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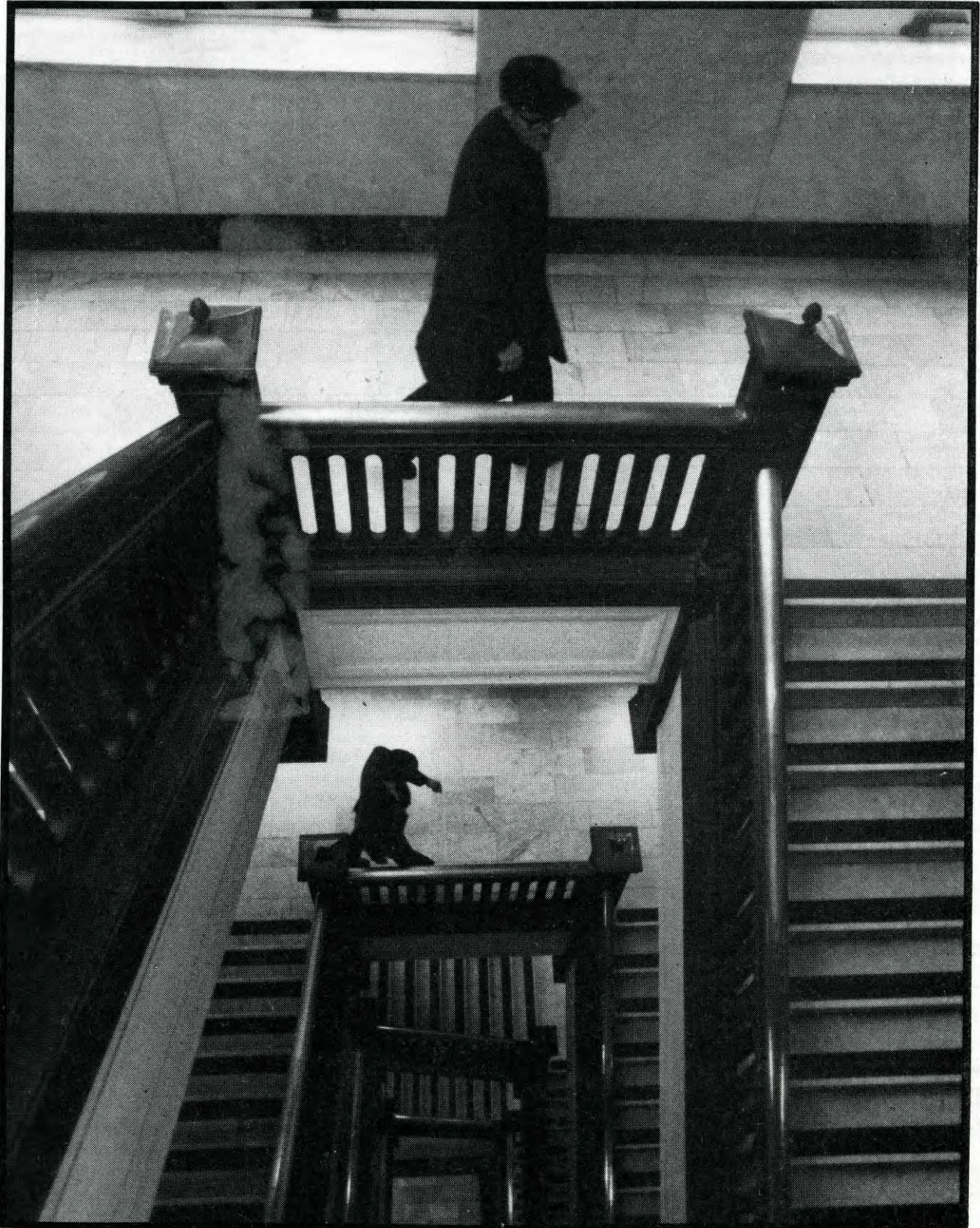
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RAIN

*Wood Furnaces
Banking on Solar*

DECEMBER 1980

The Synfuels Connection



Volume VII No.3

\$1.50 No Advertising



Hello and Welcome to former *People and Energy* subscribers. We're as sad as you are to see such a fine journal fold. *P&E* was always one of those resources we felt we could turn to for solid information. We hope you enjoy reading *RAIN* . . . let us know. David Holtzman, *P&E's* former editor, asked us to let you know that you can still reach him if you need to. He hasn't been receiving anything you may have sent to *P&E*. Write him instead at 1616 16th St. N.W., Washington, DC 20009. Or phone him at 202/265-6132. —Rainmakers

