient Fuel with a New Future" Nigel Smith reiterates many of Eckholm's concerns and underlines the need for ambitious reforestation, but he also notes some recent hopeful trends which could eventually alleviate the crisis and lead to a bright future for wood in an era of fossil fuel scarcity. Fast-growing trees, such as the leucaena, which can reach a height of sixty feet in six years, are being used increasingly in reforestation schemes, and more efficient stoves, like the Lorena, are making better use of existing wood resources in the Third World. The experience of South Korea over the past decade has shown that when local people are made aware of the benefits of reforestation and are included in the planning

of tree planting programs, progress can be rapid. Local support comes more readily if reforestation schemes are designed to serve such additional purposes as securing soil to slopes and ensuring adequate supplies of clean water. Agroforestry projects combining food and fuel production on the same land base are particularly attractive.

While many countries struggle to ensure adequate wood supplies for their most basic needs, others, which are particularly well endowed with forests, are already looking to wood's potential as a replacement for fossil fuels in industry and transportation. Sweden plans to use more of its forest resources to generate electricity and some U.S. companies are shifting factories to the Northeast to be near a ready supply of wood fuel. As petroleum prices climb, methanol (wood alcohol) is drawing increasing attention, and several countries, including Canada, the U.S. and Brazil, are refining the technology for its production.

Clearly, wood's global potential as an energy source is substantial. Just as clearly, that potential will not be fully realized unless the barriers alluded to by both Eckholm and Smith are vigorously challenged and overcome. Smith sees "wise management" as a key in this struggle, but Eckholm's emphasis on developing a new environmental ethic is likely to be of equal importance. —JF

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## RESOURCES

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***Technology and Values in American Civilization: A Guide to Information Sources*, edited by Stephen H. Cutcliffe, Judith A. Mistichelli and Christine M. Roysdon, 704 pp., 1980, \$30.00 from: Gale Research Company Book Tower Detroit, MI 48226**

Imagine, an annotated bibliography which is not only a comprehensive, well-organized reference tool, but is actually enjoyable to read! This volume contains over two thousand well-written capsule summaries of books and articles relating to the interaction between humankind and technology. Entries are arranged according to broad topics like Urbanization, Futures, Energy, and Communications, but actually you'll find everything here from the sociology of the bicycle to the ethics of engineering; from the significance of Rube Goldberg to the importance of Henry Ford; and from a portrayal of Paul Bunyan as "an occupational hero pitted against industrialism" to an analysis of "the pervasive theme of conflict between man and

machines" in *For Whom the Bell Tolls*. Have your librarian order a copy of *Technology and Values*—then use it to start plotting out a lifetime reading plan. —JF

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### ENERGY PLANNING

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**"The realization is dawning among energy experts that the present state of the world oil market—and the political instability of the Middle East—make the 1980s a very dangerous decade. The risk of severe sustained interruptions in the flow of oil is greater than ever before. Any such disruption could lead to yet another doubling or tripling of crude oil prices to as much as \$100 per barrel, which might have devastating consequences."**

—Senator Charles Percy

*Now we all know that the federal government moves too slowly, without vision, and with questionable responsiveness to the "haves" at the expense of the "have nots" to be of much use in any real domestic crisis. If there was still any question of that, Reagan's unshackling big business and demoting conservation as a national priority—"the moral equivalent of war" replaced by its immoral equivalent in El Salvador—has given us confirmation. He's been direct with us. "Don't look to the federal government," he mutters. So all of our rhetoric has come back to us, and we'd best do our homework and put our ideologies to use in our neighborhoods and towns. —CC*

**"Community Alert: Preparing for Energy Emergencies" and "Energy and the Environment," Dec. '80/Jan. '81 issues of *The Energy Consumer*, free from: Dept. of Energy Office of Consumer Affairs Washington, DC 20585**

You may have heard in late February that Tina Hobson, Director of Consumer Affairs for DOE, was "transferred" for blowing the whistle on her boss's efforts to plant an "Operative" at a citizen's gathering on low income energy concerns. She has always been our most receptive advocate at DOE and it remains to be seen how the Office of Consumer Affairs there will function (or if it will) without her. So, these two *Energy Consumer* issues may very well be the last. "Get



Detail from "Community Alert" poster. The full-size poster (30 x 48) is available in black and white (\$3) and in color (\$5). Write Energy Preparedness Poster-Prism, P.O. Box 2029, Flushing, NY 11352.

'em while they last!"

The Special Edition on energy emergencies includes articles on the political and economic circumstances likely to lead to a cut-off in outside energy resources, and the localized preparations we can be engaging in to mitigate the effects of such a cut-off. There is a state-by-state guide which lists key people and offices to be in contact with in coordinating your plan. There are reference lists of books to check out and a Citizen Action Checklist. All excellent information.

The "Energy and the Environment" issue provides capsule descriptions of such areas of concern as nuclear power, acid rain, the Clean Air Act and synthetic fuels. Each problem area is represented by what might be considered "pro" and "con" positions. For example, the question of acid rain is approached first by a Consolidation Coal Company executive who suggests that "the available evidence is too limited to make a determination" on the effects of acid rain. He goes on to state "An examination of the amount of coal burned in this country (from 1955-1973) . . . reveals very little change in the total sulphur dioxide levels." Representatives from the Environmental Law Institute counter with "in many parts of the Northeast, acid levels are now 20 times higher than they were in 1955." This "dialogue" relies on the manipulating of statistics, and any student of Statistics 101 can tell you that you can prove just about anything with numbers and the selection of comparables. If you choose, as does the Ford Foundation in

its exploration of nuclear power, to only compare nuclear power to coal-generated power (nukes: 1 death per year vs. coal: 2 to 25 deaths per year) you end up with a frustrating no-win situation. If you factor in the conversion to renewables the equation changes considerably. The *Energy Consumer*, in looking at both sides, points out the areas of argument and accord. Again, the resource lists provide local contacts for continuing to study these issues. — CC

***Energy and Power in Your Community: How to Analyze Where it Comes From, How Much it Costs, & Who Controls It,***  
by Elizabeth Schaefer & Jim Benson,  
1980, 129 pp., \$6 from:

Institute for Ecological  
Policies  
9208 Christopher Street  
Fairfax, VA 22031

There are many communities around this country that are preparing to move with ballot measures, referendums, public utility districts, etc., towards local populist control of energy resources and power distribution mechanisms. Developing energy use inventories and projections in these communities can seem to be an awesome task, and yet the numbers in hand that an energy plan will supply are among the best tools for gaining broad-based support for such agendas. *Energy and Power* takes the complexity out of Benson's (with Alan Okagaki) earlier *County*

*Energy Plan Guidebook* and reduces the inventorying, projecting, and conservation scenario factoring to an easy-to-follow, step-by-step process. That's Part I of this little book.

Part II is a "dirty tricks" guide for "Investigating the Power Network." Power here is used in most senses of the word; energy as power, the powers that be, em-powering as well dis-empowering. If you're planning to plan, start with this book. — CC

***The Community Energy CARE-ing Handbook,*** by Leonard Rodberg and Arthur Waskow, 1980, 165 pp. plus appendices, from:

Public Resource Center  
1747 Connecticut Ave. N.W.  
Washington, DC 20009

Subtitled "An Activist's Guide for Energizing Your Community Toward Conservation And Renewable Energy," this book is a very well outlined scheme for organizing but only if used in conjunction with much more information. As an outline it is excellent, but it is thin on technical material and an under-informed activist can lose credibility very quickly with only "a little knowledge." Where this book excels is in its spectrum of approaches to energy problems. Community energy co-ops, energy information centers, energy plans and more are all described, albeit briefly, but with reference lists to complement them. — CC

by Richard Merrill

One of the most underrated yet vital issues raised during the 1970s was the continued ability of U.S. agriculture to provide food for domestic use and export. True, most Americans eat comparatively well, U.S. farmers continue to provide most of the world's exported grain and the U.S. food system is still one of the most sophisticated in the world in terms of distribution and food variety. But the gnawing question during the decade became: **Yes, this may all be true . . . but at what cost and for how long?** For the first time in U.S. history the benefits of our modern food system became judged against a much larger concern . . . the social and environmental consequences of the way we feed our society and, more importantly, the long-term sustainability of that food system.

