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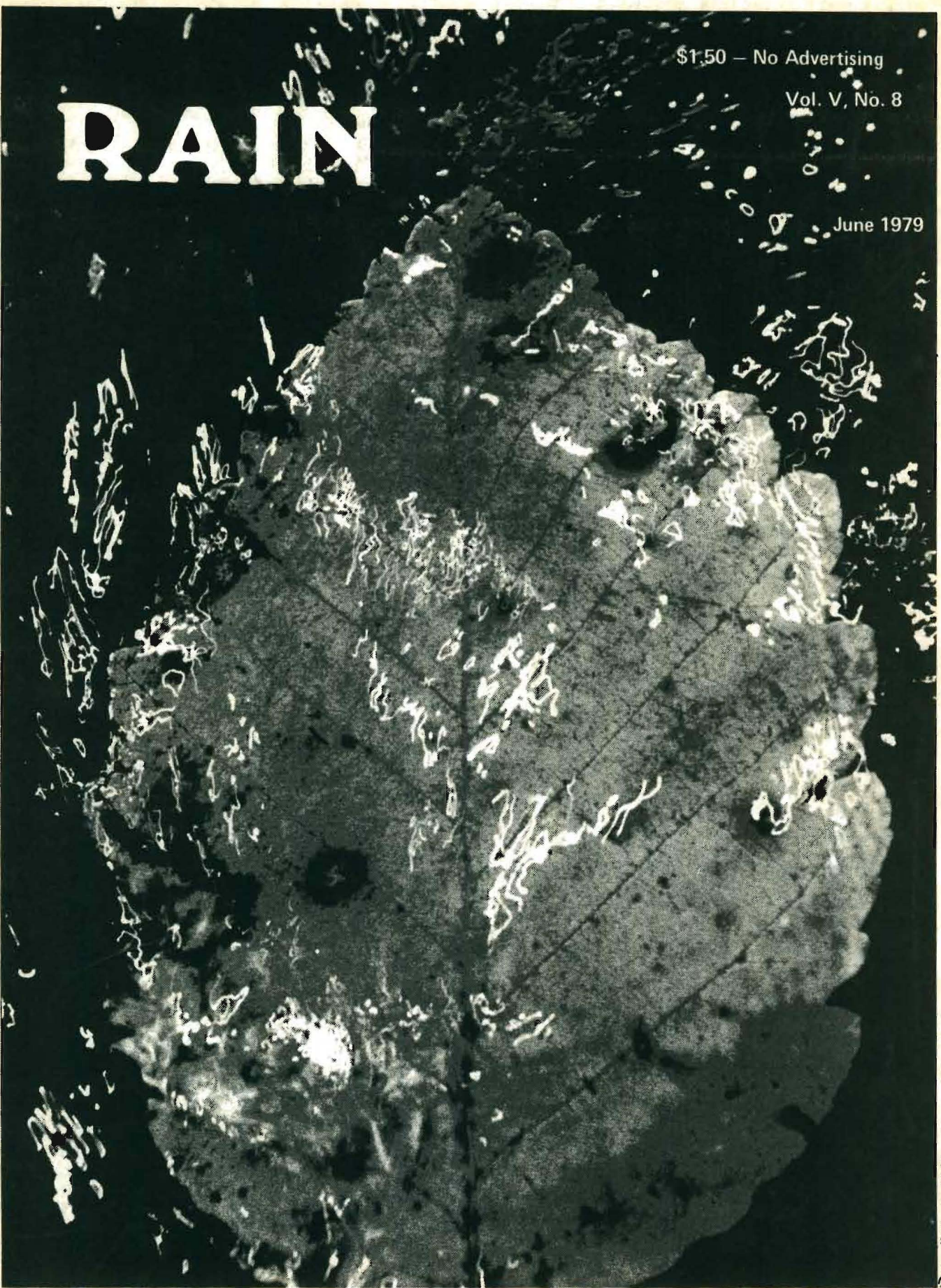
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RAIN

\$1.50 — No Advertising

Vol. V, No. 8

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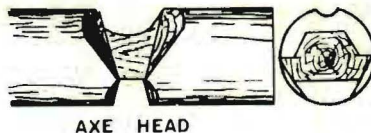
RAIN access

ECONOMICS

COIN, Consumers Opposed to Inflation in the Necessities (see *Rain*, April '79, pp. 20-21), held its first state-wide local teach-in in Maine. As a result of the workshop, the Maine Teachers Association, one of the sponsoring groups, adopted several proposals to curb inflation. This included support of the food cooperative movement and purchase of locally grown food. Hopefully, these are signs of a shift in thought from the role of consumer to that of a more self-reliant producer. A pamphlet, *Citizen Inflation Action Handbook* (\$1), is available as a guide to organizing teach-ins. On June 26 and 27, a national teach-in on inflation and the economy will be held in Washington, D.C. For additional information on local and the national teach-in, contact:

Kathy Ceronsky
COIN
2000 P Street N.W., Suite 413
Washington, DC 20036

-PC



AXE HEAD



SHEEP'S HEAD



DIAMOND



OX HEAD

BUILDING

Notches of All Kinds, B. Allan Mackie, 1977, \$15 from:

Log House Publishing Co.
P.O. Box 1205
Prince George, BC,
CANADA V2L 4V3

It's a good sign when any building profession stops slapping things together and starts doing what takes a bit more work now but avoids problems 20 to 50 years hence: Allan Mackie has taught over 1000 professional log builders at his Log Building School. His *Building with Logs* is a basic text. This well-

illustrated joinery books goes into more details on log joinery for stability, wind-proofing, rot-prevention, construction ease and beauty. In process is another book of *Log House Plans* (\$10) and one on *Log Span Tables* (\$2.50). Write above address for dates and details of log-building courses. -TB

from Notches of All Kinds

THE LIGHTBULB SYNDROME

The following letter excerpts appeared in *Not Man Apart* (April '79, \$15/yr. from Friends of the Earth, 124 Spear St., San Francisco, CA 94105). Stories like these have been surfacing daily in the media since the Three Mile Island incident. Restores your confidence, doesn't it?

-PC

"Light bulbs are commonplace pieces of electrical equipment. From the moment we first turn on the bedroom light in the morning until we turn off the lights at night we are surrounded by light bulbs. . . . Sometimes bulbs burn out, but most people have no trouble replacing them . . . except for nuclear engineers. . . .

"In March of 1977, an attempt was made to replace an indicator bulb at the Dresden 2 reactor. The wires twisted and short-circuited as the operator tried to remove the bulb. The resulting current surge knocked out a motor control center and closed the feedwater heater valves. The temperature of the feed-

water dropped 150 degrees in 20 minutes, though the utility's safety tests had assumed a maximum drop of 100 degrees Fahrenheit in one minute. The utility contacted the reactor manufacturer, who decided that no safety limits had been exceeded, though the mode of the failure (changing a light bulb to yield a greater than credible accident for feedwater heaters) had not been properly evaluated.

"Four months later, a technician was replacing an indicator bulb at the Millstone 1 reactor. A similar event sequence occurred: wires short-circuited, a relay flipped open, closing an oil pump which in turn stopped the reactor feedwater pump. A day and a half of repairs brought the plant back into service.

"In March of 1978, a light bulb accidentally fell into an open light assembly on the control console at the Rancho Seco reactor. That created a short circuit in the power supply to pressure, temperature, flow and level sensors in the reactor. The readings on the control gauge went haywire, sent conflicting signals to the automatic controls, and forced the baffled reactor operator to scam the plant. Smart as this was,

scramming the plant didn't help the confusion, since most of the instruments were not working. All sorts of things happened without their knowing. For instance, the reactor coolant temperature went below allowed limits. In all, it took over five days before the reactor could be returned to service.

"Light bulb changes have even caused a blowdown. In October 1978, an attempt to change a burned-out bulb at the Pilgrim 1 reactor caused a ground, which activated an overcurrent relay and cut off the generator. The reactor scrambled, and a steam relief valve accidentally opened and did not close until the reactor had blown down from 1020 to 330 [pounds per square inch]. The unit came back into service eighteen days later, having had major problems with emergency diesel generators two days after the initial incident."

Now if they'd only used a candle . . .

Sources: letter from Peter Cleary to *Science*, 26 January 1979; U.S. Nuclear Regulatory Commission License Event Reports (LERs), 1977-1979; NUREG 0020, August 1977; Current Events: Power Reactors, USNRC, 1 March-30 April 1978.

The Passive Solar Energy Book, Ed Mazria, 436 pp., illustrated, \$10.95 from:

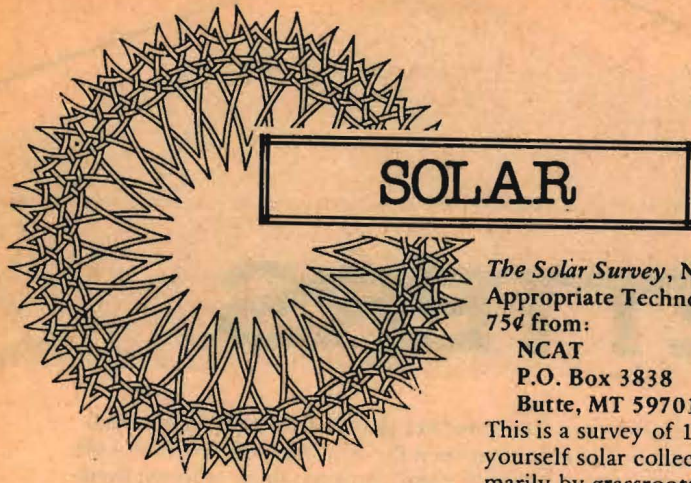
Rodale Press Inc.
Emmaus, PA 18049

It would be difficult to write enough encomiums about this superlative piece of work. For it reverses the recent, unfortunate trend toward high-priced passive solar books full of prettified, egotistical architectural eyewash (i.e. Crowther's silver-covered rip-off), yet devoid of the needed revelation of technical secrets that keep any designer employed. Ed tells all, or at least as much as is now known and verifiable, and does it without oppressive jargon, establishing a new and higher standard of excellence for future writers in this overcrowded field. This publication supersedes a book that only now can be called "second-best," Bruce Anderson's *Solar Home Book*. I recommend its use as a college text and for nuts-and-bolts types who need enough numbers to build sensibly. —LJ

Sun Funds

Solar water heaters and greenhouses may be an attractive idea, but where can you obtain the loans to finance these improvements? Jeff Zinsmeyer from the Center for Community Change (CCC) suggested an innovative possibility: use the Community Reinvestment Act (CRA) as a tool for securing community solar loans. The CRA, an anti-redlining law, requires local financial institutions to serve the credit needs of their communities. In order to make the idea of solar funds more acceptable to lending institutions, neighborhood groups should label the credit "community development loans." A neighborhood survey would be necessary to demonstrate the existence of a credit need within the community. The volume of loan applicants must be sufficient to justify familiarizing a bank employee with the concepts. Upon determination of the need, a proposal requesting credit for solar loans would be submitted to the bank. Ask for a written response. In some cases confronting the lender directly will suffice. In other cases a CRA challenge will be necessary. To date, the CRA has not been used in this manner, so its effectiveness is unknown. Community groups attempting to use the CRA for this purpose can receive technical assistance from the CCC. Their newsletter, *Monitor*, covered the CRA in the January '79 issue. For more information write:

Center for Community Change
1000 Wisconsin Ave., N.W.
Washington, DC 20007
—PC



The Solar Survey, National Center for Appropriate Technology, 1979, 20 pp., 75¢ from:

NCAT
P.O. Box 3838
Butte, MT 59701

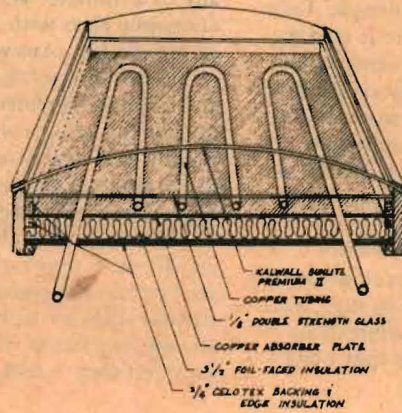
This is a survey of 19 low-cost do-it-yourself solar collectors designed primarily by grassroots organizations. Not detailed information, but the pamphlet gives enough of an idea of the system's construction and operation to determine whether follow-up communication is desirable. The booklet includes system description, schematic drawings, costs and comments by the designers. —PC

Employment Impact of the Solar Transition, by Leonard Rodberg, prepared for the Subcommittee on Energy of the Joint Economic Committee, 95th Congress, April 1979, 49 pp., from:

U.S. Government Printing Office
Washington, DC 20402

If the United States committed itself to a national program combining widespread use of conservation and solar energy measures, we could by 1990: create 2.9 million net jobs; reduce nonrenewable fuel expenditures by \$118 billion (free the money for other goods and services); have a total annual energy consumption equivalent to 1977.

These conclusions are in *Employment Impact of the Solar Transition*, a report for Senator Kennedy's Congressional Subcommittee on Energy. They are based upon economic projections of the Bureau of Labor Statistics and assume the use of "available or clearly achievable technologies." Assurances are given that no policy which threatens the supply of energy to industrial customers is included in the approach. The report also outlines an implementation strategy which contains a financing mechanism for obtaining the ambitious goals of the transition. —PC



from Solar Survey

Get the Sun on Your Tube

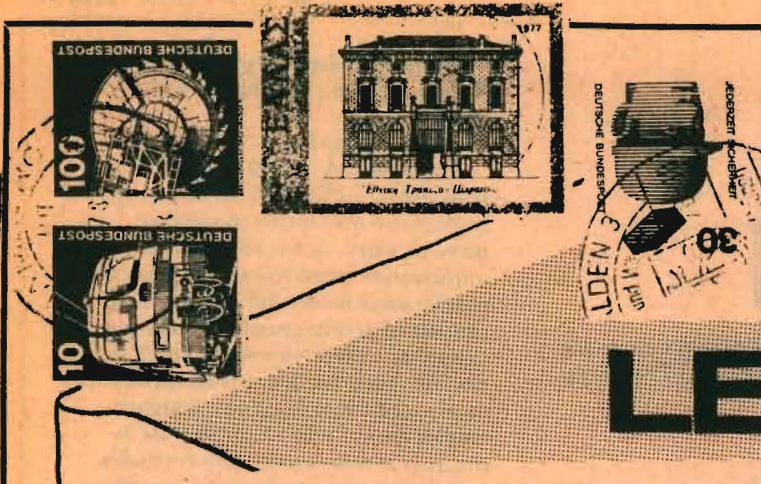
Joe Barbish, chairman of the Ohio Solar Energy Association, reports they've finally got the daily solar index on the nightly TV news in Cleveland! Viewers get a regular report of the percentage of hot water used by a family of four that could have been heated that day by the sun. The total installation cost was only about \$3000. For more details, contact OSEA, 13125 Dorothy Dr., Chesterland, OH 44026. —Thanks to Acorn

RAIN's office is at 2270 N.W. Irving, Portland, OR 97210. Ph: (503) 227-5110.