Dear Rain,

As a former apprentice at the University of California at Santa Cruz Farm and Garden (UCSC F&G) Project (where Biodynamic/French Intensive was first taught by Alan Chadwick) I feel compelled to make a few comments regarding Michael Stusser's critique of BFI (*Rain* Aug/Sept '80). In essence, I agreed with his major points; BFI is a labor-intensive, time-consuming, and sophisticated approach to gardening. Anyone who naively believes that a \$20,000 annual gross can be obtained by gardening one tenth of an acre with a four-month vacation probably also believes in the stork. Such statistics are the result of misplaced zeal and hyperbole. Also, I too feel that BFI has more value as a metaphor for shaping value systems than as a vehicle to rescue the world from famine.

However, one point that I felt was poorly made was pointing to the Santa Cruz Project as an example of the bloated economic projections made for BFI. The F&G Project is an educational facility closely linked with the environmental studies oriented college (College Eight) at UCSC and is not a commercial, production-oriented facility. BFI serves well as a vehicle for expanding individual sen-

sitivity to the natural world and developing social responsibility—two lessons Alan Chadwick generously offered and which continue to be a vital part of the experience in Santa Cruz.

Wishing you a long, fruitful life, I am yours,
in peace,
Patrick Holden
Sperryville, VA

Dear Rain,

We are a group of folks in a 100-year-old dilapidated Edinburgh tenement building, trying to work out an alternative developmentally as well as ecologically conscious lifestyle for the inner city. We're involved in various forms of "outreach" including trying to initiate local skill-sharing, etc., employment in local help for unemployed (-able), retired, etc., and also act as a "showhouse" for more rational lifestyles. The last objective has involved insulating, installing (carrying up 4 flights of stairs!) 1½ tons of wood-burning stove/water heater, collecting scrap wood from skips, eating vegetarian, trying to avoid electric (nuclear) gadgets, etc.

Our next main project is probably a solar water heater of some sort . . .

"Rain" sounds like the kind of info we ought to have on our shoulders for some of the things we want to do; I hope we can subscribe.

Yours
Mark Blaxter
Edinburgh, Scotland

Dear Rain,

Michael Stusser's article, "Critiquing Intensive Agriculture" (Vol. VI, No. 10), fails to come to grips with the problems of the real

world. The basic problem of this planet is that most people live in urban and suburban areas where there is little land available for growing food. The increasing costs of transportation and refrigeration make our current system of shipping vegetables across the country and around the world no longer feasible.

While the methods of Masanobu Fukuoka were able to produce grain and fruit for market, the scattered wild vegetables with bitter taste are not what will satisfy the urban and suburban needs of this planet. Biodynamic French-intensive agriculture seeks to be able to provide vegetables for the world's urban and suburban people. It is also the choice of myself and many others for rural use. Natural methods may be fine for romantics who wish to go back to the land and who will have acres of land to deal with, but it does not address the global problem of food production.

I was an apprentice of John Jeavon's and I know that I personally was able to dig and prepare 100 ft² of garden bed in under an hour. This was using the U-bar, a tool which John and his team has successfully developed into a major time saver. I also know that the amount of compost we used was 8 ft³ per 100 ft². Our research showed that this amount was sustainable with careful crop selection. I'd like to know how much compost is required to have the luxury of not having to work the soil for vegetable production, and how much additional area it would take to produce that much material. Quantified research will be necessary to determine this, and no amount of name calling can replace it (French expensive, French pretentious, Biomaniacal).

Over a period of 8 years, John, staff members, and apprentices have carefully recorded daily produce yields, bed preparation methods, amount of compost used, and other

RAIN

Journal of Appropriate Technology

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

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

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observations for each bed of crops put in. Additionally, factors such as the amount of compostable material available from different crops, quality of compost, nutritional quality of crops (changes in protein content), amount of water used, and other factors have been studied.

From these studies, various theoretical models have been created to show possibilities for supplying one's own income, complete diet, fiber for clothing, and wood for fuel. Among these models is the \$20,000 from 1/10 of an acre projection. This model was constructed by calculating optimum yield per plant, optimum plants per bed, optimum crops per bed per year, and optimum number of beds that could be cared for by one person. Optimum was based on high-end data that John believed to be duplicatable.