At one level mounting doubts tended to focus on seven major issues:

1. *The Rapid Destruction of Our Rural Culture.* Small independent farmers have moved to the cities to be replaced by energy-intensive technologies and capital. Rural lands no longer offer an opportunity in time of plenty or a social buffer in time of war and depression. Worst of all, most people view the ruination of rural America as simply an unfortunate by-product of our industrial "progress." But for others agriculture IS a culture and, as noted by Wendell Berry, ". . . a culture is a practical necessity. When a culture is destroyed it is a natural calamity." What has, in fact, been destroyed is the fundamental *purpose* of agriculture, viz., to create a fulfilling culture whereby productive land can be stewarded and nurtured for future generations. In its place a new purpose has emerged: to produce food for profit at the expense of the land (i.e., culture). This new purpose has become the greatest calamity of all.

The fact that modern agriculture is not commonly seen as a problem is a problem in itself.

2. *The Growing Monolithic Structure of the U.S. Food System.* Farm production, processing and distribution have become concentrated in the hands of fewer and fewer people. The increasing control of farmlands and food-related industries by corporations and cartels has transformed agri-culture into agri-business, has transformed traditions of stewardship into techniques of profit and much of the U.S. food system into a corporate oligarchy.

3. *The Usurpation and Exploitation of Farm Workers.* The recent history of the farm labor struggle in America is largely a history of the National Farm Workers Association attempting to overcome generations of racial discrimination, minority oppression and economic inequalities. Farm laborers remain one of the most oppressed labor groups in the country.

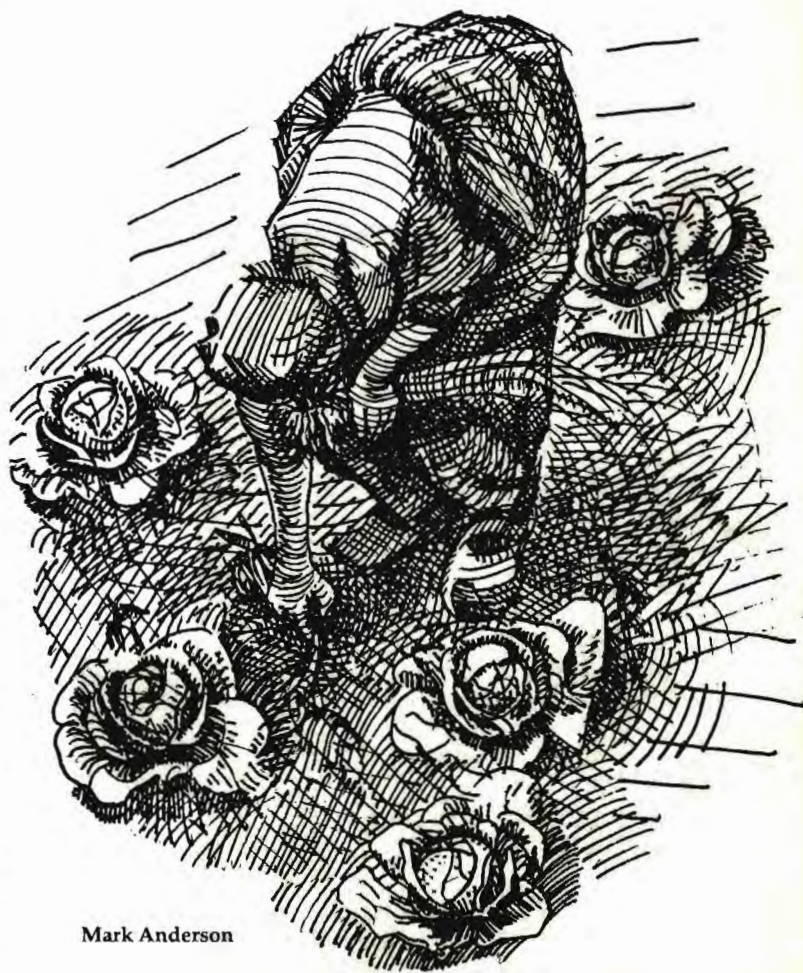
4. *The Growing Ineffectiveness and Public Health Hazards of Agricultural Chemicals.* In 1945 the U.S. produced about 40,000 tons of a few synthetic pesticides. Today, in spite of EPA controls, oil companies and scores of chemical firms continue to produce over 600,000 tons of over 1000 pesticide chemicals variously combined in over 50,000 registered, commercial pesticides. Over half of the 400,000 tons applied annually in the U.S. is used in cities. Each day the health of thousands of farm workers, growers, food-process workers, landscapers, foresters, urban gardeners etc. is jeopardized because NO ONE knows the long-term effects, both direct and synergistic (in combination with other chemicals), of pesticides. We may never know . . . but our children probably will. Even if pesticides posed no health hazards, there is indisputable evidence that as **a single strategy of long-term pest control** they simply do not work. Pesticides produce resistant pests, secondary pests and damage the ecological fabric of the agro-ecosystem. Even the USDA admits their great limitations and the futility of continually invent-

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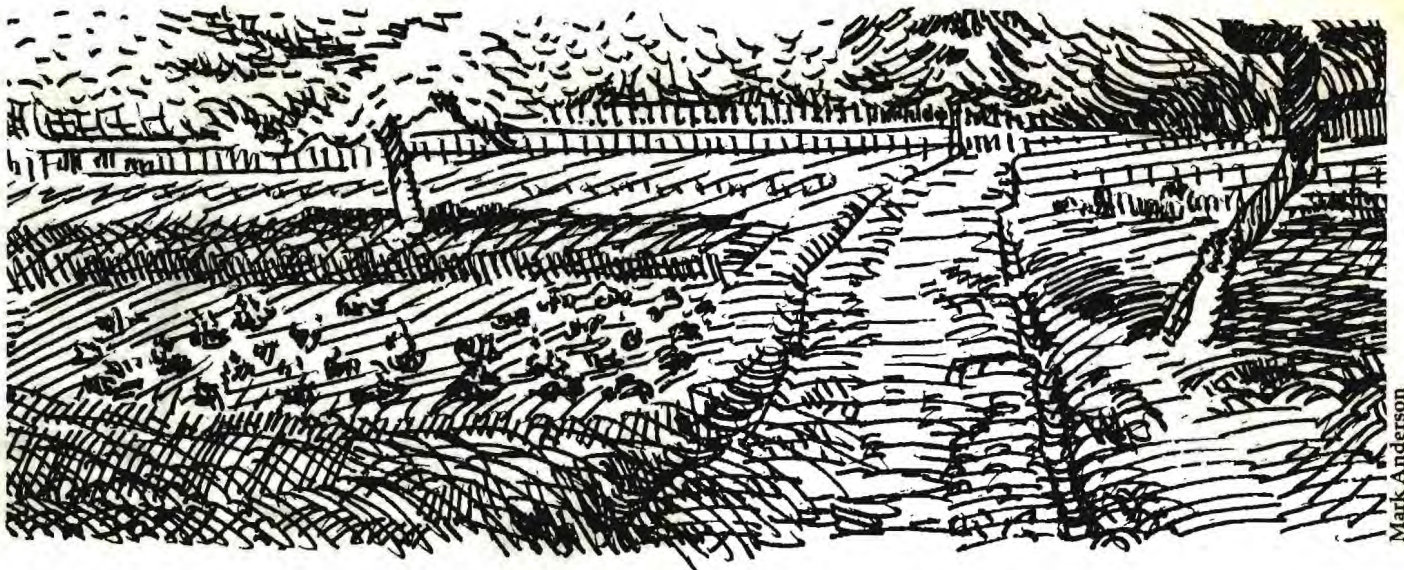
# THE SUICIDE & REBIRTH OF AGRICULTURE

## Some Preliminary Thoughts on a Bioregional Food System

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Mark Anderson



Mark Anderson

ing new poisons. Pesticides must be *integrated* into a more holistic, biologically based strategy of control where a variety of methods are used . . . i.e., integrated pest control.