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LETTERS

Dear Steven,

I want to thank you for your article, "Drawing the Circle Wider." It makes many points that I have also tried to make in my book and in my talks—the need to share our understandings with others; "the validity of each person's perspective;" the practicality of our ideas; and the need for an opening to the supposedly conservative American mainstream, as distinct from the traditional 1930s-60s us-against-them-type left.

A couple of supplementary thoughts. When you mention that we find it difficult to identify with working people, I am not sure what you are driving at. The point I make is that we are so careful not to alienate economically lower class people that we often tend to come across in an incredibly condescending manner to them—simply assuming that they have a built-in need to jump onto the production-consumption merry-go-round and never really conveying our own learned, and valid, sense that the production-consumption merry-go-round isn't really worth the bother.

Also, you point out that people in the circle have not been reaching out to each other "lest they lose track of their constituencies." I think it may be more accurate to say "lest they find themselves having to compromise the interests of their constituencies." There is a split in the circle that I can't

do justice to in this letter but that I often refer to in verbal shorthand as a split between the New Age and the New Left. By this I mean basically a split between those who see themselves as standing at the beginnings of a political tradition that is beyond left and right (hardly the beginnings, incidentally—it goes back to the beginnings of American history), and those who see themselves as basically extending the socialist tradition. Those who hope to reconcile people to one another in the context of a series of life-giving ethics and values (within which there might be many different policies and economies, regionally determined), versus those who hope to replace one socioeconomic class with another in the context of a particular economic ism. Anyway: much of the hesitancy that you speak of is a result, I think, of the fact that New Age-oriented people and groups *rightfully* suspect that linking up with New Left people and groups will require them to give up many of their insights and understandings, such as their advocacy of the importance of simple living and their commitment to reduce dependency on the government as well as on big business.

My response to this split—and I detect this also in your article—is to point out that more and more people are able to see beyond the clichés of the left (and the right) and that our natural allies are not traditional leftists but are all those mainstream Americans who would move in a New Age direction if they felt they could do so without starving in the process.

Project LEO

Our friends at AERO have again come up with an outstanding project that should inspire similar efforts elsewhere. Here's the outline. For details on their intensive 11-day training session, see the April-May '79 issue of Sun-Times. To keep up on all of AERO's activities (exciting school energy programs, the New Western Energy Show, energy legislation, etc.) send \$15 to join AERO and receive the Sun-Times to Alternative Energy Resources Organization, 435 Stapleton Bldg., Billings, MT 59101. —TB

AERO has launched what promises to be one of the most exciting and useful projects we've undertaken in years. We are hiring eight 'Local Energy Organizers,' whose salaries will be paid with money from the state Comprehensive Employment and Training Act (CETA). One organizer will work in each of 6 towns: Havre, Hamilton, Helena, Bozeman, Roundup, and Miles City; and 2 will work in Billings.

The purpose of the project is to aid and encourage citizens in learning about renewable energy and energy conservation, in learning about how they and the town are currently using

energy, and in beginning to take an active part in energy decisions and projects that will begin the transition of each of these communities to the use of energy conservation measures and renewable energies.

- Each organizer will work toward the following objectives:
- Aiding the establishment of a renewable energy task force in the community, composed of concerned citizens from as many sectors as possible.
 - Encouraging the involvement of the task force (and other citizens) in energy decisions affecting the town: e.g. REA activities, local planning decisions, local initiatives, etc.
 - Encouraging citizens to consider—and aiding them in looking into—the establishment of one or more renewable energy facilities in the community.

An important additional objective for each organizer will be to facilitate the development of a body of knowledge about the community's energy use and possible renewable energy use and conservation measures, and the appointment of a person from the local task force to "represent" the town (along with that town's L.E.O.) at a week-long energy workshop September 23-30, 1979, at Feathered Pipe Ranch in Helena. Amory Lovins, renowned proponent of the "Soft Energy

Dear Rainfolks,

Recalling the November issue, which contained such good stuff as the solid waste management article, I was, however, appalled by the article by Karl Hess ("On Shelling It Out," *Rain*, Nov. 1978). That article was only less than blatantly racist by omission of standard racist terminology. I would like to suggest that his point of view as one of a privileged white is rampant with stereotypes and generally does not reflect the sensitivity *Rain* usually displays. A more rational approach for Karl's good intentions would be: "How can we think together, make allies and *together* overcome the oppressiveness of this society to *all* people? Karl's good intentions (and I emphasize that) were clouded by the patronizing tone (in many places in the article, not just one or two words) and would turn off any minority person.

If *Rain* doesn't already have an editorial policy on liberation issues, which is really what this is all about, I would be happy to help you draft such a policy. *Rain* is a very important magazine and could make many more friends by having a correct policy on these issues.

Sincerely,
 Jim Frazin
 Albuquerque, NM

Potentially, at least, a majority of people in this country. (After all, if you want to reduce your taxes, then you're going to *have* to learn to be more self-reliant and cooperative.)

Another way to put this might be to point out that there are actually two circles of social change activists. One is that of the Left, another is that of "New Age" or "third way" or "self-help" politics. As a member of the second circle, I am less interested in hassling with the Left than I am in telling John Q. Public about a politics that sees scale and consciousness as primary problems—a politics that gives priority to values such as self-reliance, cooperation, androgyny, spirituality, the ecology ethic, localization, planetary sharing, enoughness, appropriateness, and synergy.

Sincerely,
 Mark Satin

Mark's book, New Age Politics, is due out in extensively revised form this November from Delta. In the meantime he's been travelling around the country, beginning to facilitate the formation of a national New Age-oriented organization. Mark can be reached in care of 515 Clayton St., San Francisco, CA 94117. ("Drawing the Circle Wider" was in Rain, Feb/Mar '79).

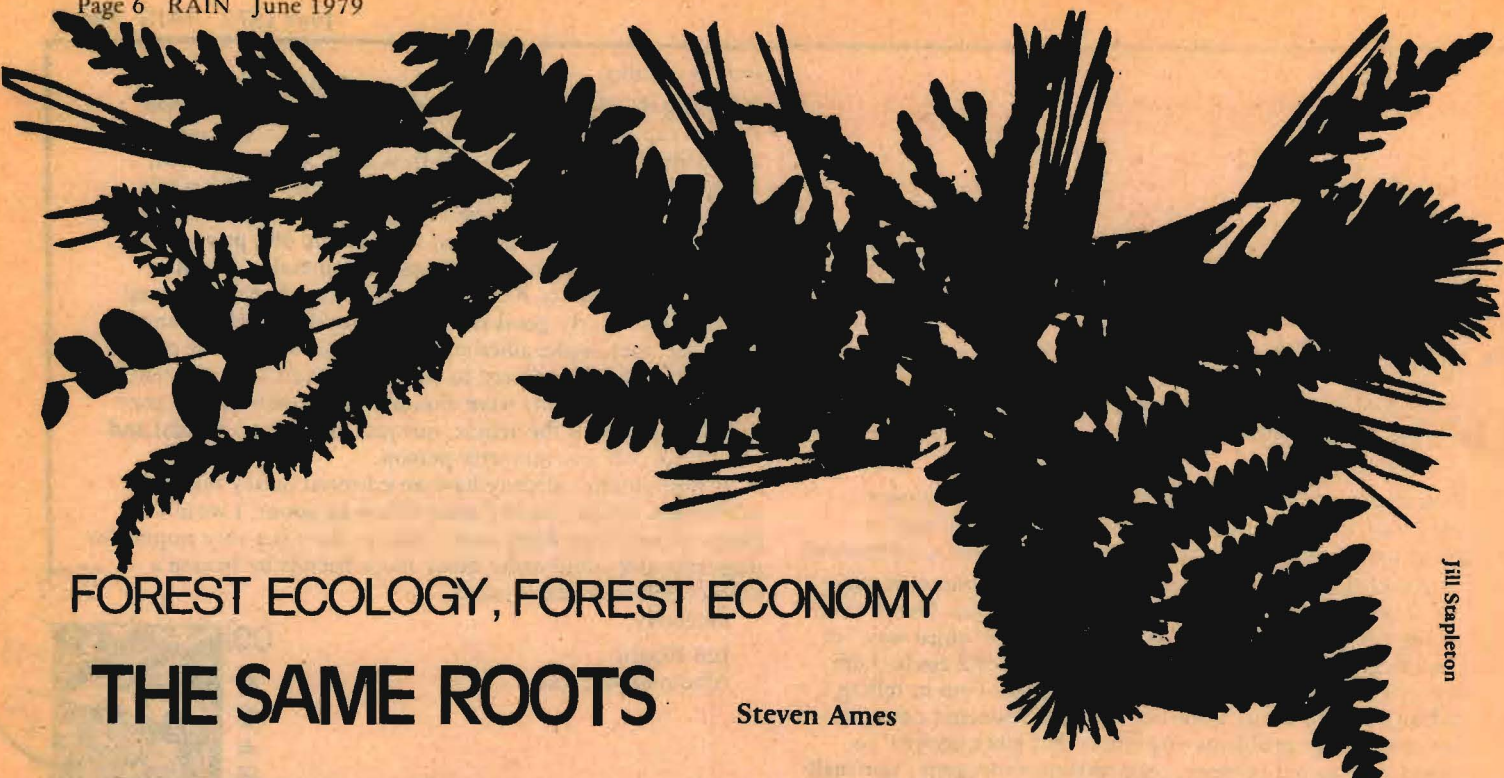


Path" strategy for our country's transition to renewable energy use, will lead this workshop and aid each local energy leader in working on solutions to problems the citizens have identified.

Here are some of the things our LEO's will be doing:

- coordinate and cooperate with any local energy conservation and renewable energy activities initiated by state agencies such as the Dept. of Natural Resources and Conservation, Human Resource Development Councils, etc., and with local projects of civic organizations, citizen organizations, community groups, etc.
- Distribute appropriate materials and information.
- Provide contact between town citizenry and the information materials of AERO.
- Establish and/or publicize a renewable energy library in town.
- Work with the town's schools and libraries.
- Arrange locally for the presentation of slide shows, exhibits, workshops, seminars and other educational activities available in the state.
- Establish and update an annotated listing of all renewable energy projects, businesses, products and activities in the

- area.
- Survey energy attitudes, awareness and knowledge both at the beginning of the project and after a year's time.
- The following LEO's have been hired so far, and will be working out of the offices listed:
- Billings:* Margie Gough, 435 South B, Billings, 59101, Home 259-9915, Office (AERO) 259-1958.
 - Bozeman:* Dale Pickard, c/o Mike Fieldman, Dist. 9 HRDC, Bozeman, 59715, Office 587-4486
 - Hamilton:* Jim Haynes, 1291 Old Darby Rd., Darby, 59829, Office 821-3892
 - Havre:* Ellyn Murphy, Box 1509, Havre, 59501, Office 265-6744
 - Helena:* Paul Mitchell, 1837 Flowerree, Helena, 59601, Office (NWES) 443-7272
 - Miles City:* Connie Krauter, Action for Eastern Montana, 707 Main St., Miles City, 59301, Office 232-2538
 - Roundup:* Monique Mandali, Box 216, Lavina, 59046, Home 575-2275, Office (HRDC) 323-2548
- AERO-West staff person Marta Bensco assisted in the training program, and will continue her work out of Horizon House, 323 West Alder, Missoula 59801. Phone 549-0756.



Jill Stapleton

FOREST ECOLOGY, FOREST ECONOMY THE SAME ROOTS

Steven Ames

In the Pacific Northwest, it's a long way from current extractive forestry practices to the Ecotopian vision of a truly sustainable forestry economy. What we've been allowing has destroyed landforms and watersheds, eliminated wilderness and genetic diversity, and placed blind faith in environmentally disastrous chemical-intensive management techniques. Tree-mining is a dead end proposition. What we need is a forest economy which implicitly respects and nurtures the forest environment—minimizing clearcuts, replacing chemicals with human labor, protecting diverse ecosystems. One big stumbling block in getting there has been our vision's real lack of hard numbers. Policy-makers want proof that good forest ecology won't bankrupt us. Fortunately, that information is starting to come in, thanks to the sound values and serious work of people who start with the assumption that nothing pays better than an infinitely renewable resource base. In the long run ecology is a very economic proposition. As the following reports show, it's about time we started to bank on it. —SA

The U.S. Forest Service's second major Roadless Area Review and Evaluation process, ironically anagrammed RARE II, is now completed. Of 62 million acres of roadless and wild lands considered for continued protection under Wilderness designation, perhaps only 15 million will be preserved as such. Of the balance, 36 million acres are ready to be released for logging, mining and

other development. Among the rationale cited by federal officials is the "economic hazard" of creating too much wilderness.

An Economic View of RARE II, Randal Lee O'Toole, Cascade Holistic Economic Consultants, July 1978, 55 pp., \$3.00 from: Oregon Student Public Interest Research Group 918 S.W. Yamhill Portland, OR 97205

It's unfortunate that *An Economic View of RARE II* has not been given more credence by feds and politicians. In this report Randy O'Toole has used solid economics turned around to show that logging priorities promoted by the U.S. Forest Service are more than environmentally spendthrift—they are cost ineffective. Focusing on Oregon, where 3.1 million acres of roadless land have been brought under scrutiny, this study compares the benefits and costs of development (*the timber industry's willingness to pay for timber v. the costs of building roads, sophisticated logging systems and fire management*) with one easily quantified benefit of protecting roadless areas (*the value of primitive recreation access—demand for which is growing five times faster than demand for timber*). Clearly, primitive recreation access is a non-market commodity for which people are willing to pay—and continue paying. When compared to net timber values and the marginal economies of second growth crops, at least 70 percent and more of Oregon's roadless areas would maximize economic benefits if allocated to wilderness designation. In addition, if monies now invested in roadless area development

were spent on intensive management practices like "pre-commercial thinning" all roadless areas could be saved and Forest Service timber harvests could be maintained at no extra cost.

Sadly, the Forest Service has only seen fit to recommend that 14 percent of Oregon's roadless areas be designated wilderness. They and wilderness advocates everywhere need to take a better look at the straightforward analysis this economic perspective provides. In wilderness there is value—of many kinds.