While this is clearly not a model of statistical prediction, it is a useful projection and one that I believe can be fulfilled in the near future. The thing that is needed is for gardening folks to do what the solar folks have been doing, and move out of the world of romantic notions and into the real world. As the letter in the same issue from Steve Baer pointed out, what is needed is for folks to take their good intentions, knowledge learned from scientific investigations, and hard work, and go out and try to make a business out of it. I believe that John Jeavons' work goes a long ways to creating a blueprint for this.

If a conference, even one made up of well-known folks, wants me to "buy" some other system of gardening, they're going to have to do more than call the system that I use names and complain about how much hard work it is. They are going to have to do the same sort of quantified research that John Jeavons has done, over quite a number of years, and come up with some data. To the attendants of the Farallones conference, I ask, what good does it do to try and discredit one of the few folks doing quantifiable research, especially when you've presented none of your own for comparison.

David Duhon
Vinton, LA



Dear Friends,

I sure am glad I don't live on the West Coast. Your (Aug./Sept.) articles on *Permaculture* and *Critiquing Intensive Agriculture* were about as unbalanced a piece of reporting I've seen—the result of competing radical agriculture institutions, I suspect (Farallones Institute versus Ecology Action of the Mid-peninsula).

Basically, if one reads between the lines, one finds that the "old is bad" and the "new is good" according to your articles. John Jeavons' work is underrated and Bill Mollison's work is overrated. Very hip. Very faddish. Silly.

Time will tell that Mollison's claims of economic return on tree cropping are as unrelated to experience as Jeavons' claim of \$10,000 or \$20,000 from 1/10 acre. Tree crops, like Biodynamic French intensive agriculture, are technologies that are still largely untested—exciting ideas and experiments are going on here, and it is just a damn shame that they should be presented as better or worse than one another.

It is self-serving, in-house bickering that keeps radical technology frozen in a state of confusion among its proponents. The point of biodynamic french intensive and tree cropping is that they are *affordable* to poor people who have little money for machines and petrochemicals, they are *environmentally sound*, and they provide a *basis for self-reliance* in a world where most technology creates dependence. Both Mollison and Jeavons have made unrealistic claims regarding the cash returns of their technologies, and this is unfortunate—but unjustified claims like this certainly should not be the focus of interest in their work.

Please pass this letter along to Michael Stusser and to your writer CC. I have not commented on Stusser's critiques: 1) "deep digging can have the effect of working against itself" (if done after good tith is achieved), and 2) that organic materials may be hard to find. The first point is important for fanatics to hear, but most people I know who are into biodynamic French intensive



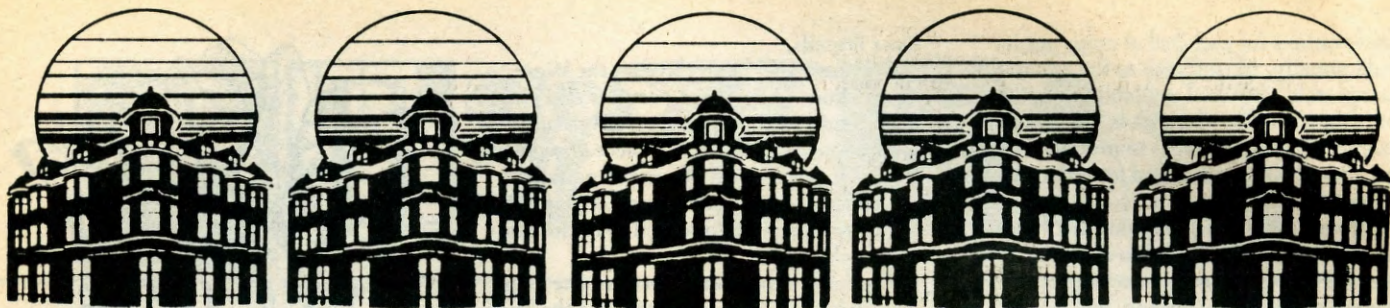
are by nature conservative in their approach to developing soil balance and fertility—they do as much as is needed and no more, and they go by their own experience with their own soil rather than following anyone's cookbook. The second comment is self-defeating and calls into question what is meant by *agriculture* itself. Agriculture is not a "natural" system—hunting and gathering is the only truly sustainable form of food "production." It is true that urban and suburban people have a hard time finding lots of organic materials, but rural people do not (a point which is overlooked). Little outreach has been done to rural people, particularly people living in mountainous areas where there is little flat land for cultivation—another result of the bias of those who promote new agricultural technologies.