5. *The Dramatic Loss of Productive Agricultural Land*. According to USDA statistics the U.S. has already lost at least 1/3 of its topsoil in the last 200 years. Nearly 240 million acres (twice the size of California) have been ruined for agriculture by erosion. Since 1945 the U.S. has lost about 45 million acres (size of Oklahoma). Annual losses from sheet and rill erosion alone are now set at 2 billion tons per year . . . enough to cover all the cropland of Pennsylvania, New Jersey and New Hampshire with 7 inches of topsoil. These astounding figures boil down to an average net topsoil loss of at least one inch every four years. Assuming an average worth of \$1,000 per acre for cropland, this soil loss amounts to more than \$17 billion each year! But more than money, erosion is the loss of an irreplaceable resource. In addition to erosion, we are also losing cropland to salinity, depletion of groundwater, acid rains and suburban sprawl.

## In about 30 years rock phosphate, like petroleum, will become an unpredictable political resource.

6. *The Complete Dependency of Agriculture on Non-Renewable Resources, Especially Fossil Fuels and Rock Phosphate*. U.S. agriculture is now entirely subsidized by fossil fuel technologies like tractors, chemical fertilizers/pesticides, irrigation pumping systems, etc. In fact the entire food system now revolves around a complex food distribution network that stretches across the entire country by air, rail and road . . . from grower, to broker, to processor to consumer . . . a system in which food production and consumption are often separated by thousands of miles and hundreds of gallons of gasoline or diesel fuel. It's clear that the energy subsidy and centralization of food distribution can't continue to provide the cornucopia of varied and cheap food in an era of growing fossil fuel shortages, unpredictable foreign influences and rising energy prices. Also, agriculture, historically an energy producer, has become an energy sink . . . consuming about 5 times more (non-renewable) energy than it provides, or about 17 times if we consider the entire food system. A similar situation exists for non-renewable minerals used in agriculture, especially rock phosphate. At present rates of use, U.S. supplies are sufficient for about 30 years. After that we will have to go abroad, and rock phosphate, like petroleum, will become an unpredictable political resource. For example, according to a 1977 report by the National Academy of Science:

" . . . by 1990 Morocco and various Middle Eastern Countries will supply 75% of the world trade in phosphate rock. If this happens, a cartel could easily be formed to control phosphate prices."

7. *The Increasing Dependency on a Few Hybrid Crop Varieties and the Loss of Genetic Information in Cultivated Plants*. The demise of regional crop varieties and the widespread use of hybrid monocultures over large areas of the country have destroyed the genetic buffer zones that once held many pest outbreaks in check. A large supply of plant stock (i.e., genetic diversity) is also the source of continued reservoirs from which to breed varieties of pest-resistant crops. As biological diversity is destroyed so is the potential for adaptation. Again we see an example of modern agriculture creating the conditions for its own vulnerability . . . destroying the options for its own survival. It is obvious that yield per acre is no longer a sufficient benchmark for agricultural efficiency. Vast social and environmental costs must also be considered on the balance sheet. The fact that modern agriculture is not commonly seen as a problem, IS a problem in itself. Exactly which resources are people willing to sacrifice to ensure the present food system? Because this question is not even being asked, public ignorance and special interests prevent a rational collective answer. But even if people were willing to pay the cost of lost topsoil, rural culture, environmental quality, farmland, food quality, economic control and public health, these "costs" now pose a threat to the future stability of the system itself. This is because the "advances" of our agriculture, as we have seen, are increasingly dependent on resources and practices that are not sustainable and on the exploitation of resources that are. In other words, the seven major issues outlined above (there are more) are all components of an agriculture that is rapidly destroying itself and its supportive resources. But the strategy of any biological system like agriculture is *adaptation*, not extinction. Hence, agriculture is committing suicide and that is insane.

If agriculture is committing suicide then it is worth asking *why* it is doing so and, more importantly, what the alternatives are for rescuing it . . . for making it sustainable and adaptable in a world that cannot survive without it. For if agriculture is dying it follows that its people are dying also.

A recent paper by Dr. Stuart Hill of McGill University entitled: "Soil, Food, Health and Holism: The Search for Sustainable Nourishment," addresses this problem of *why*, and outlines potentials for alternatives. Hill notes:

"The modern food system has become a run-away machine, out of control, increasingly dependent on non-renewable resources, consuming renewables faster than they can be renewed, causing corresponding human and environmental degradation, and producing products that feed our obsessive

wants first and our nutritional needs second."

Hill contends that alternatives in agriculture will only occur with a qualitative change in consciousness and a holistic approach to what food is really all about.

"... while it is usual to recommend primarily technological and political solutions to problems such as those that exist within the food system, the acceptance... of any changes that are proposed are dependent on the psychological development and awareness of the people involved, i.e., we must be clear internally if we are to create sustainable external harmony."

Or, more to the point:

"It seems reasonable to suppose that the process of becoming familiar with the external wisdom of nature is dependent on the level of familiarity with the internal wisdom of the body."

Hill then sets out to describe a "vision of a sustainable agricultural future" involving a synthesis of several internal and external contemporary alternatives such as the human potential movement, holistic health, appropriate technology, solar energy and biological agriculture. Hill sees the fundamental problems of our faltering food system as rooted in an inability to grasp a holistic view of this internal-external synthesis of working alternatives, i.e., to the fact that sustainable solutions lie outside the focus of conventional approaches to problems. "Holism," notes Hill, "promotes manage-

## The inevitable decentralization of our society will begin with agriculture, and a decentralized agriculture begins with a clear evaluation of the agricultural bioregion.

ment systems that avoid crises and promote sustainable technologies in agriculture" . . . i.e., integrated pest management, landscape diversity in agro-ecosystems, solar agro-technologies, regional crop varieties, local food economies, and a thorough understanding of the relationship between human health and soil fertility, and of the necessary balance between production, consumption and recycling of organic matter through the decomposer chain of the soil. Of course many of these alternatives are currently being researched and practiced *separately*, but not *systematically*. For example, the agricultural research establishment continues to plug away at many of these alternatives in isolated stations, cranking out data, suggesting new *techniques*. But nowhere is there an agricultural research station investigating the entire spectrum of these economic and ecological alternatives simultaneously as a holistic unit . . . as a living agro-eco-system.

Although Hill's paper tends to get bogged down in the all-encompassing semantics of new-age ecospeak, his thesis is clear and important: the acceptance and success of a sustainable agriculture involves existential changes in the way we view our internal mindset (what is progress, what is health) and external potentials (the necessity of self-sustaining economics and technologies). We can view this another way. History is neither a cycle of patterns nor an arrow of inevitable technical progress. These patterns, ironically, ignore the effects of time. Rather, history is a spiral . . . returning on itself but at another level. The "returning" includes the time-honored internal traditions of survival such as culture, cooperation, sustainability, simplicity and self-reliance . . . the sort of things that give agribusiness people cause to call alternative agricultures "reactionary," "back-to-the-land," and "unrealistic nostalgia." But the changing *level* (time dimension) of the spiral also offers us an alternative . . . a new age agriculture which could creatively thrive in a vastly more complex and troubled world than yesterday. We might call this new level: Bio-Regional Agriculture.

Every region of the United States has its own unique climate, geology, resources base, vegetation, watershed, topsoil, culture,



Mark Anderson

economy and food needs . . . its own "bios" or set of potentials for adaptation and survival. By decentralizing our food system, that is, by encouraging each region of the country to become more self-reliant—more dependent on its bios for growing, marketing and distributing food—the larger food system becomes more stable and adaptable. There are several reasons for this. For one thing, energy is reduced through decreased transportation and processing. Also, fresh, nutritionally superior, food is made available through direct marketing of locally derived crops. In addition, more jobs are created in the region and the regional economy becomes more stable and viable. Finally, the grower is able to use farm technologies and techniques that best utilize the *local* resource base and thus reduce dependence on distant (non-renewable) resources controlled by unstable forces.

These technologies and techniques include: a) Integrated Pest Management Programs for local crops and local pests, b) the recycling of organic wastes onto nearby farmlands, c) the use of solar agri-technologies such as solar heating, irrigation, electric and fertilizer manufacturing systems; wind energy and the production of biological fuels, d) the development of regional crop varieties adapted to the local bios (including pests), e) the development of diverse scaled-down food production systems (aquaculture, raised-bed horticulture, solar greenhouse production, etc.) and the tools to make

## If agriculture is dying, it follows that its people are dying also.

them work, and f) the utilization of people and small local job opportunities for businesses and hence the development of regional food economies and growers, brokers, farmers markets, food crops, neighborhood food stores and food processors, community gardeners, etc.