Long Canyon and the Wilderness Issue, a film by Don Cambou and Tom Sturdevant, 16mm color, 58-1/2 minutes, \$75 rental or \$850 purchase from:

**Don Cambou/Range of Light Productions
Rt. 1, Box 546
Bonners Ferry, ID 83805
free rentals to Idaho residents from:
Idaho State Library Film Dept.
325 W. State St.
Boise, ID 83702**

In northern Idaho's Selkirk Mountains, Long Canyon remains unique. A densely forested granite canyon 20 miles north of the lumber-dependent town of Bonners Ferry, it is the last major wild area in the Idaho panhandle. Its 100,000 acres of pure, undisturbed unroaded—and therefore unlogged—watershed provides a delicate climax habitat in which endangered biotic communities continue to survive: mountain caribou feed on a rare lichen which grows only on old growth trees. Don Cambou's impeccably thorough film explores the To-Log-or-Not-to-Log controversy which has been foisted upon

this quiet place with the initiation of the RARE II process. He has coaxed classic statements from the many factions struggling to determine Long Canyon's future: local chamber of commerce types, logging industry reps speaking at Forest Service pep sessions, and old-time loggers who seem to know the most about what's going on. They tell it straight: without federal subsidization of logging roads, the industry could never justify the costs in logging a place as inaccessible as Long Canyon. "The roads cost more than the value of the timber that comes out." As a local economist adds: it is the rareness of Long Canyon's last stand that gives it value—not the 100 million board feet of lumber that would rip through local saw mills in 1-1/2 years. In contrast to such federal make-work, the Long Canyon film gives us a flavor for those who would harvest timber in a more sustainable forest economy: the old horse loggers and portable saw mill operators who turn logging company waste into surplus value and leave the special places to be . . . special places. A film well worth the viewing.

Saving All the Pieces: Old Growth Forest in Oregon, Cameron La Follette, Cascade Holistic Economic Consultants, March 1979, 144 pp., from:

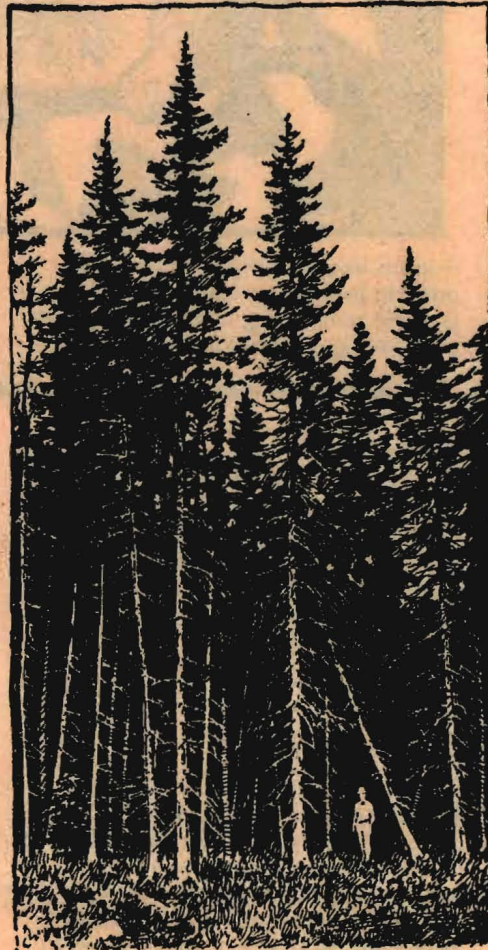
Oregon Student Public Interest
Research Group
918 S.W. Yamhill
Portland, OR 97205

The rapid liquidation of "old growth" forests—now virtually complete on industry-owned forest lands—is another issue that has picked up momentum with the RARE II allocation process. Cameron La Follette's study adds an ecological dimension to the criticism of RARE II by establishing the multifarious values in preserving a reasonable quantity of old growth stands (climax associations of plant and animal communities) including their ecosystem stability and habitat diversity. But old growth often occurs in national forests, not candidates for wilderness, where timber is already being harvested and the Forest Service has no standardized inventories nor policies to adequately evaluate this vital resource. *Saving All the Pieces* speaks to this fact and emphasizes the need to develop an "integrated old growth system" in all National Forests.

In this way, old growth stands would be strategically linked with one another in enclaves and corridors, preserving the genetic diversity essential to the maintenance of forest productivity, but not found in the surrounding, intensively-managed younger forests. Solid research in lay terms.

Cascade Holistic Economic Consultants
P.O. Box 3479
Eugene, Oregon 97403

Economics is no steadfast science, but a value-implicit process—the way we go about allocating scarce resources has everything to do with the end-uses we value most. In focusing on the Pacific Northwest's regional economic base, Cascade Holistic Economic Consultants (CHEC) place high value on that economy which best serves the public interest. Their in-depth explorations of forestry and economic issues affecting public and private lands have helped demystify many complex land management questions and make them more accountable to people. Recent examples of CHEC consulting include appeals of Forest Service timber management plans based on faulty economics and investigations of problems related to nickel mining for concerned citizens



in southwest Oregon and northern California. CHEC also publishes a series of Resource Bulletins on related issues (12 issues/\$8 per year) and its General Forestry Papers such as the *Citizens' Guide to Forestry and the Environment* (Rain, Aug/Sept 1977). For more information on their good work, write to the above address.

The recent Emergency Suspension of the use of phenoxy herbicides 2,4,5-T and Silvex on forestlands, rights-of-way and pasturelands by the EPA was a tremendous validation of the arguments used by anti-herbicide groups concerning the high likelihood of public contamination by such toxins (see Rain May 1978). EPA has used the same arguments in pushing for this ban, which will not be official until a lengthy hearings process is completed. These hearings could significantly weaken the cornerstone on which the forest industry has rested its case for chemical intensive management practices. It is certain that economic and toxicological cost/benefit arguments that consider labor-intensive alternatives will now be paid more attention. It's time to realize that the forestry-based economy is simply not going to fall apart because of a switch away from chemicals.

An Economic Analysis of Herbicide Use for Intensive Forestry Management, Part I: Evaluation of "Forestry Related Impacts of 2,4,5-T in Oregon" by Knapp, Greaves and Chetok, by Dr. Jan M. Newton, March 1979, 17 pp., from:

Northwest Coalition for Alternatives
to Pesticides
P.O. Box 375
Eugene, OR 97440

All good environmental issues must get down to economic questions at some point, and the issue of phenoxy herbicides is no exception. With this report, the Northwest Coalition for Alternatives to Pesticides (NCAP) has initiated a significant effort to expose the unsound economic logic often used by government and industry alike to promote the use of such chemicals as 2,4,5-T in intensive forest management practices. Part I of *An Economic Analysis of Herbicide Use* is a blow-for-blow critique of a widely-quoted report released by the Oregon State Department of Forestry and the U.S. Forest Service Region Six earlier this year, claiming huge drops in timber yields and job losses in the tens of thousands with the banning of 2,4,5-T. Author Dr. Jan Newton concentrates on uncovering errors in that study's timber yield, cost and employment estimates so basic that it ends up looking seriously flawed. Parts II and III of her report, soon to be released by NCAP, promise to provide more of the comprehensive economic perspective so sorely needed in the controversy over herbicides. For the earnestly involved activist, here is analysis neatly and clearly laid out.

Report on Hand Release Contracts 1978 (preliminary report), by Rick Koven and Fred Miller, January 1979, 15 pp., from:

Groundwork, Inc.—Forest Workers' Research Group
P.O. Box 5447
Eugene, Oregon 97405

Hand Release generally refers to those labor-intensive management techniques that can replace the application of herbicides in the forest industry—that is to say, manual methods of preparing a site for “conifer release.” In the emotional controversy over the widespread reliance on the use of herbicides, hand release methods have been grossly misrepresented, especially in terms of their cost. Extrapolated quotes of \$350 to \$1000 per acre are not uncommon. With this initial report, the Groundwork research group has cut into this myth, showing that the costs of employing people in the place of chemicals, though subject to site variance, averages only \$106.85 per acre for contracts let on public forest land in the Northwest. The report also projects the number of workers that could be utilized in accommodating the shift away from herbicides. Clearly, there is great potential for creating new employment in the woods—and the developing workforce—which together could have a significant impact on local economies. If one also considers the qualitative factor, that using human heads and hands at ground level is more ecologically sophisticated and site specific than aerial spraying, then



Reforestation
Helen West Heller

it seems like an important pressuring point to push forest managing agencies to begin transferring significant amounts of money and acreage away from herbi-

cides. The hand alternative deserves the opportunity to prove that it pays. A more in-depth version of this analysis is now in the works.

WOOD HEATING NEWS

Wood Waste

One subject which pops up quite regularly concerns the use of sawdust and wood waste as fuel for furnaces and boilers. What seems to be a surprise is that the idea has been around for some time. From 1910 to 1946, there were many manufacturers of “low tec” furnaces. These simple devices were not burdened with expensive, high maintenance cost and gadgetry. Here are two sources of information:

Saving Fuel in Oregon Homes, by E.C. Willey, Circular Series No. 7, September 1942, Engineering Experiment Station, Oregon State College (OSU).

Rating and Care of Domestic Sawdust Burners, by E.C. Willey, Bulletin Series No. 15, June 1941, Oregon State College (OSU).

Research concerning particulate air pollution is sorely needed. The economics of wood combustion are so favorable that the northern states are finding vast numbers of wood appliances replacing or supplementing conventional oil and electric heat sources.

Some studies just completed (“The Impact of Residential Heating by Wood Stoves on Ambient Air Quality” by Samuel S. Butcher, April 1978) indicate a serious air quality problem may be developing. Some questions which need answers are:

1. Does replacement of fossil-fueled heating equipment with direct combustion biomass fueled appliances increase or decrease the chemical and/or particulate content of our immediate air space?

2. Will the inefficient (often a heat loss factor) use of masonry or steel heat exchanging fireplaces materially increase the use of other polluting sources of domestic heat?

3. Consumer questions concerning better understanding of the connection between creosote, air pollution and heating efficiency.

Many commonly accepted ideas have been verified in recent research. It seems almost a disgrace, however, that the weight of the academic community is needed to point out these axioms of wood burning:

1. Wet or green wood burns less efficiently, creates more atmospheric emissions and accelerates creosote deposit in chimneys.

2. The method of operation of a wood stove is a major determinant related to creosote accumulation and potential air pollution.

The energy crisis we all face dictates a need for groups such as the Solid Fuel Trade Association, Wood Energy Institute, and the Fireplace Institute. To be effective in promoting use of renewable energy, these groups should endeavor to maintain the respect of government as well as those of us in the private sector. A positive consumer orientation of these influential groups will require an image of integrity and reliability and for the benefit of the entire nation should be influenced by the academics and consumerists within our society.

That's Not All, Folks . . .

Despite recent successes in the herbicide struggle, there are several Dioxin-related compounds that have yet to be banned, including 2,4,D and Atrazine. What's more, chemical companies are indiscriminantly introducing substitute herbicides (Krenite, "Round-Up," etc.) which have not been adequately screened for their toxicity. Along with continued massive spraying, inadequate monitoring of health impacts on the local level, and the fact that alternatives to chemical management have not been truthfully represented, the work to promote an ecologically sound forest economy goes on . . . NCAP continues its good work in the Northwest. It is now over 2,000 people strong, with 15 member groups representing a four-state area. News of this network and its activities can be found in its new newsletter. NCAP, P.O. Box 375, Eugene, OR 97440. (Thanks to Marla Gilham)

Back to the gut issue that motivates us to change: deadly Dioxin, "the most toxic molecule ever made by man." We would do well to remind ourselves that chemical forestry is fool's gold—we are reaping large bounties today for a bar-

vest of woes tomorrow. Here are two new views of the dilemma—one long, one short—that leave no doubt that change is imperative:

The Pendulum and the Toxic Cloud: The Course of Dioxin Contamination, by Thomas Whiteside, 1978, 205 pp., \$4.95 softcover, from:

Yale University Press
92A Yale Station
New Haven, CT 06520

An investigative and journalistic development of the perils of herbicide use, *The Pendulum and the Toxic Cloud* focuses on dioxin—from its sinister debut as a military defoliant in Vietnam Whiteside explores the trauma of Seveso, Italy, where a cloud contaminated with carcinogenic and bioaccumulative Dioxin from a factory explosion in 1976 has caused endless and painful complications. The possibilities of Dioxin and Dioxin-like contamination transcend herbicides: it can be found in paints, paper varnishes, fungicides, flame retardants, treated wood products and more. Says author Whiteside, substances contaminated with such toxins need to be treated as long-term chemical hazards comparable to those created by the presence of low-level nuclear radiation. Fascinating, disturbing reading that is too real.

"Herbicides: A Faustian Bargain," by Carol Van Strum, pp. 22-25, *Co-Evolution Quarterly*, Spring 1979, \$3.50 (\$12/year) from:

The Co-Evolution Quarterly
P.O. Box 428
Sausalito, CA 94965

Carol Van Strum is one of the founders of Citizens Against Toxic Sprays in Eugene, Oregon. Her article in *CQ's* section on genetic toxicity is alarming and level-headed at the same time. "Herbicide use amounts to little more than an open ended experiment, in which not only human health and survival are at stake, but the health, productivity, diversity and ecological balance of one of the last great renewable resources on this continent . . . these forests have over millions of years evolved the most efficient possible use of their native soil, climate and terrain, and it is nothing short of arrogance to suppose that we can improve it." Carol's overview steers you through the dilemma to the only real solution: *forest management must be changed drastically, with forest ecology reinstated as the ultimate economic value*

Special Request

I am looking for information about wood-fired refrigeration. Commercial and domestic units were manufactured in this country between 1850 and 1925. Please send any available information to Bill Day, 2270 N.W. Irving, Portland, Oregon 97210.

Several New England stove manufacturers are experimenting with distribution of their products here on the West Coast. Some manufacturers are carefully choosing a small number of quality dealers while others are experimenting with a "shotgun" approach.

Soapstone stoves are mentioned in "Fire on the Hearth" by Josephine Peirce, 1951; however the new Hearthstone is the first one I have ever seen. The exterior of the stove is a beautiful dark green polished stone, while the frame and elaborate interior fittings are constructed of cast iron. Hearthstone Stove Co., Northgate Plaza, Morrisville, VT 05661.

The Waterford Ironfounders Ltd. is expanding their product selection with the addition of a combination fireplace-stove (Model 103) which should be available this fall.