Enclosed please find \$15 for a one-year subscription to *RAIN*. I think you've got a great magazine, and hope you'll use a little more sense in the thinking you'll promote about new agricultural technology.

Best,
Lindsay Jones
Agricultural Marketing Project
Jacksboro, TN

Dear David and Lindsay,

I want to respond to both of your letters primarily to head off criticism directed at the people and organizations represented at the conference/workshop described. It's my understanding that workshops like this are opportunities for people to gather, share experiences both good and bad, and generally raise their technologies a bit through critiquing each other's work. In this context, critiquing should not be construed as competition, but rather the opposite—cooperation. The people at Farallones who structured this event, and those of us who attended, were not hosting a dog race between B.F.I. and Permaculture. All of us had spent enough time trying to "grow our own" to be able to agree that "self-serving, in-house bickering" ends up being counter-productive. Evaluation, and most important, self-evaluation, are essential to any technology, including agriculture. There are no bonanza winners in advancing a science in this way. There is, instead, the opportunity to work together to explore information and resources and apply them as needed. —Carlotta



Banking On The Sun

By Peter Barnes

Normally when you deposit money in a bank, you have no idea what the bank does with your money. For all you know, your savings could be loaned to large corporations and used for purposes that are of little social or environmental benefit.

Many banks now are inviting people to invest in money market certificates. These certificates are, in fact, good investments. They pay high interest and are federally insured up to \$40,000. Usually there is a \$10,000 minimum deposit and a six-month minimum term.

The interest rates on these money market certificates are pegged to the yields of United States Treasury bills. Therefore, many banks refer to them as T-bills, even though they are in fact savings deposits rather than government notes.

Solar T-Bills

Most banks offer standard T-bill accounts. But now one savings and loan institution, Continental Savings in San Francisco, offers a unique new savings account called the Solar T-Bill account.

A Solar T-Bill at Continental Savings is just like an ordinary T-Bill, with one very important difference: it is deposited in a special account called the Safe Energy Fund. And deposits in this fund go to provide affordable long-term financing for people who convert their buildings to solar energy.

So when you open a Solar T-Bill account, you know exactly how your money will be put to work.

Why the Safe Energy Fund was established

The idea for the Safe Energy Fund goes back to 1978 when the Solar Center in San Francisco received a small foundation grant to develop a model solar financing plan. (The Solar Center is an employee-owned and managed firm that designs and installs both passive and active solar energy systems around the Bay Area.)

The problem, as Solar Center staffpersons saw it, was that solar could not be used widely until the *monthly cost* of energy from the sun was made comparable to the monthly cost of energy from fossil fuels and nuclear power plants. This required a financing plan to spread out the initial installation cost of a solar system over its lifetime.

Solar Center staffers talked with many financial experts, including Jerome Dodson, president of Continental Savings. Continental already had established a reputation as an innovative "S & L" asso-

ciation, and it had also demonstrated a commitment to solar energy by contracting for the design and installation of a solar space heating system for its main office at Church & Market Streets in San Francisco.

Continental agreed to be the vehicle for a model solar financing program—the first of its kind in America—and in October 1979 the Safe Energy Fund was born. In the short time since then, more than \$250,000 in Solar T-Bills have been deposited in the Safe Energy Fund.

How the fund works

Like conventional bank loans for ordinary property improvements, solar loans out of the Safe Energy Fund are secured by deeds of trust on the buildings that are being solarized. But unlike regular bank loans, Continental's solar loans are designed to make the monthly cost of solar energy *immediately* competitive with the monthly cost of electricity or natural gas.

Thus, the term on Continental's solar loans is 20 years. This is five to ten years longer than most property improvement loans. And the interest on the loans is just 1½ percent above the average interest paid to Safe Energy Fund depositors: a formula that results in a solar loan rate that is currently *below* the rate charged by most major banks to their prime corporate customers.