Awareness of one's bios and of one's region ("bio-region") implies knowledge of one's options for survival. Convenience and freedom are not the same thing. It may be convenient to buy food from fields or factories afar. However, it does not enhance one's freedom to do so because the distant food is based on an extremely vulnerable and uncontrollable technology. The important point is that agriculture is more easily set into the bio-regional mode than any other part of our culture; all of its resources, technologies and economies have the potential for being locally derived. The inevitable decentralization of our society will begin with agriculture, and a decentralized agriculture begins with a clear evaluation of the agricultural bioregion. This is the next whorl in the spiral. This is the rebirthing of agriculture. □□

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## ACCESS

## BUILDING

*Diagnosing and Repairing House Structure Problems*, by Edgar O. Seaquist, 1980, 255 pp., \$14.95 from: McGraw-Hill  
1221 Avenue of the Americas  
New York, NY 10020

Houses are built from materials which are not impervious to time and weather, by people who are not immune to error. As a house ages, the wood dries and shrinks and possibly warps, the skin weathers and the foundation settles, leaving both visible and hidden flaws.

Seaquist describes the parts of the house structure, how they are expected to work and the materials and construction techniques likely to be found in houses built in the last one hundred years. He discusses where to look for problems in foundations, foundation walls, exterior walls, interior walls, ceilings, floors and roofs. Some structural problems are easily repairable by the homeowner, some require a contractor, and some symptoms should be ignored or cosmetically patched. This book can help you learn what your house has been doing all these years, and at least give you guidelines for worrying. —Gail Katz

From *How Buildings Work*



*Underground Plans Book-1*, by Malcolm Wells and Sam Glenn-Wells, 1980, 44 pp., \$13.00 ppd. from: Malcolm Wells  
Box 1149  
Brewster, MA 02631

This volume, spreading out to 3'-7" in width, documents 8 earth-sheltered house projects adapted to widely differing site conditions in the North Temperate climate zone. Large-scale floor plans, sections, perspectives and descriptive notes are included for each of the houses. The emphasis throughout is: adapt these concepts to your particular site and needs. As such, it bridges the gap between design theory books and stock plan books. Especially useful is the way recurring technical details are keyed to all of the individual houses. Many of the specific tips and insights alone are worth the cost of the book if you are planning to build into the earth. —Dave Deppen

Dave is an architect in Portland.

*How Buildings Work: The Natural Order of Architecture*, by Edward Allen, 1980, 245 pp., \$19.95 from: Oxford University Press  
200 Madison Ave.  
New York, NY 10017

We live and work in buildings most of our lives, but we rarely think about how they fulfill our physiological and psychological needs. This book approaches design from a standpoint of what do we, as human beings, require and desire from an artificial environment and what are some of the ways to fulfill these needs and fantasies.

Shelters were originally erected to keep out rain and cold. As they evolved, people came to expect buildings to provide water, sanitary facilities, heating and cooling, optical and acoustical privacy and a host of other

services. Allen has broken down design on a need-by-need basis and produced a clear, literate, easy-to-read book that is a valuable reference to any designer or dreamer.

—Gail Katz

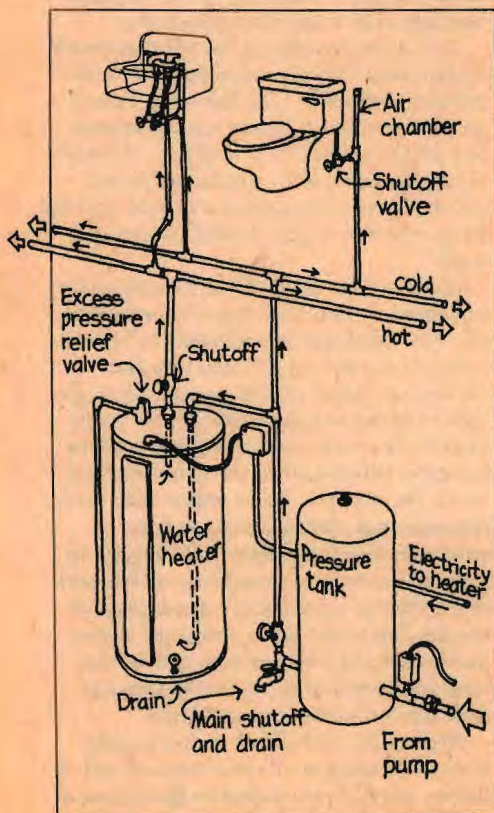
## REGIONALISM

*Renewable Energy and Bioregions: A New Context for Public Policy*, by Peter Berg & George Tukel, 1980, \$.75 postage and handling  
*Raise the Stakes!*, Winter 1981 (Vol. 1, No. 2), \$2.00, both available from: Planet Drum Foundation  
P.O. Box 31251  
San Francisco, CA 94131

*Renewable Energy and Bioregions* was prepared for the California Solar Business Office. It is not a report of policy recommendations, but a description of the conceptual framework from which a bioregional energy policy could emerge. Peter Berg and *Planet Drum* have done pioneering work with the concept of a bioregion, "a distinct area where the conditions that influence life are similar, and these in turn influence human occupancy."

After discussing the various factors such as watershed tiers, solar income, and carrying capacity, that contribute to the derivation of bioregional energy policy, the authors illustrate some of the implications of a bioregional renewable energy scenario: "One aspect of public policy alone, the creation of watershed utilities that mediate between energy-generating households, the community power grid and the processes of natural systems, maintains a balance between decentralized activities and central planning that is a radical departure from the current operation of public and private utilities. . . . By planning energy-generating locations to complement local natural processes in the watershed, utilities can be directly involved with preserving natural communities and the watershed environment." The Appendix, contributed by California Solar Business Office Director Jerry Yudelson, gives some specific energy policy implications of a bioregional energy strategy.

If this kind of stuff interests you, then you'll really have fun with the second issue of *Raise The Stakes!* with its focus on "Eco-Development: Decolonizing Ourselves." Included are reports from the Black Hills, the North Coast area of California, Quebec, Brittany, and Samiland, among others. Especially good is Richard Merrill's article on agriculture and the prospects for a bioregional food system (reprinted elsewhere in this issue). —MR



From *How Buildings Work*

## ORGANIZING

*Preventing Burnout in the Public Interest Community*, by William L. Bryan, Fall 1980 issue (Vol. 3, No. 3) of *The NRAG Papers*, \$3.00 from:

Northern Rockies Action Group  
9 Placer Street  
Helena, MT 59601  
406/442-6615

You don't have to work for a public interest group *per se* to need this paper! Burnout affects us all: it makes us unhappy and less productive, causes the quality of our work to deteriorate, and pushes us to quit or move along; it contributes to high staff turnover in our organizations, with consequent lack of continuity, follow-through, and momentum; and it reduces the overall effectiveness of our organizations individually and collectively. Many of us working to create a more socially and ecologically balanced society find it hard to create balance where we can really have an immediate effect: in our workplaces and in our own lives.

Bryan is a veteran social activist who discusses burnout with both the sensitivity of personal experience and the sensibility of holistic analysis. Among the causes of burnout Bryan includes external pressures, lack of direction in the work environment, inability to say "No," uncertainty of rewards, lack of security, "the Ralph Nader Syndrome" (one politically correct social change lifestyle—austerity coupled with overwork), and inappropriate work habits.

Organizational suggestions for preventing burnout include planning, evaluation, reward systems, and an "atmosphere of centeredness." For individuals Bryan discusses personal support groups and planning, stress management techniques, preventive health

techniques, having fun, and spirituality.

Bryan's paper is full of good ideas and suggestions. Perhaps the most unusual is that of "developing a public interest profession" in which, as in more traditional professions, people would help each other with skills and training, financial management, retirement policies, retreats, conventions, etc. While some might find this a rather corporate-sounding model, one can make a strong case for it in terms of preventing burnout. To stimulate discussion on this and other issues Bryan raises, readers are invited to contribute short comments for a proposed follow-up paper.