Stove copying may soon become a lost art in the far east. Many U.S. importers whose scruples allow them to sell junk stove copies may meet their "Waterloo" this season. Only a small portion of those imported last year were actually sold to consumers. It is reasonable to expect that prices of "Taiwan Wonders" will be quite minimal as importers dump them on the market this fall.

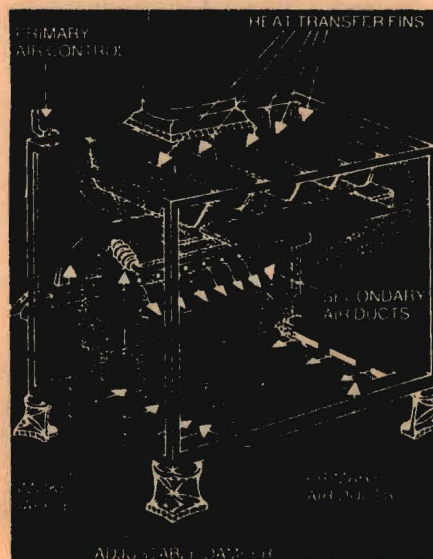
Wood Furnaces and Boilers, Larry Gay, 1978, \$1.00 from:

Garden Way Publishing
Charlotte, VT 05445

This booklet is an informative introduction to Wood Furnaces. Mr. Gay points out that "Few wood furnaces sold today are well known quantities." One exception is built by the Sam Daniels Co., about which Mr. Gay uses such adjectives as "simple," "rugged dependability," and "cheap."

The Wood Energy Institute Annual Meeting held March 22, 1979 was the scene of political maneuvering which effectively produced a new organization. The influence of environmentalists, consumers, and the academic community are no longer well represented on their board of directors. Many people now refer to WEI as the "New Oregon Stove Club" due to the fact that a large percentage of the board of directors hail from such a geographically small portion of the nation. Despite efforts of moderate factions within WEI, President Andrew Shapiro was able, through the sale of \$15.00 memberships at the door of the meeting room, to maintain control of the organization.

It was revealed during the annual meeting that some unsuccessful money raising activities of Andrew Shapiro may compromise the position of WEI in lobbying for alternative energy legislation.



Hearthstone Wood Stove



Can communities develop local solutions to the energy problem? *Future Power*, a program created by the Rocky Mountain Center on the Environment (ROMCO) was designed to test this idea. Three diverse communities were selected to participate—an affluent urban middle-class neighborhood, a low-income rural Hispanic community, and a prosperous rural town. Local citizen steering committees coordinated activities ranging from energy information fairs and seminars to solar greenhouse and water heating workshops. The success of the program varied with the participating groups. The rural Hispanic community experienced a sense of power. Solar units in the area in two years increased from 8 to 200. In con-

trast, the urban middle-class neighborhood, content with the status quo, failed to respond to the volunteer, action style of the project. ROMCO comments revealed that despite the higher-than-average education level of the residents a feeling of political impotency existed. There was a "striking lack of imagination and initiative in generating new ideas." Three very good booklets documenting and critiquing the program are available for \$3.75 from:

ROMCO
1115 Grant St.
Denver, CO 80203
—PC

It's Your Move: Working with Student Volunteers—a Manual for Community Organizations, Action's National Student Volunteer Program, 58 pp., 1976, free from:

Action/NSVP
806 Connecticut Ave. N.W.,
Rm. 1106
Washington, DC 20525
800/424-8580 (ask for NSVP on
Branch 88 or 89)

Having recently recruited some volunteers for RAIN, I have become acutely aware of some of the problems one must deal with when dealing with student interns. This booklet, from the folks at Action, addresses these problems and provides useful suggestions on how to avoid them. Contains various checklists and sample forms which would be helpful to organizations planning to tap the tremendous resources of student volunteers. —YL

MONEY FLOWS WHERE HEARTSTRINGS GO

Having given up the joyful task of D.C. watching for more constructive things, it was interesting to see in Acorn that the National Science Foundation's Board of Directors recommended to Congress not to allocate any funding to them for a.t. Good to see where their values are at after all the hoopla of spending at least a million dollars of our time and money to get people around the country lined up for the non-existent dollars.

A clearer sense of government energy priorities can be found in the following excerpt from an essay by George Salzman in *Science for the People*, March/April '79. (*Science for the People* is published bi-monthly, \$7/year from 897 Main Street, Cambridge, MA 02139.) —TB

An article appropriately titled "Run for the Money" (in the Sept.-Oct. issue of *New Roots*) reports that \$1.2 million will be granted in the fiscal year 1979 (FY79) for the entire region consisting of the six New England states, New York, New Jersey, Puerto Rico and the Virgin Islands. It is estimated that only about five percent of the several thousand proposals anticipated will actually



be funded. Since the allocations are to be proportional to the populations of the individual states, the total national figure should be just about \$6 million.

Small is in this case not only *not* beautiful, but parsimonious in the extreme. The Research and Development (R&D) part of the DOE FY79 (this is turning into alphabet soup!) budget is \$5.4 billion. Thus the DOE is spending just a bit over one-thousandth of its R&D pie for a.t. When one keeps in mind that this is the *only* technology which would not promote continued corporate control of energy supply and distribution, then it is manifest that the DOE expends nearly all the resources at its disposal to maintain corporate capitalism. Let's see how the R&D pie goes.

The part of the DOE R&D budget for all aspects of nuclear power amounts

to \$3.2 billion, just over 59 percent. Then, in descending order, fossil fuels energy takes \$6.7 hundred million, 12.4 percent; solar \$4.4 hundred million, 8 percent; conservation \$3.9 hundred million, 7 percent; geothermal, \$1.6 hundred million, 3 percent; biomass \$42 million, 0.8 percent; hydroelectric \$28 million, 0.5 percent; and finally, last and least, a.t. \$6 million, 0.1 percent. Although it is true that some of the other R&D categories may have limited spin-off contributions to a.t., it is clear that the *intent* of the funding allocations is to support large corporate interests.

In order to distribute the a.t. small grants the DOE is establishing a sizable bureaucratic grant review procedure involving active participation by a.t. activists. The overall picture which emerges is that of the federal government taking, through taxes, at least \$1,150 per person, most of which will come directly from us, and then to signify its desire to help us achieve local community self-reliance through the development of a.t., "giving" us 3¢ per person of "federal money" through a highly competitive process that itself will consume much time and energy of a.t. activists.



Decisions concerning the type of product manufactured by a company, its marketing techniques and the price range have traditionally been made by management. An exception is the worker owned and controlled corporation where employees are both labor and management. However, most company employees' influence on corporate policy has been limited to collective bargaining over terms and conditions of employment—wages, hours and benefits. Some progress has been made in the area of occupational safety. The idea of employees evaluating a product based upon its social usefulness would be considered heresy in most corporate executive circles. Well, the shop stewards of the British multinational corporation Lucas Aerospace are challenging those assumptions. Faced with the possibility of mass layoffs in 1976, they responded positively by drawing up an alternative corporate plan. The Lucas Aerospace Combine Shop Stewards Committee recommended that the company diversify through the development of socially relevant products. The criteria being energy conservation, ecologically soundness and labor intensiveness. The Lucas Company management refused to consider the proposals. The film, *We've Done It This Way, Haven't We*, interviews members of the shop steward committee and documents the resistance of the Lucas managers.

Since then, a new plan, *Turning Industrial Decline into Expansion*, has been drafted by the shop stewards under the auspices of the Confederation of Shipbuilding and Engineering Unions (CSEU). The CSEU, unlike the original shop stewards committee, is officially recognized by the company. The report which is described in *Undercurrents* (April-May '79, \$9/yr. from Undercurrents Ltd., 27 Clerkenwell Close, London, E1R0AT, Great Britain) examines three areas—the Lucas Aerospace Corporate strategy, the social cost of unemployment and alternative products. Two of the report's points are particularly applicable to plant layoffs in the United States. First, the economic cost to society of people not working (unemployment pay, loss taxes, retraining, etc.) is about the same as keeping someone employed. Second, public subsidies to corporations in the form of regional development aid, investment grants and deferred taxes should not be considered handouts, but should be subject to some sort of democratic accountability.

In recognition of their initiative, the Lucas Combine Shop Stewards have been nominated for the 1979 Nobel Peace Prize. Currently, a joint union-company committee is carrying on discussions about the proposals put forth in the plan. The issues raised—the right

to useful work and corporate and worker responsibility for the products made—are crucial and deserve more attention in this country. To follow up on these ideas, write for:

We've Always Done It This Way, Haven't We?, by ATV Television, Great Britain, 1978, 16mm, color, 52 min., rental \$70, donation from:

California Newsreel
630 Natoma St.
San Francisco, CA 94103

Turning Industrial Decline into Expansion, available for 4.50 pounds trade unions, 10 pounds others, from:

CAITS, NELP
Longbridge Road
Dagenham, Essex
Great Britain

—PC



Responsible Work

Alternative Corporate Plans

The following steps are for developing your own alternative corporate plan, from Voice of the Unions Newspaper (38 Corbyn Street, London, N43BZ, Great Britain, \$5/yr.) —PC

From the experiences gained so far, there seem to be a number of steps which are gone through in developing workers' plans:

- Researching into the corporation's markets: Government customer/sales

subject to political pressures?/Overcapacity?/Outmoded products?/Unsafe or unhealthy products?

- Researching into the organization of production: Increasing overseas production?/Concentration of "best" products in unorganized greenfield sites?/"Self-fulfilling" downturns in productivity?

- Researching into the corporate financial strategy: Transfer pricing?/Management-induced "losses" in UK plants?/Substitution of labor with capital equipment?/Concentration of productive resources in a few lucrative areas starving rest of organization?

- Researching into the labor process: Labor displacement by plant or "ra-

tionalized" working methods?/Automation and systematic de-skilling?/Work fragmentation?/Expropriation of job skills by computer systems?/Increasing workplace and stress?

- Researching into social needs: Local community needs—no bus spares?/Substituting a better-designed product (e.g. bakery workers' campaign for real bread)?/New designs for Third World, non-obsolescent "durables", etc.?

Obviously not all of these "stages" are necessary in all cases, or at least not in the early stages.

by Tom Bender

I.

Sitting down to write this morning, I've become aware that my perceptions have made another distinct shift over the last few months. Seeing a full-page "definition" of a.t. in a government proposal, I flashed back to Schumacher's four-word definition—simple, sustainable, small and non-violent. I realized that my own sense of "appropriate technology" had shifted to "what follows naturally in the absence of special conditions favoring largeness, concentration and exploitation." A.T. does not need our close attention now. It will flower whenever it is not crushed. It is the favoritism towards bigness, and its causes, that now needs our attention and action.

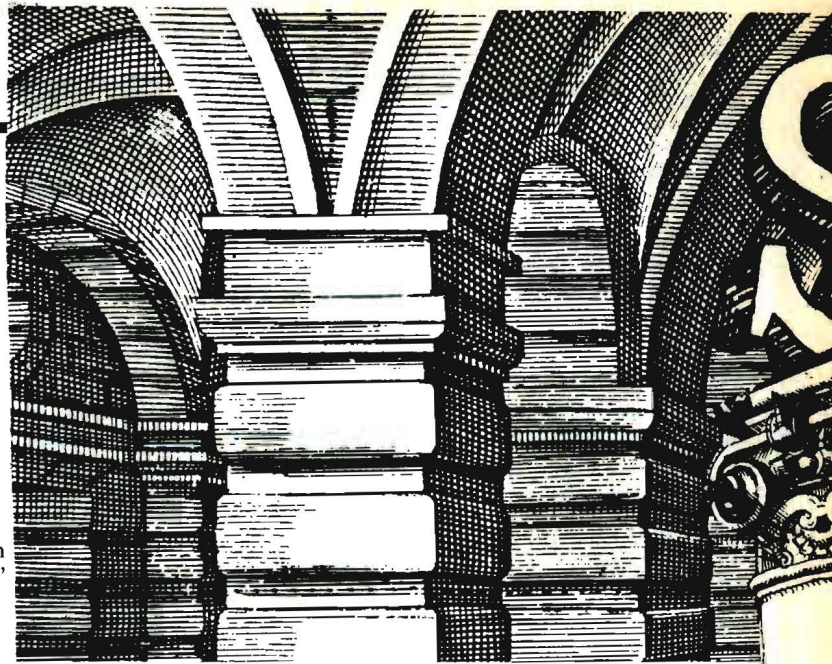
The words of Frances Moore Lappé and Joe Collins ring ever clearer—"The introduction of *any* profitable technology in a society riddled with inequality only worsens that inequality." What must now be dealt with is not legislation and subsidies favoring a.t., but correcting and removing the regulations, subsidies, practices and beliefs based on exploiting people, resources, and our future for the benefit of a few. A token federal solar tax credit is fine, but in its next breath Congress turns around to deregulate oil and hand the oil companies a \$45 billion windfall. A battle of subsidies and legislation is a battle of power, and without enough of us knowing how we're being milked and bilked; who's doing it, how and why; how power flows and is exploited in our society; and how to create alternatives, we don't have a mouse's chance in an elephant dance to have any effect.

What we're concerned with is a good society and how to obtain and sustain it. Our development of technological alternatives has revealed two important things. It has shown how technological choices have been exploited by decision-makers to serve the benefits of powerful and wealthy interests. And it has made it clear how technologies have been developed and the institutions of our society reshaped specifically to further the domination of wealth and power.

Nuclear power has been consciously promoted to provide subsidized energy to continue automation and elimination of jobs to undermine unions. Below-parity farm price supports have been shown to have been a specific action directed to force into bankruptcy small farmers without access to tax favoritism of large farmers. Health insurance has made the doctors wealthier, not the patients. Credit buying has raised prices by almost 20 percent—that's quite a service to the shopper. We have had the livelihood of a third of our farmers taken away by legislative edict. We have had citizen leaders assassinated by our government's FBI and CIA agents. We have supported fascist dictators and murdered democratic leaders of other countries. There is much that does not show in our newspapers and TV, and much that needs fundamental change.

A single company (GM) has the power to blackmail the railroads into purchasing their locomotives or lose the shipping of 40 percent of all autos built in the country, and to repeatedly buy off anti-trust suits by the Justice Department. Fifty companies (that's the equivalent of *one* per state) now control 90 percent of the profits in food manufacturing in the U.S. The largest two—Unilever and Nestle S.A.—are not even U.S. companies. That concentration of power is a threat to every citizen. Ironically, that power represents and has been built by our own money. We are having our land, our livelihood, and our freedom taken from us and given into the hands of an elite and unscrupulous minority who have shown again and again that they seek only their own benefit and are callously indifferent to the rights and needs of others.