Through the combination of below-market interest rates, a 20-year loan term, and federal and state tax benefits for solar users, the net monthly cost for solar energy can now be made *less than* the monthly cost for the equivalent amount of electricity and natural gas.

Advantages of Solar T-Bills

Besides providing the financing needed to convert buildings from conventional to solar energy, Solar T-Bill accounts provide these advantages:

- They are fully insured by the Federal Savings and Loan Insurance Corporation for up to \$40,000 per beneficiary.
- Deposits and withdrawals can be made entirely by mail.
- There are no sales fees, brokerage commissions, management or advisory fees of any sort.
- T-Bills mature in just 26 weeks. A depositor's money is not tied up for an extended time.
- Solar T-Bills at Continental earn the same high interest paid by

any bank or savings and loan association on six-month T-bill accounts. Since the establishment of the Safe Energy Fund in October 1979, the average interest rate paid to Solar T-Bill depositors has been about 12 percent.

Keep in mind the following facts:

- As with all T-Bills, the minimum deposit is \$10,000, and the minimum term is 26 weeks (or six months). There is an interest penalty for early withdrawal.
- Interest will be posted and paid at the end of each 26-week term, unless one chooses to re-deposit the interest.
- Depositors are notified 15 days prior to the maturing of their deposits. At that time they can decide whether to renew the deposit or withdraw it without penalty.
- Interest paid on Solar T-Bill will be the highest permissible interest on the date the deposit is received.

A less expensive option: Solar T-Notes

If \$10,000 is too steep, there is another option for smaller savers: the Solar T-Note. Like Solar T-Bills, these are earmarked for the Safe Energy Fund, and they are fully insured by the FSLIC.

With a Solar T-Note, the minimum deposit is \$1,000; the mini-

mum deposit term is 2½ years; the interest paid currently is approximately 11 percent.

Solar T-Bill or T-Note, the Safe Energy Fund is a way for investors to join in the effort to reduce our dependence on imported fuels and on dangerous energy sources such as nuclear power.

If enough of us make intelligent use of our savings, the result will be an intelligent shift to clean, safe, renewable energy from the sun. □□

For more information on how to invest in Solar T-Bills or Solar T-Notes at Continental Savings & Loan, write to Peter Barnes at The Solar Center, 62 Townsend Street, San Francisco, California 94107. (Phone is 415-957-9660.)

Or better yet—for readers who do not live in the San Francisco area—show this article to your local banker or savings and loan or credit union officer. Suggest that they follow Continental Savings' example, so that you can invest in solar energy in your own community.

Author Peter Barnes is a former journalist who has turned to full-time solar energy activism. He is president of the Solar Center.

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SOLAR

Active Solar Energy System Design Practice Manual, 1979, 234 pp., paper copy \$14.00, microfiche \$3.50 from:

National Technical Information Service
U.S. Department of Commerce
Springfield, VA 22161

Designing an active solar system is only half the job. If the components are not carefully chosen and assembled, your system will cost more to build, require constant maintenance, and (if it's a liquid collector) probably leak like a sieve at the worst possible time.

This book has the best practical information on active systems that I've seen to date for both air and water systems. The book shows up to a dozen solutions for any given problem, such as choosing a collector, installing an array, mounting systems, storage, vents and dampers, safety equipment, plumbing, heat exchanger design and installation, pumps, etcetera. It lists the strong and weak points of each solution, and includes a clear schematic of each detail.

—Gail Katz

Model-TEA Solar Heating Construction Manual, by Peter L. Temple and Jennifer A. Adams, 1980, 247 pp., \$27.50, information free from:

Total Environmental Action
Church Hill
Harrisville, NH 03450

Total Environmental Action (TEA) has come up with a site built air collector/rock storage design that is suitable for both new and retrofit installation. This is a detailed, clear construction manual for their system. It includes step-by-step instructions with excellent drawings showing each detail. The control modes are well explained and documented. The book also includes a complete hardware list, down to the stainless steel screws for the absorber plate, and indicates which operations a professional should be hired to perform. The appendix on materials selection is generally applicable to any active site-built system. With this book I could build the system. It does its job. —Gail Katz