If yours is a labor of love, dedication and commitment, it may also be a labor that is short-lived if you don't take care of yourself. We owe it to ourselves and to each other to make long-term social change work rewarding, satisfying and healthy. —MR



The "Ralph Nader Syndrome."

From Preventing Burnout

Do not burn yourselves out. Be as I am. A reluctant enthusiast and part-time crusader. A half-hearted fanatic. Save the other half of yourselves for pleasure and adventure. It is not enough to fight for the west. It is even more important to enjoy it while you can, while it's still there. So get out there, hunt, fish, mess around with your friends, ramble out yonder and explore the forests, encounter the griz, climb a mountain, bag the peaks, run the rivers, breathe deep of that yet sweet and elusive air. Sit quietly for a while and contemplate the previous stillness of the lovely, mysterious, and

awesome space. Enjoy yourselves. Keep your brain in your head and your head firmly attached to the body, the body active and alive. And I promise you this one sweet victory over our enemies, over those desk-bound people with their hearts in safe deposit boxes and their eyes hypnotized by their desk calculators. I promise you this:

You will outlive the bastards!

—Edward Abbey, a speech to environmentalists in Missoula, Montana, 1978.

From Preventing Burnout

*The Backyard Revolution: Understanding the New Citizen Movement*, by Harry C. Boyte, 1980, 271 pp., \$14.95 from:

Temple University Press  
Broad & Oxford Streets  
Philadelphia, PA 19122

If you think nothing happened during the '70s, this book will set you straight. *The Backyard Revolution* reads like an "insider's guide" to the citizen movement. Well-documented and drawing upon dozens of interviews, here is the history of the Fair Share and PIRG (Public Interest Research Group) organizations, the Midwest Academy, the Conference on Alternative State and Local Policies, etc. From the contributions of Saul Alinsky, often considered the father of community organizing, to the efforts of housewife-turned-citizen-activist Anne Johnson, this book chronicles the numerous and exciting achievements of the last decade, achievements which show that everyday people "can learn the public skills necessary for exercising some control over their lives and institutions and can rebuild community in an often depersonalized society."

Positing that only the mobilized power of the people can prevail against corporate power in America today, Boyte roots democratic consciousness in democratic experience. "The citizen movement largely grows out of those places which have not been destroyed by the force of contemporary life—families, religious groups, civic traditions, ethnic organizations, neighborhoods, and so forth. And the movement incubates an alternative vision, seeking to preserve people's heritage while it also changes society."

The citizen movement has not been much aligned with the left, a weakness Boyte attributes to the left. "The left-wing view of social movement is simply wrong, inattentive to the complexity of tradition, the internal changes that occur within traditional communities in the course of protest, and the multi-dimensionality of social movement itself."

Boyte and the people he chronicles are as pragmatic in their thinking as Alinsky himself was. Consequently movements like the women's movement or the antinuclear movement, which challenge not only single issues but the very legitimacy of the entire system, are sometimes considered with impatience. Writing about the antinuclear alliances, for example, Boyte argues that "anarchic meetings, organizations without structure, decision making that dragged on until a consensus was reached—all features of the chaotic 'participatory democracy' of the new left in the '60s—mitigated against involvement of ordinary men and women with family and work responsibilities and little interest in the counterculture."

High points of the book include a good overview section on the economics of self-reliance; an excellent chapter on the demise of people from citizens to consumers to clients to computer cards, and the prospects for

building a democratic culture; and a final section on building a citizen movement, with some suggestions for an agenda for the '80s. The book concludes with nine appendices, including all kinds of organizational and educational resources. *The Backyard Revolution* provides history, perspective, fact and inspiration—it's a turn-on book that should be read by anyone interested in the promise of citizen participation. Let's hope there's a paperback edition soon!

—MR

**"Give Your Hands to Struggle," ruralamerica special issue, Dec./Jan., 50 cents from:**

ruralamerica  
1346 Connecticut Ave. N.W.  
Washington, DC 20036

Missed last month in my roundup of resources on agrarian issues was one of the most fortifying of them all: *ruralamerica's* special issue on rural organizing. This issue brings together grass roots success stories and resource lists for emulating them. There's an article by Jim Hightower, who ran for a seat on the Texas Railroad Commission and almost won. "Run at them (it gets their attention)" suggests with wit and insight that too many of us have forgotten that "you cannot have a mass movement without the masses. Nothing rallies them like candidates. . . ." Other articles in this issue echo this attitude, but for the most part there is more of a "problem-response" organizing slant here than a "get yourself elected" one. Hightower might call that borrowing power. Nonetheless, people's struggles are having their effect and from New Hampshire (where citizens are rallying to prevent the exporting of their low-cost hydropower to New York) to Westfir, Oregon (where a company town is learning to stand on its own), "local self-reliance" is being practiced more than preached. —CC

***Citizen's Action Manual: A Guide to Recycling Vacant Property in Your Neighborhood*, by the Trust for Public Land, 1980, stock #024-016-00100-1, \$2.40 from:**

Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402

While familiar to most of us by name, the community land trust is largely an enigma. More often than not inadequate financial, technical, and organizational information are the stumbling blocks to its effective usage. Two examples that I am familiar with are from Boston, Massachusetts. In the first case, a neighborhood threatened by outside developers began researching the idea of a community land trust as a way to preserve itself. In the other case, a community-based gardening network attempted to gain ownership of open space for community gardens

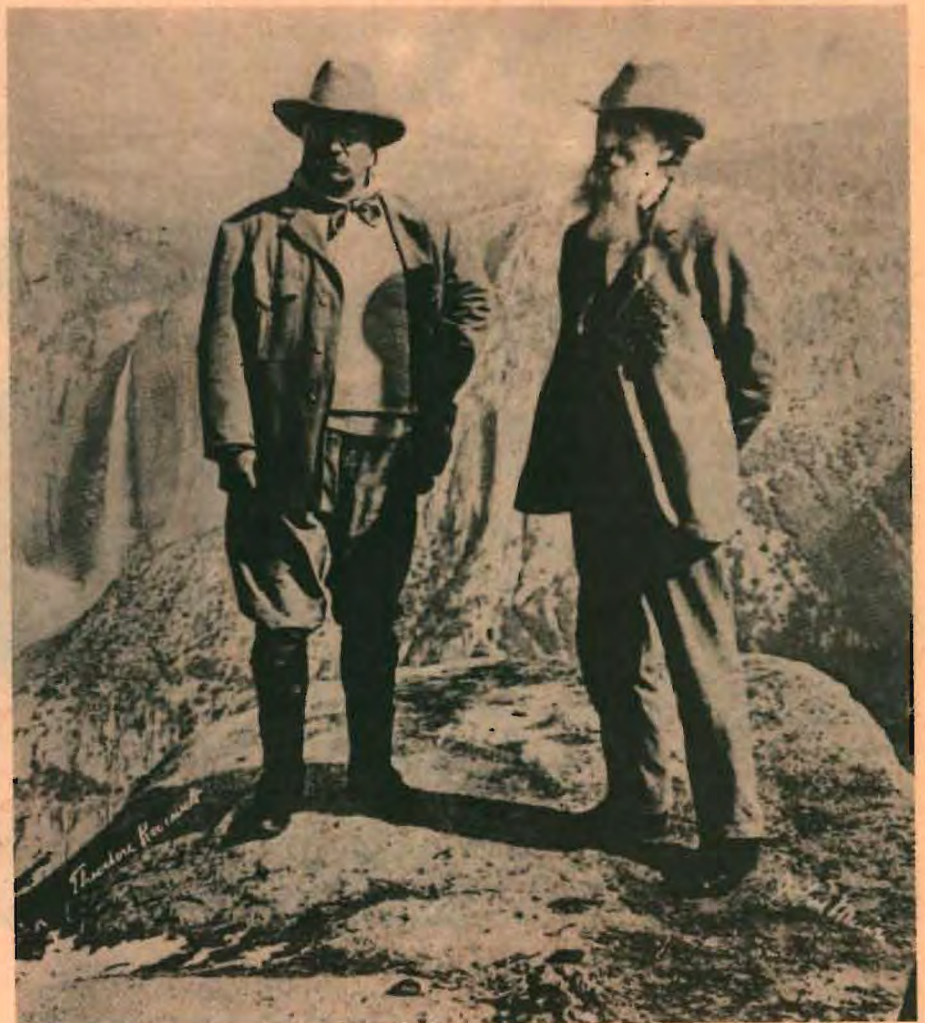
## PEOPLE

***The Life and Adventures of John Muir*, by James Mitchell Clarke, 1980, 324 pp., \$7.95 from:**

Sierra Club Books  
530 Bush Street  
San Francisco, CA 94108

Where is John Muir now that we *really* need him? In the present grim political climate, environmentally conscious people should

take special inspiration from this excellent biography of the pioneer conservationist and Sierra Club founder. Muir had the appearance of a prophet and the eloquence necessary to convince policymakers of his day (like Theodore Roosevelt and William Howard Taft) how important it was to save Yosemite and other wilderness areas from the hands of developers. Author James Mitchell Clarke notes that Muir was recently voted the most important figure in California history by that state's historical society. Perhaps that is something which a very different Californian—now residing in the White House—should reflect on. —JF



Theodore Roosevelt with John Muir at Yosemite.

that were being devoured by urban development.