But in the flowering of every dream lies the seed of its own downfall. The maturing of Corporate America has made

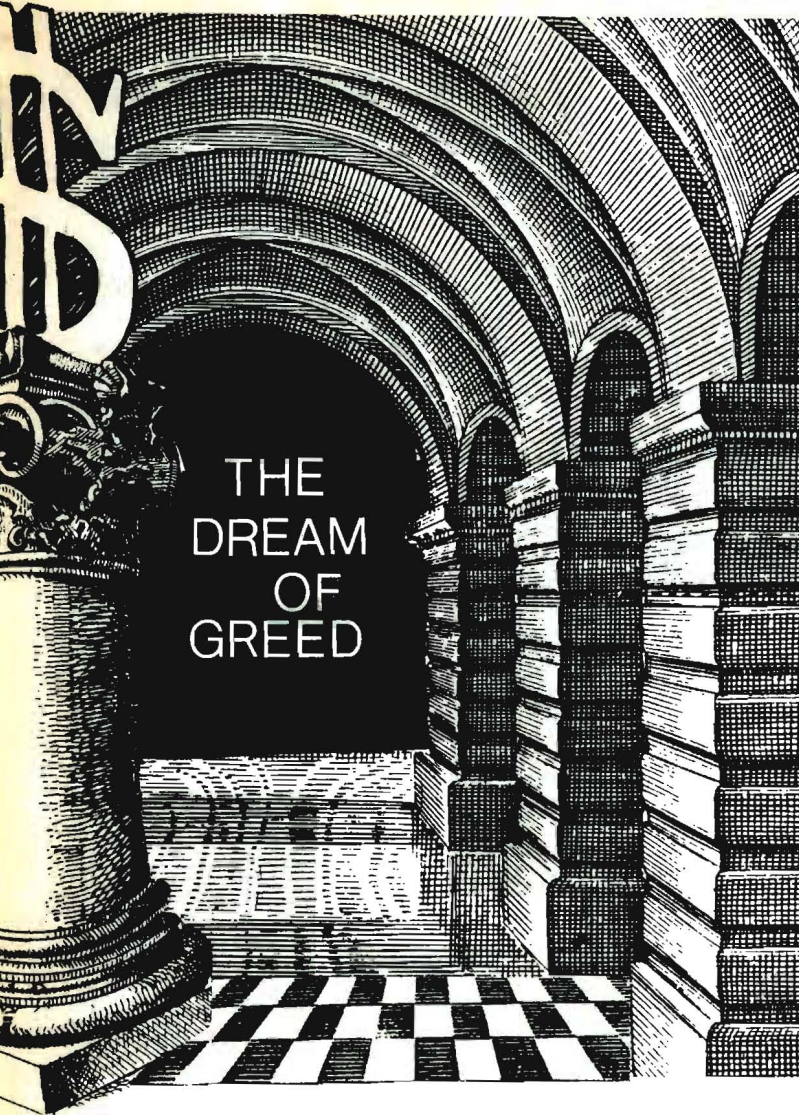


its culmination ever more apparent. And in the act of ruling America, the rulers have shown their hand. With visibility comes understanding and reaction. Already strong and healthy manifestations of alternate dreams are emerging that can restore balance to our society. Our first task is understanding—as free from our own preconceptions as possible—both the realities of what exists and of what can be. And with it comes our main task, the construction and evolution out of the different beliefs, understandings, dreams and fears that each of us hold, a truly democratic, egalitarian and sustainable society that raises our spirits rather than our debts.

The debates and feelings that run high between Capitalism and Socialism and Democracy and Communism and Left-Wing and Right-Wing and Broken-Wing are largely manufactured and hollow struttings, seeking small differences where sameness predominates. A bureaucracy, whether corporate or governmental, is still a bureaucracy. Do they differ, or do they share being a problem? Is Capitalism or Communism better to live under, or have they both dismal records of being merely concerned with materialistic expansion of our society? Are the huge farmer's co-ops that have squeezed other farmers out of business any different than Corporate America? Is or isn't there a fundamental difference between a Ma and Pa grocery, a Plaid Pantry and a co-op, all of which sell at the same scale and prices? Is making-a-living self-employment Capitalism the same as making-a-killing Corporate Capitalism? If a Right-Wing group grabs the issue of controlling government spending before a Left-Wing group, does that make the idea suddenly evil? What differences are there between a nationalized industry and a government-regulated monopoly? Our simple ideologies don't work.

Any institutional system grows lax and sloppy and fossilized over time—regardless of its ideology or initial behavior. A renewal process and change from one institutional form to another seems essential, as in any living system. A mixed political/economic structure, keeping alternatives alive and flourishing side by side, is probably valuable to keep each element lean and strong. Citizen participation always seems to fall off when problems are under control—why not? Red Bologna would have no pressure to be exemplary if all of Italy was Communist—would it continue as well with its problems largely solved? The success of the Revolution in China has bred new problems, as has the success of Capitalism in the U.S. When we talk of politics, we find it hard to talk in the same breath of art, poetry, music, dance, architecture, gardens or beauty, yet the political/economic structure is the structure that makes the other achievable, or even thinkable.

Jill Stapleton



THE DREAM OF GREED

We need perhaps to be more pragmatic—seeking realistic solutions to our real problems free of ideologically colored glasses, and looking at the reality of proposals rather than their labels or sponsors. We need to continue our stumbling way step-by-step to awareness of more basic causes of our problems, and in turn to the vision to find clearer, more workable and effective solutions. It's getting time to move the game onto the other players' turf. It's *our* turf, really, and we want it back.

It's curious, in a way, to have come full circle to the old "Capitalist Greed" and "class struggle" territories. Yet it's coming to those arenas now with documented evidence, the self-proclaimed words and deeds of our business and governmental leaders, and real-life proof of the failures of our accepted traditions. We have a clearer sense of that politics of power and how it has taken advantage of us, a broader and experienced range of alternatives, and technology and energetics to support new ways of doing things. We're finding, it seems, that the technology of a sustainable society and the power to exercise it must be sought together.

II.

I stopped writing here last night. The above seemed true but incomplete. Corporate America, and exploitation by the ruling class of Americans have definitely been central mechanisms in the deterioration of our society, and need to be dealt with. But that doesn't reach deeply enough into the problem. Why have we allowed such things to develop and prosper? Why have we not been galvanized into indignant reaction at past exposure of these activities?

It is, I think, because we have been guilty of the same dreams. Haven't we all sometime imagined what we would do if we had a million dollars—and had no qualms about that being more than we need, about the effects of having so much more than others, or about where the wealth would come from? Most of us have prospered (in small degree relative to the corporations and the wealthy, but prospered nonetheless) from corporate exploitation of other material and human resources. We have been, if anything, admiring and envious of the greater success, luck, or ability of others to achieve what we have only dreamed.

But now the implications of dreaming those dreams are becoming apparent as a result of their successful pursuit. And it is only now, as we begin to reject such dreams personally, that we discover their hold, discover alternate dreams, and discover what they can do to resolve our intractable problems. Nuclear energy could only be successfully dealt with when we had moved beyond the dream of limitless comfort and ease it promised. And that happened only when the limitations of that dream and the consequent side-effects of its means became apparent. The same is true of wealth-based economics.

To change the means we must change the ends. Within the system we accept, there are no significant alternatives. Our only real alternative is to accept a different system, serving different goals and arising from different dreams.

Greed fails as the basis of society as its consequences become known. Greed means the eventuality not only of combative and exploitive personal relations but of great inequities of wealth and power, and the end of a democratic society. It makes impossible humane cities, socially benign transportation, or respect and loving care for non-productive elements of society and nature, and so on. . . .

Our failures in resolving such unsolvable social problems are tied to our unwillingness to dig deeply enough into their causes. Doing that we will find, as Bologna, Italy, has found, and as others are finding, that new and effective answers arise easily from new assumptions. Good transportation will come only when we put humane cities above the profitability of the auto industry. That means we stop trying to *accommodate* the auto and its destruction of our cities and start to locate business, home and shopping to avoid need for transportation, and then regulate the auto into its proper place relative to other transit. The automobile won't go away on its own. There's too much powerful self-interest behind it.

We'll find, as countries such as China have amply shown, that to eliminate poverty you must improve the lot of the poor, not improve the lot of the rich with the assertion that the wealth will "trickle down" and improve the lot of all. Wealth is *relative*. It is not how much you have, but how much *relative to others*, that makes you powerless or powerful or distributes power equitably in a society. And counter to our development claims, the productivity of the poorest and most backward sectors of a society can be improved most inexpensively and most easily—if what we *really* want is *their* well-being. So far we haven't.

Our modern cities seem to be endlessly in the midst of one crisis or another caused by striking taxi drivers, firefighters, garbage collectors, teachers or some other group that has realized the ability of *any* element to paralyze a complex and interconnected modern city. We seem unable to do anything but capitulate to their demands or engage in a long and bitter combat. Yet if we didn't believe so strongly in greed ourselves and sympathize with the strikers' attempts to exploit their power, we could easily resolve our dilemma. If we believed that equity of income and wealth was reasonable, we would have massive public support against any contract agreements paying more than the average income in the city, and equally strong support for raising incomes below that average. We would learn quickly the effectiveness of practicing *Top-Down Equity*—throwing out politicians, business execu-

MR. APPROPRIATE

© 1979 - R. CRUMB



THE ORIGINS OF MR. APPROPRIATE

FRED GRIZBEE WAS NOT ESPECIALLY INSPIRED BY HIS JOB AS A CLERK IN THE P.U. PLASTICS CORPORATION... IN FACT, HE WAS A TYPICAL NEUROTIC WRECK FROM THIS JOB!!

FOR ONE THING, HE WAS OBSESSED WITH FEAR OF CANCER FROM ALL THE CHEMICALS HE HAD TO WORK AROUND...

WHAT'S THIS BUMP ON MY NECK?? MAYBE IT'S JUST A HARMLESS PIMPLE...

... THEN AGAIN, MAYBE IT'S... MAYBE IT'S... C-C-CAN... CER!!!



ONE DAY A NEIGHBOR ASKED FRED IF HE'D LIKE TO WORK IN THE NEW CO-OPERATIVE GARAGE THAT WAS STARTING UP IN HIS NEIGHBORHOOD. SO FRED RELUCTANTLY GAVE UP HIS 'JOB SECURITY' TO JOIN IN THE NEW VENTURE.

GOOD BYE AND GOOD RIDDANCE!



EVEN THOUGH THE MONEY WASN'T AS GOOD, FRED WAS MUCH HAPPIER AT THE GARAGE. HE ENJOYED WORKING WITH HIS HANDS, AND THE BUSINESS WAS OWNED BY THE CUSTOMERS AND EVERYONE WHO WORKED THERE, AND FRED GOT TO HAVE A SAY IN THE DECISIONS.

HEY YOU GUYS LET'S KNOCK OFF AND GO HAVE A BEER!

I SECOND TH MOTION.

I THIRD IT!



tives and others who demanded or accepted more than that average. "If they can't live on what an average New Yorker (or Alabaman, or teacher, etc.) makes, how can they claim to be competent to represent us in Congress (or City Council, or school board)?" It's much more reasonable to lower the income or wealth of the few wealthy to achieve equity than to increase the income of the many poor—and much more realistic than to depend on "future economic growth" to make us all equally wealthy.

The alternatives to greed as a basis for our society are equally obvious and ancient—Equality, Respect, Justice, Moderation and Honesty. We're learning, in the effects of their absence, their necessity for the survival and well-being of our society.

Here are a few gleanings from my past month's diggings, with lots of details. More will follow.

Global Reach, Richard Barnet and Ronald Muller, 1974, \$6.95 from:

Simon & Schuster
1230 Avenue of the Americas
New York, NY 10020

The claims and the realities of multinational corporations and their destructive effects on both the U.S. and underdeveloped countries that have resulted in worsening conditions in both areas, while exponentially increasing their own power and wealth. This has the details.

Food First, Frances Moore Lappé and Joseph Collins

Institute for Food Development Policy
2588 Mission
San Francisco, CA 94110

A more detailed analysis of one sector—food—showing the interweavings of corporate ownership, control, propaganda and effect. Clearly shows the impact of changing our assumptions, and what can follow from taking people rather than profit first.

Red Bologna, Jaggi, Muller and Schmid, 1977, \$4.45 from:

Pathfinder Press
410 West Street
New York, NY 10014

The impressive achievements of Bologna show what is possible when a community reevaluates its assumptions as well as its problems. Bologna's 30-year-old freely-elected communist administration—the oldest in Italy—succeeds not only in getting more public participation and support for its innovative projects than any U.S. city, but is making major headway toward workable and fundamental resolution of urban problems. Democratic and decentralized government works in Bologna, and humanely. They've banned chain stores, but set up modern local shopping centers with local merchants. They have instituted free public buses during rush hours, banned autos from two-thirds of the streets, and taken strong planning action to minimize need for transport by keeping home, work and shopping close. They've restored rather than destroyed the historic urban center, de-institutionalized social

HE DIDN'T BELONG TO A PRE-PAID HEALTH PLAN ANYMORE. BUT NOW HE WAS MORE HEALTH CONSCIOUS... HE STARTED RIDING A BICYCLE TO WORK AND SOMETIMES HE EVEN WALKED!!



FRED WAS REALLY GETTING IN SHAPE! HE EVEN BEGAN HELPING HIS WIFE IN THE GARDEN... HE WAS DEFINITELY A CHANGED MAN!

WE'LL HAVE THIS SECTION DUG UP IN NO TIME!

JEEZ! TAKE IT EASY, FRED!



HE WAS GOING ALL OUT... HE SOLD THE FAMILY'S EXPENSIVE, ENERGY-GOBBLING SUBURBAN HOME AND JOINED A HOUSING CO-OPERATIVE. THE BUILDING WAS OWNED BY EVERYONE WHO LIVED THERE, WHICH MADE EACH ONE'S PAYMENTS ALMOST NOTHING. THEY USED THE EXTRA MONEY TO FIX THE OLD HOUSE UP...

WELL, HERE WE ARE, KIDS! IT NEEDS A LITTLE WORK, I'LL ADMIT...



NEXT FRED TRADED IN THEIR BIG OLDS-MOBILE AND BOUGHT A SMALL FOREIGN CAR THAT HE COULD WORK ON HIMSELF. EVERYONE IN THE FAMILY HAD BIKES SO THAT SOMETIMES MANY DAYS WOULD GO BY WITH NOONE USING THE CAR AT ALL!