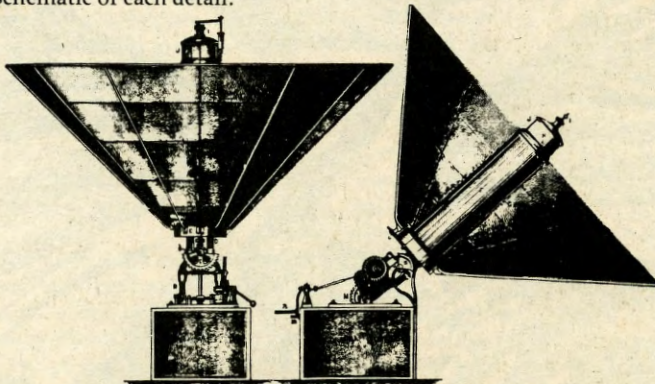
A Golden Thread: 2500 Years of Solar Architecture and Technology, by Ken Butti and John Perlin, 1980, 289 pp., \$15.95 from:

Van Nostrand Reinhold
135 West 50th Street
New York, NY 10020

In September 1878 visitors to the Universal Exposition in Paris were treated to a most unusual sight: a solar-powered machine pumping water, distilling alcohol, cooking food and making ice. Three years later the French government commissioned a study of the new technology's commercial potential. The conclusion: solar wasn't practical in France.

Sound familiar? You'll encounter an amazing amount of *deja vu* in *A Golden Thread*. You'll learn about solar homes in ancient Greece, solar baths in early Rome, solar greenhouses in eighteenth century Europe, and a thriving solar water heater industry in pre-World War I California. You'll read how the solar housing market took off in the U.S. in the 1940s—but quickly plummeted—and how a Presidential commission urged the rapid development of solar in 1952—and was universally ignored.

There are lessons to be pondered here: energy shortsightedness has been a recurring disease and solar fascination has always proved fickle. The sun has repeatedly gained ascendancy when traditional energy sources (such as firewood in ancient Greece) have been in short supply, and it has been repeatedly forgotten when more "convenient" sources (such as natural gas in California) have come on the scene. *A Golden Thread* allows us to reflect on these things while enjoying a remarkable collection of drawings and photographs combined with an exceptionally readable text. —JF



Two views of the solar motor built by Mouchot for the Paris Exposition. This giant machine pumped 500 gallons of water per hour, and even powered an ice-maker.

From *A Golden Thread*

GOOD THINGS

Reading should be an adventure, not just a commute to some desired location. Whether you are reading for laughter or learning, depart on your journey without an itinerary, let the story unfold to you, and you can unfold with it. The books described below will carpet your path with knowledge, laughter, tears, and intrigue. —Cathy Macdonald

The Next Whole Earth Catalog, edited by Stewart Brand, \$12.50 from:

Random House
201 East 50th Street
New York, NY 10022

What do you get when you cross the yellow pages, the *New York Review of Books*, a novel, and years of the kind of accessing the *CoEvolution Quarterly* has been noted for? You guessed it: *The Next Whole Earth Catalog*. It's time to give *The Last Whole Earth Catalog* a rest and seek out new adventures in the 607 pages and 325 subjects of *The Next*. It's like taking a subway: you can catch a ride in composting, stop off in vernacular architecture, and eventually pull in to candlemaking—and there's always another train ready to depart. My first stops were in the sections on maps, plants, and RAIN (can't help a few biases), and I found all to be full of good sources and helpful descriptions. Just think: if you read one subject a day, you wouldn't run out for nearly a year, and if you read a page a day, you'd be set for two. But chances are you'll read it over and over until there is a *One After The Next Whole Earth Catalog*.

Still Life With Woodpecker, by Tom Robbins, 1980, paper, \$6.95 from:

Bantam Books
666 Fifth Avenue
New York, NY 10019

What can you learn from a redheaded princess, a beakless woodpecker, a pack of Camel cigarettes, and a Remington SL3? More than you'd expect when they are all accomplices in Tom Robbins' latest adventure, *Still Life With Woodpecker*. Don't look for the current statistics on woodstoves or commentary on the effects of big business on our government and economy. You won't find them. What you will find is more important. Robbins' books, in case they haven't yet hit your nightstand, express the philosophy of a romantic individualist. In *Still Life*, he contrasts this approach to life with that of social activism, and the differences are literally and figuratively explosive. Look out Ralph Nader! Robbins also places high value on creativity and it's obvious in his prose. In an interview I once read, he said something to the effect of, "I like to write sentences like cherry tomatoes: when you put them in

your mouth, you never know which way they'll squirt." Believe me, each of his books is a hothouse of ideas. Northwest readers will find his descriptions of our rainy country to be especially endearing. So read this one for pleasure, but don't be surprised if it stirs up some questions in your mind about life, love and "the problem with redheads."