Utilizing examples of successful urban projects around the country, *Citizen's Action Manual* is a solid introductory primer on how to organize and develop a community land trust. The manual alternates between basic organizing concepts and concrete technical information (e.g., how to utilize tax-

deductible non-profit status for gaining ownership of property). Though what technical information is presented is of high merit, I was frustrated by its brevity. A fairly extensive resource list with suggestions on scrounging material and money as well as where to turn for technical assistance and general information helps compensate for this shortcoming. —LS

## GOOD THINGS

*We Didn't Have Much, But We Sure Had Plenty*, by Sherry Thomas, 1981, 185 pp., \$7.95 from:

Anchor Books  
245 Park Ave.  
New York, NY 10016

Pull up a comfortable chair, draw a lamp in close, pour yourself a cup of tea . . . this is that kind of book. The oral histories of twelve farm women—farmers, not farmers' wives—go beyond nostalgia for the good ole days, and arrive crisp and vital in the here and now. Most of these women have been

farmers or shepherds all of their lives. A few have only been at it for *twenty years* or so. For all of them it is a dawn to well beyond dusk cycle of hard labor laced with disappointment, but tempered by some unnamed return that seems to have made it all a good bargain. "You're so totally *involved* in farmin', you can't, if you come up against something, just give up . . . there's just too much *value* there."

These are stories of richly supportive families, of whole communities drawn together, and of lone women rebuilding and maintaining houses, crops, livestock and their own lives. There is a "yankee ingenuity" that reasons through situations where the "right way" may have been elusive. I found myself laughing with Eleanor Johnson who repaired her very steep roof

and kept herself on it by pouring puddles of tar there to sit in. "You know I had the sorest behind anybody ever saw, *bright red!*"

Sherry Thomas, who had the pleasure of meeting these women and recording their stories, offers her purpose: "Truth-telling enriches our sense of the possible . . ." With that bit of wisdom and the acquaintance met of these fine women, it is easy to feel that anything is, after all, possible. When one of the women says, "I think there have been women like me from the beginning of time." I think of my mom, on her own, on the farm, raising chickens, pigs, kids and more. Perhaps the best lesson learned here is this: pull up another chair, pour another cup of tea, and invite your very own wise woman over to tell you her story. —CC



From *We Didn't Have Much*

*Gathering What the Great Nature Provided: Food Traditions of the Gitksan*, by the people of 'Ksan, 1980, 127 pp., \$17.95 hardcover from:

University of Washington Press  
Seattle, WA 98105

The all-around tonic in my family as I grew up was chicken soup, homemade with lots of garlic and "schmaltz" (chicken fat). Nothing could convince my grandmother of the superiority of the modern cold capsule, and indeed she was right. Years later many of us are discovering just how wise many of the old traditions were, as scientific proof now

supports what Grandma knew all along.

*Gathering What the Great Nature Provided* is a collection of the cumulative wisdom and traditions of a Native American tribe from North-Central British Columbia, the Gitksan. In a concerted effort to record and transmit the heritage of their people as remembered by the elders, the Gitksan have initiated a series of publications on history and culture; this is their second publication in that series.

Language, food preparation, diet and cultural traditions around food are lovingly presented with graphic illustrations and humor. Some little known foods common to the Northwest such as pine "noodles" (finely

shaved strips of the sweet inner bark of the jack pine) are fascinating. As with the chicken fat in my grandmother's soup, the Gitksan used a fish-derived fat for adding flavor, as well as for preserving, and reconstituting dry foods. Today "ooligan" grease, an integral part of the Gitksan diet, has been recognized for its high nutritional value.

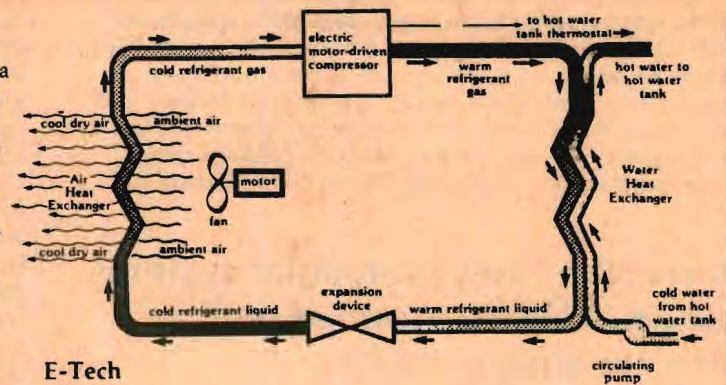
Aside from its simple beauty, *Gathering What the Great Nature Provided* lends perspective to the concept of a regionally supported, environmentally benign food system. It also shows the native diet of the Northwest to be something more varied than berries, peppermint and marijuana. —LS

## Heat Pumps

In principle, a heat pump water heater is a pretty simple machine, utilizing refrigeration technologies that have been around for over a hundred years. By manipulating the pressure and temperature of a fluid with a low boiling point, such as freon, heat can be moved from the ambient air into a hot water tank, using much less energy than it would take to heat the water directly with a resistance heater.

Most of the energy that a heat pump uses goes to run a compressor and a fan. The fan blows air over a heat exchanger, which is called an evaporator. The liquid freon inside the evaporator is converted into a vapor as it draws heat from the air. The warm vapor then goes through a compressor, which increases the pressure and temperature of the freon. The hot pressurized vapor goes into another heat exchanger, called a condenser, where the freon is condensed back into a liquid as it releases its heat to the water in the tank. The cool liquid then flows through an expansion valve, lowering the pressure and temperature of the freon as it flows through the evaporator to repeat the cycle.

Heat pump efficiency is measured by what is called the Coefficient of Performance (COP), which is simply the amount of energy



E-Tech

that ends up getting put into the hot water tank divided by the amount of energy it takes to run the heat pump. A COP of 2, for example, means that the heat pump is over twice as efficient as a resistance water heater, which means that it uses only half as much electricity.

# Heat Pump Water Heaters Goodbye to Active Solar?

by Kevin Bell

Heat pumps for residential and commercial water heating have recently crashed onto the energy scene, and their appearance has provoked a lively debate among many solar advocates. Some manufacturers are predicting that heat pump water heaters will completely displace active solar hot water systems in most parts of the country. Some solar proponents agree. Others are exhibiting violent tendencies whenever heat pump water heaters are mentioned. It turns out that despite the confident assertions being made by both sides, a number of questions about how much of a threat heat pumps really pose to active solar have yet to be answered.

Unlike similar appliances such as refrigerators and air conditioners, heat pumps are expected to operate over a wide range of temperatures and conditions. Several companies that tried to market heat pumps for both space and water heating during the 1950s made the mistake of assuming that a heat pump is simply a backwards air conditioner. They discovered, much to their dismay, that the technology is not as simple as it looks. The resulting failures left heat pumps with a stigma that has only recently begun to fade.

Heat pump technology has improved considerably since that time, and despite a number of early problems, it is clear that heat

pump water heaters have reached a point where they are both reliable and effective, within certain limitations. However, those limitations pose some interesting problems. For example, the evapora-

There are cheaper and easier ways to utilize that "waste heat" than putting what amounts to a large air conditioner in your house in the dead of winter.

tor tends to freeze if the air temperature drops below 45°F (7°C), and the compressor has a hard time handling temperatures above 100°F (37°C) or so. Most heat pump water heaters can be seriously

cont.

damaged by freezing temperatures.