YOU CAN HAVE THE CAR TODAY IF YOU WANT, FRED!

NAH, THAT'S OKAY... YOU CAN USE IT...

NO REALLY! GO AHEAD! TAKE IT!

NO, YOU TAKE IT!



We often become so involved in the seriousness of issues that we lose touch with the joy of living. In making our point we can sometimes turn people off. Humorous comic strips like Mr. Appropriate by R. Crumb in the regional a.t. publication Winds of Change (P.O. Box 428, Winters, CA 95694) keep the

soul floating lightly. Theater, music and illustrations are often more effective than rational arguments in altering people's perceptions. Obviously, both are needed. Ms. Appropriate, I know you are out there, too. —PC



services, lowered housing costs by 30-40 percent, and integrated producer and consumer co-ops to eliminate intermediate profits. All this and more, on a shoestring, within a chaotic economy and with strong opposition from the national government. A lot of fresh, pragmatic and incisive thinking and actions. A valuable handbook on how to enact good programs within a structure based on different principles. Highly recommended.

"What's Good for General Motors Is Good for General Motors," Glenn Yago, *In These Times*, April 18-24, 1979, back issues \$1 from:

ITT
1509 N. Milwaukee Avenue
Chicago, IL 60622

Here's the other side of the transportation picture—how our own transportation system and half of the land of our cities was transformed to maximize the profit to GM rather than that of people. Details of GM's takeover and destruction of Los Angeles' exemplary electric railway system and those of many other cities (documented in Bradford C. Snell's landmark study on *American Ground Transportation*, prepared for the Senate Anti-Trust Subcommittee in 1974) through converting them to GM buses, whose high operating costs bankrupted 90 percent of the systems. Yago lays out the long history of attempted anti-trust actions against GM and how they were stopped or turned into a tool for controlling weaker competitors. Jury tampering in anti-trust suits, buying off Justice Department lawyers, quashing of anti-trust suits at high government levels, new monopolies in bus and locomotive con-

struction—all the drama is present that you would expect in a well-documented history of this kind.

In These Times, weekly, \$19/year from:

In These Times
1509 N. Milwaukee Ave.
Chicago, IL 60622

Billing itself as an independent socialist newspaper, ITT avoids most of the rhetoric of "left" publications and presents excellent coverage and perspectives on significant news that is rarely found elsewhere. Well-researched, well-written and valuable. Currently my best source of leads, clippings and thought-starters. Well recommended balance to the muffled voice of most American newspapers.

The Rockefellers: An American Dynasty, Collier and Horowitz, \$2.75 from:

New American Library
1301 Avenue of the Americas
New York, NY 10019

A thorough and balanced history of the most famous American economic dynasty, providing many insights into the accumulations, wielding and yielding of power. It gives a deep sense of the impact which opportunities and demands of wealth and power have on various individuals and generations, and it reveals much of the complex interweavings of government, industry, foundations and universities that have been used to create and manipulate public opinion and governmental action in the interests of the wealthy. We're left with an excellent feeling for the web and flows of power as we've practiced it—an essential base for any changes.





**The Journal of the New Alchemists—5, \$10 from:
The New Alchemy Institute
P.O. Box 47
Woods Hole, MA 02543**

This year's journal is out now, and good as ever. Many of their innovative systems have now been refined and simplified to the point where their real effectiveness is becoming apparent. The sailing water-pumping windmill, with new blade, tower and pump details, seems ready for wide application. The pros and cons of the Hydrowind wind generator at PEI based on hydraulic systems are laid out, with feelings now that it is still technically promising but too inscrutably complex to encourage other innovators and applicators. The Arks are performing magnificently. Aquaculture techniques are being applied in remote areas of Costa Rica and the Washington Cascades. The gem of this issue is Earle Barnhart's "On the Feasibility of a Permanent Agricultural Landscape," exploring the requirements for sustainable agriculture. Excerpts follow, along with Earle's excellent bibliography on agricultural forestry for our friends working in that area.



An agricultural landscape incorporating the interactions of mixed-age agricultural zones or ecological islands would include at least four basic functional types:

Protective elements, in which permanent plant communities act to moderate forces of wind and water to prevent erosion.

Productive elements, the grain fields and gardens, meadows and orchards, intensively managed for food production.

Regulatory animal habitats, plant communities or physical structures which provide shelter and food for useful animal species such as predators, parasites and pollinators.

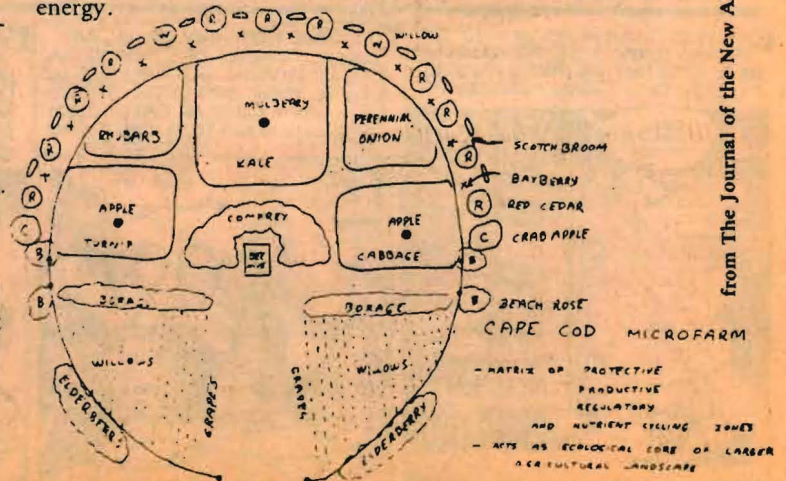
Nutrient cycling elements, species or communities which strategically retrieve leaching nutrients, fix atmospheric nitrogen or convert waste products from other zones (such as human wastes) into nutrients useable for fertilization.

Broadly considered, the critical variables of design in any location are the relative proportions of space allocated to protective, regulatory, productive and nutrient-cycling zones, and the percentage of net primary productivity removed annually from each zone. We have a few approximate values for the protective and regulatory functions. Optimum benefit from wind protection occurs when one to four percent of the acreage is in permeable shelter belts. Erosion control calls for terracing or permanent vegetation on slopes steeper than eight percent. As for pollination, standard practice in commercial orchards is to have one strong hive per acre. Optimum fruit-tree cross-pollination occurs when one out of five evenly distributed trees is a different variety. All soil conservation practices such as windbreaks, sod waterways, hedges and stream bank vegetation are known to be favorable to wildlife, vegetative cover being the basic source of food and protection. Bird habitat and nesting sites are simultaneously fostered. Other accepted woodland management practices specific to wildlife call for three to four animal dens per acre, two to three protective brush piles per acre, five to fifteen percent of an area in wildlife food plants, and a fifteen to twenty foot shrub zone between woodlands and fields. Combining wind-break functions with wildlife food plants and assuming the substitution of domestic animals for larger wildlife, the protection/pollination/regulation area required may tentatively be limited to five to ten percent.

The remaining production and nutrient-cycling areas must be managed for sustainable yields of food and materials. Odum states that, in a natural eco-system, with no human management or auxiliary energy inputs, the biotic community seems to require fifty to seventy percent of net annual primary productivity to maintain current levels of environmental stability. If none of the net biomass is removed, the ecosystem stores energy and nutrients in the biomass.



... We are extending the scope of our agriculture to include field crops, tree crops, ponds, agricultural forests and terrestrial animals into more highly-integrated landscapes. Initial experiments will consist of selection and evaluation of biota, stressing local hardiness, ease and speed of propagation and rates of growth. Plants and animals will be tested for ecological compatibility in such combinations as rapid local cycling of plant and animal wastes into food chains, increasing ecological stability over time and multiple-function of each component. Particular emphasis will be towards self-regulation and maximum benefits from inputs of auxiliary energy.



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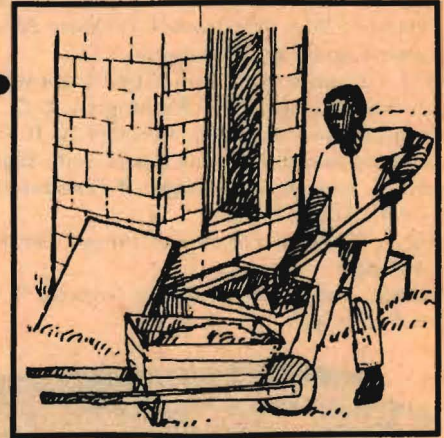
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TAKING NO MORE PIPE

BY TOM BENDER



It's a real relief and joy, after eight years of helping work toward the acceptance of sewerless sanitation, to be finally making our own modest contributions to the fertility of our soil instead of to someone else's pollution problems. It's rewarding to see the progress that has occurred since those early days when we first began to speak to people about "unmentionables." Starting with Maine's pioneering revision of its plumbing codes in 1974, compost toilets and other alternative treatment systems have become legal in several states and are undergoing experimental application in others. Federal funding support has at least nominally been turned around from favoring expensive central sewers to emphasizing on-site treatment methods. Our knowledge of things ranging from life in a compost pile to soil adsorption of viruses to wastewater management district organization has expanded greatly, as has the availability of that information.

Several thorough testing programs are currently underway, and user experience with various owner-built and commercial designs is developing useful feedback on design and operation of various units. Most importantly, people are thinking more deeply about the processes we set in motion, and developing a whole range of alternatives to fit people's varied attitudes and existing conditions.

Since February of this year, California's Office of Appropriate Technology has been carrying out the second phase of its sewage alternatives research—a one-year monitoring program of numerous installed dry toilet and greywater systems around the state, including a strong representation of owner-built designs. When completed early next year, this should finally make evaluation of various low-cost owner-built systems available.

The Small-Scale Waste Management Project at the University of Wisconsin continues to produce detailed technical information on sewage and greywater composition and the effects of different treatment options from their continuing research program.

Progress reports from Oregon's experimental on-site systems program, along with observations of staff of the OAT project and the Maine Division of Health Engineering correlate with previous reports from owners—the large units (Clivus, Toa-throne) seem to generally operate satisfactorily after initial startup accumulations of liquids. In contrast, small units (such as Ecolet and Biu-Let) have met with severe operating problems except in very light-use situations, and have a very high rate of owner removal. The main problems—encountered in some degree with most units—seem to be odor, flies, and liquid build-up. Most units that depend on ventilation or composting heat to evaporate liquids have found it necessary to install wind turbine ventilators or electric fans to assist the process. Odor problems from properly vented and installed units seem frequently to stem from air pressure conditions in the buildings—exhaust fans in bathrooms or fireplace operation sucking air in through the unit. In the large units fly, odor and moisture problems seem to be only startup problems be-

fore buildup of enough predators and compost mass. Early Clivus problems in New England stemming from lack of insulation have reportedly been corrected and are no longer a problem. Expectations of totally trouble-free operation from various compost toilets, and lack of troubleshooting experience, has caused a small number of dissatisfied users in addition to the installation of inadequately sized units, but the majority of owners seem pleased with their installations. Whether the units will become trouble free enough to gain wide consumer acceptance still remains to be seen.

Another useful innovation, pioneered by the folks at ECOS in Boston, is the use of solar energy to assist urine evaporation—either in the form of a solar thermal chimney to augment ventilation, or the use of a solar air preheater for ventilation air to maintain composting temperatures, assist ventilation and improve evaporation.

Experience with our own drum privy, in use now for 4 months, has so far been good. We still feel a bit cautious about it—not certain how much use and abuse it will really take. It rarely smells at all—and then mostly the box of straw for adding to the pile. It seems almost magic that what we've talked about for so long actually works. We're still holding our breath in disbelief/relief and wonder if it will last!

Experience with greywater systems seems much less developed at this point. One of the simplest, at the Farallones Urban House, has been in satisfactory operation for 4 years now, but does not include sink wastewater (with high grease content), and is used only in the dry summer months for garden irrigation. It combines flow from a urine toilet with bath/shower water, settles it in a 55-gallon drum, then applies it direct to the garden through a hose with a cloth filter bag on the end, which needs weekly cleaning.

The conditions that greywater systems must fulfill are much more varied than those of dry toilets. Three- or four-fold difference in water use occurs from family to family, and the use or absence of garbage grinders significantly affects treatment needs. Intended uses of greywater—for garden irrigation, household reuse, subsurface disposal or surface disposal into public waterways—all demand different treatment.

Nitrogen or phosphorus in water discharged into public waterways are pollutants to be removed—for garden use they're welcome nutrients. Water quality needs to be better for sur-



from Sanitation Without Water

face discharge than for subsurface because of people and other creepy-crawlies coming in contact with it. One irony is that most discharge standards are presently based on *concentration* of pollutants, not their total quantity being discharged. By removing toilet and kitchen garbage from the waste stream and reducing water use—both desirable actions—you can end up with higher concentrations (though smaller total quantities) and require more treatment!

Many people interested in installing alternate waste treatment systems are upset at greywater disposal requirements—both Oregon and Maine allow only 1/3 reduction in septic and leach field size for greywater-only systems. While this is a rather conservative requirement, we often forget that under-use of such systems makes them last much longer. Though you don't save much money on original cost, you save on later maintenance and replacement costs.

Grease traps of some kind have been found by most people to be desirable if kitchen sinks are connected to the greywater system, regardless of the ultimate disposal method—unless they are willing to do a considerable amount of maintenance work. For smaller systems, trickling sand filters and mixed media filters employing various sizes of sand and gravel and/or charcoal, etc. are getting widest testing, but with no conclusive results yet. We initially built ourselves a 55-gallon trickling sand filter, but the first one didn't have enough pea gravel to support the sand, so the sand filtered out along with the water. Our second attempt worked fine until it clogged and we learned the difference between extra fine dune sand which we have—an excellent filter, but clogs easily—and medium sand, which is a good balance between good filtering and non-clogging. We currently are using and testing a pea gravel filter, combined with a program of grease reduction in the kitchen and a straining filter to remove large food and other particles. We'll report later on what finally works out for us. We've also been monitoring our water use, which is running 37 gallons per day for the three of us without scrimping—which suggests that simple, small-scale treatment really is feasible in a fairly large number of conditions.

One greywater treatment for suburban style water users that is getting favorable reception in a number of states is the recirculating sand filter. Basically it is a second septic tank sized container filled with medium sand that the wastewater filters through after going through a septic tank. A small pump repeatedly recycles the water through the filter, achieving quite high quality treatment suitable for surface discharge or reuse under most conditions. It is an additional cost, of course, but permits our wasteful living patterns to expand to areas whose soils would not accept leach fields. So far neither Maine nor Oregon has approved any commercial greywater systems, although approval of the recirculating sand filter is likely in Oregon this year.