Emir's Education in the Proper Use of Magical Powers, by Jane Roberts, 1979, \$7.95 from:

Delacorte Press/Eleanor Friede
1 Dag Hammarskjold Plaza
New York, NY 10017

If this were the '80s answer to *Dick and Jane* and *See Spot Run*, I'd feel less nervous about the year 2000. How many times have you heard grown-ups say, "shush, remember there are children in the room," when something touchy is being discussed, or, better yet, "never mind, you'll find out about it

when you grow up." The world might be a healthier and happier place if some of these taboo subjects were kept in the open. Jane Roberts, author of *Seth Speaks* and many other books aimed at helping grown-ups with the questions of life and death, has now devoted this book to giving kids a head start on the same subjects. Emir learns about lies, truth, conscience, inspiration, seasons, and death. He travels to the land of the gods, leaves his body, talks to alligators, and learns that the simplest solutions to problems are always the ones that work with nature rather than against it. The images and illustrations are wonderful enough to keep any child, no matter what age, entranced.

Cathy is a consulting ecologist with the Nature Conservancy in Portland. Longtime RAIN readers may remember her from her previous incarnation as a Rainmaker (1977). We are happy to welcome her back as a contributor.



From *Emir's Education*

POPULATION

"City Limits: Emerging Constraints on Urban Growth" by Kathleen Newland, *Worldwatch Paper #38, August 1980, \$2.00 from:*

Worldwatch Institute
1776 Massachusetts Ave. N.W.
Washington, DC 20036

By the year 2000 more than half the world's people will be living in cities. Sixty of these cities will have populations of five million or more and 12 of the 15 largest will be in Third World countries. These startling United Nations projections point up not only the dimensions of near-term global population growth, but a distorted pattern of development which Worldwatch researcher Kathleen Newland contends could prove to be "costly, inefficient, and perhaps unsustainable."

It strikes some observers as odd that millions of people in the Third World are choosing to leave the countryside and live in the crowded slums of cities whose industries can absorb only a small fraction of them, "but make no mistake," says Newland, "people migrate to the cities because, all things considered, they expect to be better off there." Public investment is concentrated in urban areas as are hospitals and schools, water and electrical systems. Jobs, when found, pay much more than the rural average. There are trade-offs, though: one is ever-stiffening competition in an already overcrowded job market. Another is a greater vulnerability to price increases and supply disruptions of food and fuel. In an era of growing resource shortages and worldwide population growth, this urban vulnerability can only increase.

Many planners and policymakers treat urbanization as an irresistible force and equate it with economic prosperity, says Newland, when in reality long-term prosperity must derive from a healthy agricultural base. That would suggest a shift of investment priorities from the cities to the countryside, and Newland outlines some appropriate technology applications for such investment. Rural networks of labor-intensive industries could be developed to process agricultural goods and make inexpensive products for farmers. The farmers would, in turn, have new markets among the industrial workers. Additional rural jobs could derive from small-scale renewable energy projects, and the resulting low-cost power would enhance the economic viability of rural industry.

Such measures have merit in themselves and might be successful in stemming the rural exodus to the cities, but in the absence of vigorous family planning efforts, urban growth would still continue at a rapid pace. Like many recent population-related studies, this one is ultimately not very hopeful, but Newland does suggest that a serious commitment to rural development coupled with a

sensible population policy would at least permit urban growth to proceed "at a more deliberate and orderly pace." —JF