Unless you live in a very mild climate, the obvious solution is to put the heat pump inside your house. The problem with this approach is that the heat that goes into your hot water is being taken from someplace else. A standard size heat pump water heater can drop the temperature in a heated 12' x 10' x 8' room by about 10°F (6°C). If you live in an area with a cooling load, that may be an advantage part of the year. In most areas, it is a definite drawback. Incredibly, at least one major manufacturer is recommending in-

## In real life, however, solar systems have not always done as well as they are supposed to.

stallation in a heated space, claiming that the heat pump will utilize only "waste heat" from people, lights, and appliances. Needless to say, there are many cheaper and easier ways to utilize that "waste heat" than putting what amounts to a large air conditioner in your house in the dead of winter.

From an energy standpoint, the whole concept is slightly warped. With the exception of the Pacific Northwest, most electrical utilities

get their power from thermal plants that are a little over 30% efficient. In such a situation, a heat pump water heater operating at a COP (see box) of about 2 (which is the standard average COP being thrown around these days) has a total end use efficiency of around 60%. But if the heat source is an oil, gas, or wood furnace operating at an efficiency of 75%, the total system efficiency is about the same as that of a regular resistance water heater. Any dollar savings are strictly a result of the fact that gas and oil are cheaper fuels than electricity in most parts of the country. A similar situation exists in homes that use electric space heating. Although this is less of a problem where utility grids are based on renewable energy sources, such as hydro, the total end use efficiency is still considerably less than it should be to make heat pump water heaters cost-effective options.

What that means is that heat pump water heaters are best installed in a ventilated, unheated, insulated area, such as a crawl space or unheated basement. Their efficiency is less than ideal under these conditions, but utility tests have indicated that an annual average COP of two can still be expected in mild climates. Since that space cannot be allowed to freeze, it appears that heat pump water heaters will find their first effective applications in the Southern Tier and states along the Pacific Rim. One manufacturer is in the process of developing a design that is suitable for colder climates as well. If successful, heat pump water heaters could become a practical alternative nationally, although the cold weather designs can be

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# ACCESS: HEAT PUMP WATER HEATERS

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## Energy Utilization Systems 365 Plum Industrial Court Pittsburgh, PA 15239

EUS has been heavily involved in the development of the current generation of heat pump water heaters. Their heat pump is unique, consisting of an integral water tank with the condenser heat exchanger sitting directly inside the tank. Other manufacturers pump water from the tank to a separate unit. The EUS design has the advantage of being slightly simpler and more efficient, since no pump is required. It is also harder to service, and is only suitable for new, permanent installations. Whether or not the EUS approach is a sound one remains to be seen.

One point of debate among heat pump water heater manufacturers is whether the heated water should be returned at the top or the bottom of the tank. A tank that is heated from the bottom will have more uniform temperatures, which means that more hot water is available at any given time. It also means that recovery time is much slower once the hot water has been used up. A resistance backup may be required under these circumstances. A top-heated tank has a faster recovery, but will tend to stratify. If the tank is undersized, there may not be enough hot water available during peak usage (this can be a problem with some one-tank solar systems as well). EUS and Oregon heat pumps heat the water from the bottom. The other units heat it from the top. The one you choose should reflect your hot water consumption habits. EUS is marketed under the trade name "Temcor."

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## E-Tech 3570 American Drive Atlanta, GA 30341

E-Tech was another early pioneer in the field, and most other manufacturers have modeled their units after the E-Tech design. E-Tech tends to be at the low end of the price range for heat pump water heaters, and their units proved to be slightly more reliable than the EUS units during initial utility test programs. Real life test results from other heat pump manufacturers are not yet available, and it may be a while before we know how they all compare.

E-Tech originally recommended using flexible plastic hose to hook up the unit to the tank. This proved to be a disaster, and E-Tech now recommends (as all manufacturers should) that the unit be hard plumbed to the tank. E-Tech is marketed under the name "Efficiency II."

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## Fedders Woodbridge Ave. Edison, NJ 08817

Fedders is out to become the Chevrolet of the heat pump water heater world, and has launched an aggressive sales campaign to match. Their unit is relatively expensive, and their instructions include a number of fascinating suggestions, such as disconnecting your auxiliary water heater and putting the heat pump unit in your kitchen. We'll see how it works out. Fedders is marketed under the Fedders, AirTemp, and Climatrol brand names.

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## Northrup, Inc. 302 Nichols Dr. Hutchins, TX 75141

Northrup recommends an inside installation, with the suggestion that the cold air be vented to the outside during the heating season. They fail to point out that the air that is being dumped outside has to be replaced somehow, and that the effect is to increase infiltration into the house from the cold outside air. While there may be a slight gain in comfort, there is no gain in efficiency. As of this writing, the Northrup unit is not yet on the market, although it should be available soon.

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## Oregon Water Heating Heat Pump 8190 SW Nimbus Ave. Progress, OR 97223

Oregon's emphasis is on quality. The company is small, and each unit is hand assembled, with a lot of attention to detail. Oregon is currently the only manufacturer with plans to market different designs to meet the needs of different climatic regions. They also offer the only heat pump water heater with freeze protection, although it won't work if there is a power failure. The quality is reflected in the price, and Oregon water heaters are by far the most expensive around. They are likely to remain indigenous to the Northwest for quite some time, but plan to eventually expand to a national market.

expected to be more expensive.

Heat pump water heaters are superb for commercial operations such as restaurants, light manufacturing, and office buildings that do generate waste heat. It is likely that in these situations heat pumps will prove superior to solar from both an energy and economics standpoint for most applications. Although residential applications are clearly more limited, there are many situations where a heat pump water heater makes sense. Furthermore, it is probable that they will soon be enjoying some of the same financial incentives as active solar systems, especially since utilities can relate to heat pumps a little more easily than they can to solar, and can be expected to be fairly enthusiastic about them.

This raises the fascinating possibility that heat pump water heaters will be competing with active solar systems in many of the areas where solar works best. There are a couple of different systems available that integrate both heat pumps and solar, but fuel prices would have to go up quite a bit faster than they do now to justify the extra expense. Most people will be choosing between heat pumps and solar, and it is unlikely that the question of how the economics of solar and heat pumps compare over the long run will be settled for quite some time.

Heat pump water heater manufacturers feel that there is no comparison. Their confidence is largely based on a 1978 report by Oak Ridge Laboratories that indicated, among other things, that heat pump water heaters would be able to offer comparable savings to active solar systems for about one-fourth to one-fifth the cost. The catch is that at the time the report was written, heat pump water heaters were expected to cost around \$400. Actual retail prices are

about twice that, and installed costs are running as high as \$1500, with most installations falling in the \$1000 to \$1200 range.

This is still about half the current installed cost of your average active solar system, and is considerably cheaper than the "Cadillac" solar systems that seem to be flooding the market lately. But it is not much cheaper than a well-designed, owner-installed system, and only time will tell which is the better investment. It may be that current claims of 50% energy savings from heat pump water heaters are low. They may also be high. If they are correct, a typical solar installation *should* be able to offer 20-50% greater savings (or a total savings of 60% to 75%). In real life, however, solar systems have not always done as well as they are supposed to. If we assume that the relative savings are equal for both, the important question then becomes how long each system will last. If industry estimates of a 15-year lifespan for heat pump water heaters and a 30-year lifespan for active solar systems are correct, the total costs over a 30-year period appear about equal. If either estimate is wrong, however, the advantage of the other system improves considerably.