Probably the best news in wastewater treatment is a move away from standard units to design for specific conditions. The general trend of Oregon's experimental program is basically relearning the design options so well contained in Peter Marshall's excellent *Septic Tank Practices*. Maine and other states are focusing on soils evaluation as a basis of disposal system design instead of percolation tests, with a resultant decrease in system failures from 50 percent to 1 percent.

An experimental program such as Oregon's has a narrow line to balance between speed and safety—always being accused of foot dragging or allowing installation of unproven designs. My only real criticism is that, outside of California's program, there seems to be no concern with variation in living patterns or provision for simpler living. Invariably, the systems being tested are alternatives only useable for full-bore suburbanism, and that only at substantially increased costs. It took us nine months of hassling to get an owner-built compost privy into the Oregon program, and we still have difficulty in getting surface application of greywater tested.

Good progress seems also to be occurring in related areas. Cal-OAT reports, in *Present Value*, the successful implementation of a wastewater management district in Stinson Beach, California, and the construction of a biological wastewater treatment plant employing water hyacinths and microorganisms for the town of Hercules, California. Max Kroschel at the Farallones Institute writes us about how flush toilets and existing waterborne sewage systems can be adapted to more ecological and economical patterns. And composting and/or agricultural application of sewage sludge is no longer a strange and dubious experiment. A couple of months ago in Indiana I overheard a farmer complaining bitterly that the neighboring town would only deliver sludge to farms in a 10-mile radius, and his farm was 15 miles out.

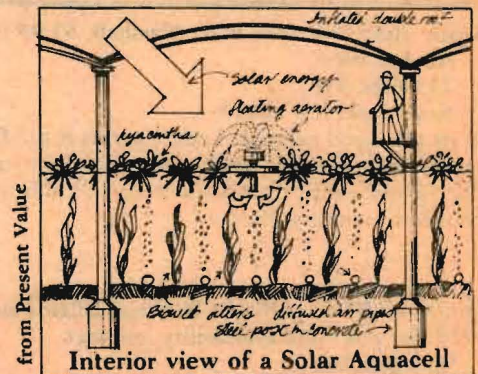
Times, they are a-changin'.

Resources:

Small Scale Waste Management Project
University of Wisconsin
Madison, WI 53706

Many fine research reports available, particularly the work of Robert Siegrist on greywater segregation and treatment.

Experimental On-Site Wastewater Program
Oregon Department of Environmental Quality
P.O. Box 1760
Portland, OR 97207



Interior view of a Solar Aquacell

Wastewater Project
California Office of Appropriate Technology
1530 10th St.
Sacramento, CA 95814

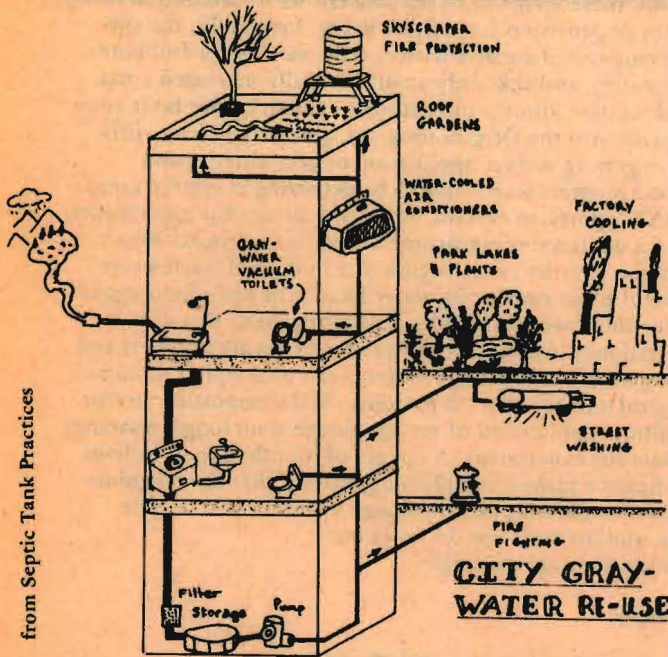
Their recently released free report, *Present Value*, gives a good overview and economic evaluation of various a.t. projects in California.

EPA On-Site Technology Clearinghouse
580 Spruce St.
Morgantown, WV 26505

Just established to offer technical information and advice, review systems, and report on latest developments in on-site technology.

ECOS, Inc.
21 Imrie Road
Boston, MA 02134

Developers of the Soltran solar compost toilet and distributors of a wide variety of toilet/greywater alternatives.



from Septic Tank Practices

CITY WATER USE

City water use can be cut significantly if city councils and water boards are willing to change building codes and use their imaginations. In this ideal apartment house, fresh water is used for bathing, drinking, and clothing washing. The greywater produced is recycled from a storage tank in the cellar. It can be used to run vacuum toilets and water-cooled air conditioners. It can be re-used for street washing, roof gardens, skyscraper fire protection, parks and recreation lakes, and factory cooling. To achieve city water conservation, a new look at urban plumbing and piping is needed. It is too expensive to replumb the Empire State Building at this late date.

Low-Cost Technology Options for Sanitation, Rybczynski, Polprasert and McGarry, 1978, price unknown, from:
International Development Research Centre
Box 8500
Ottawa, Canada, K1G 3H9

An outstanding state-of-the-art review and annotated bibliography dealing with affordable sewage treatment options for rural areas and developing countries. Covers things such as truck collection systems, that are ignored elsewhere. Filled with valuable information. Also of interest is their review of the process of information collection and evaluation used. As with any non-conventional or innovative technology, existing indexing, keywords and computer data bases were not of major value—20,696 listings boiled down to 188 useful references. In contrast, 8 consultants visiting 21 information centers came up with 234 additional useful sources. Well done.

Dear RAIN-folks:

Lots of thoughts:

Your article on composting had some very inaccurate information in it on heavy metals, and it is a dangerous situation. There are heavy metals in our environment everywhere—in the air, in the soil, in the water, and they come from many unlikely places. Consequently, they present a problem in composting in most every case, though as you could expect, some places it's not as bad as others. Composting septage is probably safest. Your comment, "This problem [heavy metals from urban wastewater in sludge] can occur only in particular urban areas where industrial wastes that are not pretreated are discharged into the wastewater" is very far from being accurate, particularly where combined sanitary/storm sewers still exist.

One of the largest sources of heavy metals in urban areas is from what is known as runoff—all the wastewater that runs off the streets after a rain or when people wash their sidewalks, cars, etc.—and it carries all the garbage that accumulates on city streets and parking lots. Think of the lead from car emissions, the asbestos from brake linings, etc. Mercury gets dumped down the sewers at dentists' offices, arsenic enters the waste stream from pesticides, and the list goes on. In the few places where the quality of rainwater has been measured, they have found that the chromium levels, plus many other heavy metals, far exceeds what any mathematical models of air pollution predicted, and that when this rain falls on drinking water reservoirs, the resultant water (after mixing) does not meet drinking water standards. So, even the drinking water sources may contribute metals, as well as the lead pipes, Galvanized pipes contribute Zn and Cd as well, not much better than the Pb. (PVC pipes have their own contributions, which may or may not be inactivated by composting.)

I look at this as a serious misrepresentation of the situation because of the potential health problems that can occur due to heavy metal poisoning. This does not mean that composting is not the best process we have for dealing with sludges, but it speaks to the need to be very cautious about the use of the final product. There are many places where the compost could be used with environmental and economic benefit, and just as many where its use is not appropriate.

Regarding greywater reuse—I am currently pulling together material for NCAT to update what we all collectively know about it. (Recall that I wrote the greywater management chapter and the safety chapter in *Goodbye to the Flush Toilet*). In my research over the last few years about greywater, as well as my years of research in wastewater and drinking water quality, I have come to be very concerned about the long-term applicability of land disposal of wastewater, due to the lack of information about crops, biological dynamics in irrigated fields, nutrient uptake, application rates and sites, etc. Lots of questions. What this tells me is that we have to be very careful about drawing conclusions about what systems

Septic Tank Practices, Peter Warshall, \$3.95 from:
Anchor Press
245 Park Ave.
New York, NY 10017

In its third and expanded edition, this is the finest basic source on household wastewater treatment—design/construction/maintenance/troubleshooting/and politics. Give one to your local sanitary district.

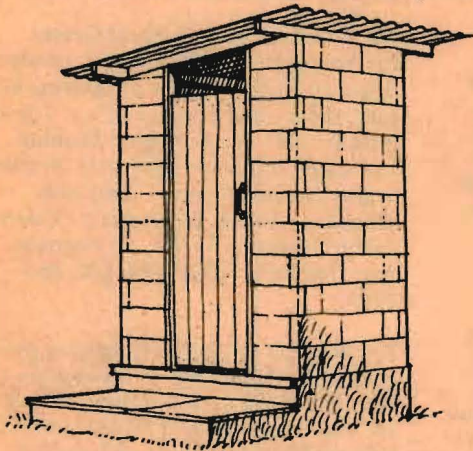
Sanitation Without Water, Winblad, Kilama and Torstensson, 1978, for price and availability, contact:
Uno Winblad
P.L. 2205
S-68200 Filipstad SWEDEN

Design, construction and operating details for a wide variety of improved waterless sanitation techniques in use around the world, along with a good, simple coverage of sanitation and disease. Thorough and well-done. A useful companion to the IRDC book above. Our copy was a preliminary edition, but it should be available by now in a commercial version.

work. From an engineering standpoint, we know what works, but from a biological standpoint, there is not much known. I have always been leary about use of sodium-based detergents, because the sodium competes with other cations for the active exchange sites on the clay particles. Too much Na means less space for the other beneficial cations, and pH problems. Tom Javitts suggested the use of gypsum to flush out the Na periodically, but checking with soil scientists, I have found that this may compound the problems rather than helping them. That may work better out West, but in the East the 40-plus inches of annual rainfall does a better natural flushing (maybe). My study of soils and biological agriculture suggests that the reuse of nutrients in greywater is *highly site-specific*. What works well some places may not work other places. A lot of it depends on management—in terms of what crops are grown, what methods used to install, what volume, concentration and nature of wastes disposed, what ultimate disposal intended, soils, climate, length of use, etc. I could go on at lengths, but fear this might already have overloaded you. Let me know.

To pass along a method that we found very workable for outhouses: the traditional method of using lime to cut the smell was uncomfortable to us, because you had to buy the lime and it renders the material unusable. So we decided to compost the material by effectively balancing off the C:N ratio and adding wood ashes for pH control. Our routine was to throw in a generous handful of spoiled hay each time we took a dump in the outhouse. This did several things—covered over the active sites where flies breed, absorbed the moisture build-up, inoculated the system with more microbes, gave the decomposer organisms a more balanced food, and prevented compaction (thus also increased air volume). Periodically, we added some wood ashes for the potash content and to raise the pH. About once a month we moved the top layers (maybe about 15-18") toward the front of the outhouse pit because the pile was building upwards towards the throne, and also because it seemed like a good idea to let it compost without the additions of fresh material daily. We turned it

from Sanitation Without Water



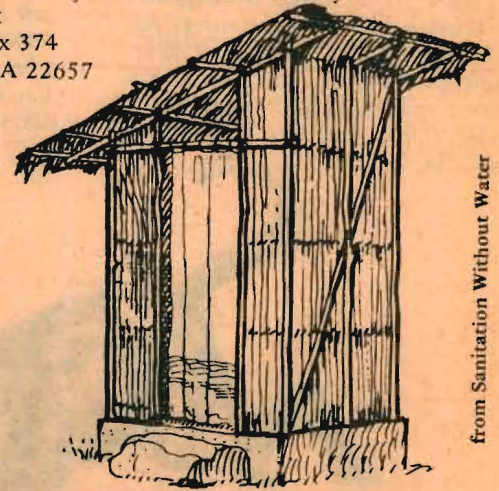
simply with a long stick stuck down the throne. The most surprising thing about this operation was the clean, spring-like earthy smell that was emanating from the pot after the top layers were pushed forward. The bottom layers obviously were composting well. It was amazing to walk into the outhouse in the middle of the summer to have it smell so fresh and pleasant!

We often used hay that I made after cutting the lawn, letting the clippings dry out a few days, and then gathering them up, storing in a feed sack next to the toilet. The volume reduction in any good composting operation is about 80-90 percent, so there was not much yield. The main advantages of this method are: pleasant outhouse, cheap, and most of all, you don't have to move the outhouse so frequently because the pile builds up so slowly. Of course, you could also shovel

the stuff out and use it on your bushes, flowers, trees, etc., and reuse the same spot again.

In your update, I hope you find instances of solar outhouses; I think they have lots of application in the future and are cheaper than composting toilets with the same benefits. We need to get public approval of attached outhouses, since they are perhaps the most environmentally sound systems of dealing with human manures, and attaching them would take the hassle out of going outside in the middle of the winter—nasty especially when you're sick and in a hurry.

Patti Nesbitt
Route 2, Box 374
Strasburg, VA 22657



from Sanitation Without Water

Rainpeople

... The basic design of the compost unit is similar to a Clivus Multrum and is just about identical to designs in *Stop the Five Gallon Flush*. Construction was very easy—a good example of low-skill appropriate tech. We cut 1-1/2" beadboard insulation to the shape needed, stapled chicken wire to it, and covered it with cement plaster. Cement was fairly rich—5:1 I think—and contained an admixture of glass fibers for extra strength. The glass is a particular alkali-resistant type designed for use with cement by Dow Corning. About one small handful to a wheelbarrow of mortar is all that's used. We set up the beadboard with plywood forms to hold it in shape and plastered the inside. After that cured, we removed the forms. Meanwhile we laid the top of the ground and plastered the inside of that. When the top cured, we put it in place and plastered the outside. The inside was later painted with Blockbond to be waterproof. It all seems *very* strong and quite waterproof. Installing the chute requires careful attention to detail—otherwise it leaks odors into the house.

My total costs were about \$400—including \$300 to Ron, who supplied some fiberglass parts. I think anyone else could build one for half that. Use 3" plastic pipe ripped in half for the U-tube ventilators. The baffle at the high end of the tank could be made from sheet plastic, the interior hatch could be plywood or whatever.

Details on a homebuilt Clivus from a letter from David Robison
19593 Desantis Ln SE
Silverton, OR 97381

Tom:

For your Compost Toilet update. If you don't have the World Bank's studies on "Health Aspects of Excreta and Sullage Management" and related work, you might write: John Kalbermarten, EWT/Rm. D-1036, World Bank, Washington, DC 20433. It's probably the best stuff out.