Many of the solar systems currently on the market are far more expensive and complicated than they need to be. Competition between heat pump and active solar water heaters could turn out to be very healthy, sparking a renewed interest in relatively simple, low-cost solar systems that is badly needed. Individually, heat pumps and active solar are clearly inappropriate for some installations, but there are few residential and commercial buildings that are not suitable for one or the other. Heat pump water heaters represent a potentially valuable addition to the array of energy conservation technologies available, and they should be welcomed as such. □□



**Discussions and exhibits of systems and machines to process sludge, garbage and other organic wastes, as well as sessions on biogas and alcohol fuels will be featured at the 1981 Composting and Waste Recycling Conference to be held in Washington, D.C. May 18-20. To register or obtain additional information, contact Mildred Lalik, The JG Press, Box 351, Emmaus, PA 18049, 215/967-4135.**

*An Underground Space Conference and Exposition will be held in Kansas City, June 8-10. The event, to be sponsored by the American Underground-Space Association, will feature sessions by experts from around the world on earth-sheltered buildings, deep underground space use, urban planning and policy issues. Contact Ruth Sime, American Underground-Space Association, c/o Suite 900, Minnesota Building, St. Paul, MN 55101, 612/376-5580.*

The Farallones Institute Rural Center in Occidental, California announces a series of Community Technology Workshops on weatherization and conservation, July 20-31; solar home heating, August 3-14; and solar water heating, August 17-28. The workshops are skills training programs, and are designed to address the particular needs of low-income and minority communities in both urban and rural areas. Financial assistance is available. Participants will live at the Center during the workshops. For further information contact Donna Clavaud, Farallones Rural Center, 15290 Coleman Valley Road, Occidental, CA

**A solar tour of England and France, August 22 to September 6, will be coordinated by Jordan College in co-sponsorship with Solar Age magazine and Mother Earth News. Contact Herbert Sebree, Tour Director, Jordan College, 360 W. Pine Street, Cedar Springs, MI**

**"Energy and Big Building Design: Where We Are and Where We Are Going,"** a two-day state-of-the-art conference on the design of internal load-dominated buildings, will be held in Philadelphia, May 25-26. The event, sponsored by the Mid-Atlantic Solar Energy Association, will be held in conjunction with the AS/ISES Solar Rising Conference (see announcement elsewhere this page). For details, contact Irisita Azary, Mid-Atlantic Solar Energy Association, 2233 Gray's Ferry Avenue, Philadelphia, PA 19146, 215/545-2150.

cont...

# more RUSH

An alcohol fuel technology and production workshop will be held at Navarro College in Corsicana, Texas, April 16-18, and again May 21-23. Topics will include economics, chemistry, microbiology, and federal and state regulations relating to alcohol production. Also included will be hands-on experience in processing and distilling alcohol. Contact Wayne Burkhalter, Jr., Project Director, Navarro College Agriculture Dept., Box 1170, Highway 31 West, Corsicana, TX 75110, 214/874-6501, ext. 278.

"Crisis Survival and the Self-Reliant Community" will be the theme of seminars to be held in San Francisco, April 17-18; Portland, Oregon, May 22-23; and Goldendale, Washington, May 24. Featured will be Don Stephens, designer of earth-sheltered homes and author of many articles on appropriate technology, crisis avoidance and survival. The formation of small planned villages based on individual and community preparedness, cooperation, and alternative food and energy production will be discussed. For information contact Larry or Meg Letterman, Ponderosa Village, P.O. Box 4, Goldendale, WA 98620, 415/967-6551.

"Solar Rising," the annual meeting of AS/ISES (American Section, International Solar Energy Society) will be held in Philadelphia, May 26-30. Commercialization and solar utilization in the cities will be the two themes of the conference. For information contact Richard Ross, Conference Manager, Bennett Hall, Room B-2, 3340 Walnut Street, University of Pennsylvania, Philadelphia, PA 19104.

"Passive Solar Multi-Family Housing: Design, Development, Finance and Marketing Strategies" is the theme of workshops to be held April 20-22 in Columbus, Ohio, and April 27-29 in Lansing, Michigan. Sponsor of the workshops is the Mid-American Solar Energy Complex (MASEC). Contact Mary Rollwagen, TLH Associates, 900 Minnesota Bldg., 4th and Cedar Streets, St. Paul, MN 55101, 612/227-8866.

ECOS is a Social Ecology conference and fair scheduled for May 9 and 10 in Connecticut. Two full days of workshops, panels, and discussion will include speakers Murray Bookchin, Rosemary Ruether, Winona LaDuke, and RAIN's own Mark Roseland, plus music by Tom Paxton and Holly Near. For more information contact ECOS, 69 High St., Middletown, CT 06457, 203/347-4048.



Nevada City, California, will be the site of the Owner Builder Center's Summer Resident House-building Program. Two- and three-week sessions will be offered from June 14 to September 5. There will be both hands-on and classroom instruction, and students will have an opportunity to work on a passive solar house. Contact the Owner Builder Center, 1824 4th Street, Berkeley, CA 94710, 415/848-5950.

"Tenant-Sponsored Cooperative Conversions" is the theme of a series of workshops to be held in various cities during April and May. The workshops, sponsored by the National Association of Housing Cooperatives, the National Urban Coalition, HUD, and the National Consumer Co-op Bank, will provide intensive training in the principles, development process, and financing options of converting rental units to cooperatives. The workshops will be held in Minneapolis, April 27-28; Chicago, April 30-May 1; Detroit, May 6-7; and Hartford, May 13-14. For information contact National Association of Housing Cooperatives, 1012 14th St. N.W., Suite 805, Washington, DC 20005, 202/628-6242.



Hazel Henderson, Bill Mollison and William Irwin Thompson will be among the speakers at the Onearth Gathering to be held in Hawaii, June 13-21. Host for the event will be Peter Caddy of the Findhorn Foundation. Contact Onearth Gathering, P.O. Box 1538, Kihei, Maui, HI 96753, 808/879-8268.

The Rural Education Center in Wilton, New Hampshire, announces its Spring Program for practical training in rural skills. Workshops will be offered in plant propagation, apple tree restoration, cheesemaking, solar greenhouse design and construction, and intensive urban gardening. For detailed workshop descriptions and registration forms, please contact Susan Stepick, the Rural Education Center, Stonyfield Farm, Wilton, NH 03086, 603/654-9625.

ACORN, a multi-state grass-roots community organization, and the Institute for Social Justice, an organization providing technical assistance and training in community organizing, are cooperating in sponsorship of a summer internship program which will run from June 15 to August 22. Internships will begin with a three-day orientation in Little Rock, Arkansas, after which interns will go to a city in one of the seventeen states in which ACORN is active. Interns must provide for their own living expenses. For more information and to apply, contact Kaye Jaeger, Institute Summer Project, 117 Spring Street, Syracuse, NY 13208, 315/476-0162.

The Farallones Institute, New Alchemy Institute and Chinamerica Corporation announce sponsorship of a series of two- and three-week China study tours between June and December. Participants will be able to select a tour emphasizing either agriculture or renewable energy systems. For details, contact China Study Tours, Farallones Institute, 1516 Fifth Street, Berkeley, CA 94710, 415/525-8081.



Country Workshops, a non-profit educational organization located in Marshall, North Carolina, announces a series of summer workshops in traditional folk arts: "White Oak Basketry," July 20-24; "Country Woodcraft," August 3-7; and "Chairmaking," August 17-21. Traditional methods and tools will be emphasized. Contact Drew Langener, Country Workshops, Route 3, Box 221, Marshall, NC 28753, 704/656-2280.

Frances Moore Lappé is preparing a tenth anniversary edition of Diet for a Small Planet and is inviting people to submit new recipes as well as personal statements about how the original Diet's explanation of the political implications of food changed their eating habits, lifestyles and political commitments. Send recipes and comments by April 15 to Frances Moore Lappé, Institute for Food and Development Policy, 2588 Mission Street, San Francisco, CA 94110.

The Farallones Rural Center, an appropriate technology educational organization providing training in food and renewable energy systems, has openings for a site manager and for a public relations coordinator. The site manager will be responsible for design, construction and repair of buildings, equipment and grounds. The public relations coordinator will handle public information, consulting services, memberships, slide shows, and public tour programs. Send letter of application and resumé to Donna and Christopher, Farallones Rural Center, 15290 Coleman Valley Road, Occidental, CA 95465.

The Center for Ecological Technology, a non-profit educational and research organization, will be offering a series of renewable energy workshops during May and June at Berkshire Community College in Pittsfield, Massachusetts. Topics will include fundamentals of using solar energy in New England, do-it-yourself solar retrofitting, horticultural management of greenhouses in the Northeast, and solar water heater installation. Some scholarships are available. Contact Alan Silverstein, C.E.T., 74 North Street, Pittsfield, MA 01201, 413/445-4556.



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