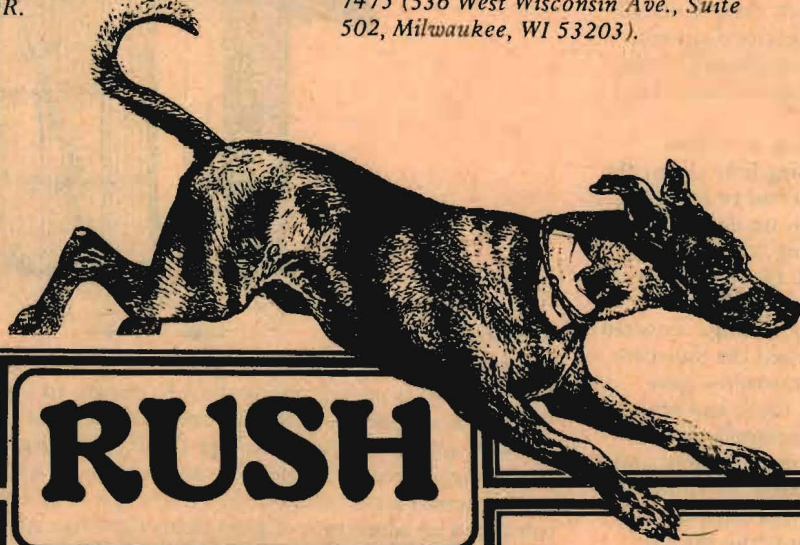
Also, for your information, we're initiating a program to develop employment from solid waste at the Bank with Niel Seldman Institute for Local Self-Reliance. It's a narrow line but the Bank does have the resources to put a.t. on a technically sound base.

Bill Ellis
TRANET

The Abundant Life Seed Foundation will host two seminars: Living Lightly on June 23-24 (noon to noon); and Open Garden Seminar in Seed Growing August 25-26 in Sequim, WA. Write: Box 374, Gardenir, WA 98334, 206/683-4890. Cost \$15/person.

The Walk for Clean Energy will take off on June 24 from Astoria and end 400 miles later at Trojan on August 19. It will highlight a clean energy exhibit on wheels, workshops and silent candlelight marches on Sunday nights. Walkers, exhibitors and support are needed. Contact: CANDLE, Box 765, Neskowin, OR.

Citizens for a Better Environment is looking for environmental activists who wish to educate themselves and others about alternative energy resources and toxic substances control. Full-time salaried canvass positions are available (as well as summer jobs). In San Francisco call 415/777-1984 (88 First St., Suite 6600, San Francisco, CA 94105). In Chicago, call 312/939-1984 (59 E. Van Buren, Suite 2610, Chicago, IL 60651). In Milwaukee, call 414/271-7475 (536 West Wisconsin Ave., Suite 502, Milwaukee, WI 53203).



The Corvallis Solar Energy Community is seeking a person qualified as a project coordinator. Some of the duties will include: conducting solar workshops, establishing and maintaining a solar information center and working with local builders and government officials to promote the use of solar technologies. Minimum qualifications include: strong background in solar energy; college graduate in science, engineering, related field or equivalent experience; ability to speak effectively before groups; and knowledge of the building industry and financial community. Salary will be \$900 per month per 40-hour work week. Contact: Corvallis Solar Energy Community, c/o Jim Collell, 2730 N.W. Polk, Corvallis, Oregon 97330.

Research money for bio-energy projects is being granted by the Bio-Energy Research Council. The allocations will range from \$10,000 to \$50,000 for a 2-3 year period. Projects relating either to production or utilization of bio-energy will be considered. For information: Paul F. Bente, Jr., 1625 Eye St., N.W., Suite 825A, Washington, DC 20006, 202/833-5656.

The 3rd Annual Biomass Energy Systems Conference will convene at the Colorado School of Mines, June 5-7, in Golden, CO. This conference will promote exchange of the ideas and results of the DOE's Biomass Energy Systems Program. Conference coordinator: Vicky Curry, Solar Energy Research Institute, 1536 Cole Blvd., Golden, CO 80401, 303/231-1467.

The National Public Law Training Center will offer a series of intensive workshops, "Law for Non-Lawyers." The courses will include: Public Benefits and Entitlements, June 4-8; Legal Advocacy Skills, June 11-15, and the Advocacy Spectrum, July 9-13. All three courses are accredited through the American Univ. Contact: Jennifer Murphy, The American University, Special and Summer Sessions, 202/686-2697. Held in Washington, DC.

Alas, another alternative publication has run head-on into "cash-flow difficulties." The Mountain Gazette has suspended publication, but they are still alive and kicking, and are attempting to line up new sponsors. We wish them luck in their efforts!

A Community Media summer program will be offered by Goddard College June 4-August 24. Participants will work with techniques available to community action groups to develop and produce projects with local alternative media sources. Information: Ann McIntosh, Box CM-7, Goddard College, Plainfield, VT 05667.

The San Jose Farmer's Market is looking for a promotion coordinator to attract and educate consumers about food and farm issues. Abilities should include writing and speaking, working cooperatively, and a strong commitment to community building. Requires high school education and CETA eligibility. Contact: Gina Moreland or Howard Simon, P.O. Box 5651, San Jose, CA 95150, 408/227-3032.

The 4th National Conference on Rural America will be held in Washington, DC, from June 24 through 26. This year's gathering will focus on "action," presenting the platform on rural housing, health, the disappearing family farm, etc., developed in previous conferences directly to Congressional

offices and federal agencies. Write: 1346 Conn. Ave., N.W., Washington, DC 20036, 202/659-2800.

The Northern New England Center for Appropriate Technology is conducting a 10-week program integrating history, theory and practice of a.t. Topics include solar, bio-ecological farming and energy-efficient structures. Session begins Thursday, June 7, and ends Thursday, August 23. Contact: Valerie Carter, Institute for AT, 15 Garrison Ave., Durham, NH 03824, 603/862-2764.

The NASCO co-op board training program will be directing workshops on the West Coast this summer, July 15-Aug. 16. The workshop will focus on the specific problems of the co-op involved, and attempt to strengthen the co-op movement as a whole. Write: North American Student Cooperative Association, Box 7293, Ann Arbor, MI 48107.

A program entitled "Prairie Roots/Human Roots: A look at the prairie as the ground of our culture and agriculture" will be presented June 2 in Salina, Kansas, by the Land Institute. How agriculture has affected the prairie and vice versa will be explored. Contact Jim Peterson, 823-9967, Salina, KS.



STEPPING STONES:
APPROPRIATE TECHNOLOGY AND BEYOND
Edited by Lane deMoll and Gigi Coe
208 pp., 1978, \$7.95

The philosophical strands of thought from which a new social vision is being woven . . . *Stepping Stones* brings together in one place many of the classic essays that have given rise to the appropriate technology movement. From E.F. Schumacher, Wendell Berry and Margaret Mead, to John Todd, David Morris and Amory Lovins, to RAIN's own Tom Bender and Lee Johnson, *Stepping Stones* will move you beyond the era of limitations into the era of changing possibilities. Five new pieces help bridge the gap between new technologies and new values, bringing greater clarity to our vision of a humanly scaled society. This companion to *Rainbook* is the perfect reader to bring you full circle to where we stand today; holding in our hands the makings of a new world

STEPPING STONES POSTER

Diane Schatz
21"x24", 1978, \$3.00

Spinning images that excite the imagination, Diane Schatz's latest artwork for RAIN is truly new alchemy. Her elaborate bio-regional landscape which graces the cover of the New *Stepping Stones* reader is now available as a large poster for those of you to whom a picture is worth a thousand words—or more! This urban/rural scenario vividly details local economies and energies at work and play. Renewable and renewing! If you are trying to envision just how all our new ideas and new tools come together, this little bit of wizardry will help you get there



ENVIRONMENTAL DESIGN PRIMER

Tom Bender
207 pp., 1973, \$5.95

If, in designing and building our surroundings, we want to restore our fundamental unity with our environment and the cosmos, we must push beyond just "functional" considerations. We need to re-establish a deeper sense of purpose. These meditations on ecological consciousness are offered to help us set our hearts and minds straight, before we put our hands to work. A penetrating collection of short thought-pieces, quotations, symbols and dreams.

RAINPAPER No. 1,

CONSUMER GUIDE TO WOODSTOVES

Bill Day

16 pp., Revised Jan. 1979, \$2.00



No matter how you split it, wood is re-emerging as an important factor in home heating. To help insure the wood energy transition is one committed to safety and efficiency, wood stove consumerist Bill Day has closely monitored the availability and reliability of these products. His newly-revised and expanded *Consumer Guide* is a compilation of his articles in RAIN, covering the selection, installation and repair of woodstoves, wood cookstoves and wood furnaces. Included are helpful notes on fireplace retrofits and chimney maintenance. Essential reading for those of you interested in this revitalized energy alternative



RAININDEX

Lane deMoll and Linda Sawaya

48 pp., 1979, \$4.00

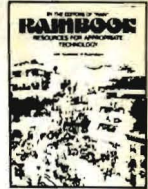
A complete index to the first four volumes of RAIN (October 1974 through September 1978) and *Rainbook*, including a four-page, issue-by-issue listing of articles. Indispensable for information networkers, libraries and new friends of RAIN, the *Rainindex* is the perfect way to discover our back pages and the magic that lies therein. Yearly supplements will be available for each subsequent volume every October.

RAINBOOK:

RESOURCES FOR APPROPRIATE TECHNOLOGY

Editors of RAIN

256 pp., 1977, \$7.95



This is the book that has turned so many heads around. Drawing together such diverse concerns as economics, energy, health, agriculture and communications into a larger picture, *Rainbook* opens up new doors for those of us seeking the ways and means to change our communities and our lives. Essentially the Best of RAIN Magazine through early 1977, *Rainbook* is as comprehensive a primer/resource book as you will ever find, with thousands of listings on groups, contacts, literature and further sources of information. If you have a question about appropriate technology, *Rainbook* probably has the answer—or it can tell you where to get it. Fully indexed and profusely illustrated. (Updated via monthly issues of RAIN.)



URBAN ECOTOPIA POSTER

Diane Schatz
22"x33", 1976, \$3.00

SUBURBAN ECOTOPIA POSTER

Diane Schatz
22"x30", 1976, \$3.00

The first exciting glimpses of an Ecotopian vision. . . . Chances are you've already seen Diane Schatz's *Urban Ecotopia Poster*—on the cover of *Rainbook*, reprinted in countless numbers of books and publications, or on a friend's wall. Its city street scene gives literal expression to the idea of urban self-reliance—where cottage industries, cooperative institutions and appropriate technologies combine to make the city a habitable and happy place to be. . . . If your concern is reinhabiting the suburbs, you should visit Diane's *Suburban Ecotopia*, where the same potential can be seen in gardens, solar greenhouses and windmills. Both of these line-drawn posters are rich in detail and perfect for coloring

SHARING SMALLER PIES

Tom Bender
38 pp., 1975, \$2.00



A small classic that discusses how changing resource/energy realities are giving rise to new directions and changing possibilities—in human values and individual actions, in our institutions and politics. This is the kind of formative thinking that has helped to set the stage for the advent of appropriate technology.



LIVING LIGHTLY
ENERGY CONSERVATION IN HOUSING

Tom Bender
38 pp., 1973, \$2.00

Here is an early overview of designing and building energy efficiency and resource conservation into our shelters—from water and waste to heating, cooling and lighting. A good overview on why we should be living lightly—and just what that might mean

EMERGING ENERGY POLICY PRINCIPLES

Tom Bender
9 pp., 1974, \$1.00

COSMIC ECONOMICS

Joel Schatz and Tom Bender
8 pp., 1974, \$1.00

Two significant papers to come out of Oregon's early energy research and planning efforts; here are sound principles for wending our way through the coming economic/energy transition. Simple outlines of effective economic mechanisms to guide that transition.

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OLD



MINES



Consumer Fuel Coops

Hints for starting a fuel oil buying co-op are listed in *Coop's* May/June '79 issue (available from Coop, P.O. Box 7293, Ann Arbor, MI 48107, \$10.50/yr.). By organizing as a buying block members can negotiate sale prices and receive rebates as a discount on volume. The Ottawa Consumers Fuel Co-op savings averaged \$65 each per winter. The same economic benefits can also be realized by forming cooperatives for purchasing solar systems in bulk. —PC

Solar in the Northwest

An introductory level article on the residential use of solar in the Northwest is in *Pacific Search Magazine*, February 1979, \$12/yr., P.O. Box C34666, Seattle, WA 98134. Easy reading for the solar newcomer interested in the possibilities. A brief explanation of the potential of solar greenhouses and water heaters is included, plus a solar glossary, bibliography and a list of regional resource groups. —PC

Low Level Radiation Resource Guide

A list of people and organizations addressing the issue of protection standards, compensation and public education in the area of low-level radiation has been compiled in the March '79 issue of *Groundswell* (\$12/yr. from NIRS, 1536 Sixteenth St., N.W., Washington, DC 20036). —PC

Adventures in the New Horticulture: Home Hydroponics Comes of Age

If the high cost of vegetables and the presence of pesticides in your food is getting you down, perhaps hydroponics is the answer to your problems. An article in the recent issue of *Harrowsmith Magazine* (No. 15), explains the history of hydroponics, how to set up your own system, including suggestions on how to build the container, mix the nutrient base—using both an organic and inorganic formula, and other information which will turn your basement into a productive garden. Sources on where to get materials and further information is provided. *Harrowsmith Magazine*, a fine publication which provides information on homesteading, self-sufficiency and other areas of interest in Canada is available from Camden House Publishing, Camden East, Ontario K0K 1J0, Canada for \$10/yr. (\$18 for 2 yrs.). —YL

Nuclear Power—A Neighborhood Issue

Nuclear power affects much more than your health. A reprint in *The Neighborhood Work*, March 30, 1979 (\$25/yr. from Center for Neighborhood Technology, 570 W. Randolph St., Chicago, IL 60606), entitled "What Does Nuclear Power Mean for Neighborhoods?" examines the devastating impact it has on community economic development. "Each new nuclear plant destroys thousands of potential neighborhood jobs, robs local economies of hundreds of millions of dollars, causes electric rate hikes, gobbles taxes, and fuels inflation." The original article was from *Neighborhoods*, Sept.-Oct. '78 (401 N. Broad St., Philadelphia, PA 19108). —PC



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