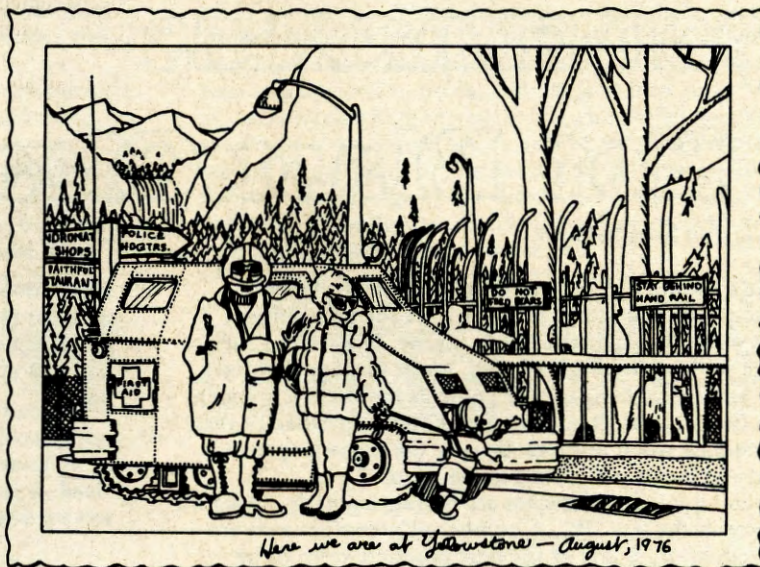
Population and Its Problems, by George V. Zito, 1979, \$9.95 from:
Human Sciences Press
72 Fifth Avenue
New York, NY 10011

This basic textbook of demographic concepts and tools is oriented (in the words of the author) toward "those whose interest in demography is only peripheral to their interest in American society in general." It is readable for someone just becoming interested in demographics and enlightening for those who have worked with, but not formally studied, demographic tools. The author

spends considerable time applying population data to the social problems associated with marriage, divorce, crime, and scarcity, and his analysis of the effects of the post-war baby boom will be of particular interest to members of that generation. According to Zito, the baby boom children who, as adults, have found incredible competition for jobs and housing, both from their peers and from the larger population, will continue to play the role of "invaders" in our society throughout their lifespans. In looking at population pyramids, they will always appear as the big, and somewhat troubling, bulge.

—Jane Peters

Jane is on the Board of Responsible Urban Neighborhood Technology, a Portland-based appropriate technology group which is involved in an integral urban house project.



Here we are at Yellowstone — August, 1976

From *Earthworks*

ENERGY

Women's Energy Tool Kit, by Joan Byalin, 1980, 77 pp., from:
Consumer Action Now
355 Lexington Ave.
New York, NY 10017

Why a "Women's Energy Tool Kit"? Because women aren't brought up to recognize tools, to know a sill plate from a parting stop, or to be able to ask for good advice in a manner which will get them good advice. The "Tool Kit" may be simplistic, particularly as regards heat loss and energy savings, but in general it's an excellent guide to weatherization techniques for anyone. The book covers caulking, weatherstripping, homemade storm windows and window curtains, shading, insulating, choosing contractors, financing, career opportunities, and more. Obviously in 75 pages there's a lot skimmed over and the reading list at the back should be given more than a passing glance. Venting in attics, for example, is critical and yet only

barely mentioned. Still, it'd make a great gift for anyone about to begin managing energy use at home. —CC

ENVIRONMENT

Earthworks: Ten Years on the Environmental Front, edited by Mary Lou Van Deventer, 1980, 268 pp., \$8.95 from:
Friends of the Earth Books
124 Spear Street
San Francisco, CA 94105

Here, under one cover, is the best writing to appear in Friends of the Earth's excellent newspaper, *Not Man Apart*, since its beginning in 1970. Included are dozens of articles on wilderness preservation, the limits to growth, the promise of renewable energy, and the anti-nuclear struggle. Among the writers are Amory Lovins, Garrett Hardin, Lester Brown, Frances Moore Lappé, and Edward Abbey. *Earthworks* is a special treat to read and a fitting celebration of Friends of the Earth's tenth anniversary. —JF

REVISED

RAINPAPER No. 1, CONSUMER GUIDE TO WOODSTOVES

Bill Day

16 pp., Revised Nov. 1980, \$3.00



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.

WOOD FURNACES -

A Hot Blast Clears The Air

by Bill Day and Kurt Schloth

As the use of wood fuel returns to its position as America's leading source of domestic heating, we are seeing a definite trend toward more sophistication in its use. Wood fired furnaces have some definite advantages. Large furnace fireboxes and truly automatic temperature controls require less frequent attention (labor) and often offer greater heating capacity than do free-standing wood burners. Usually the furnace system is concealed and is not part of the home decor.

Wood and multi-fuel furnaces are finding a greatly expanded market here in the late '70s. A number of manufacturers are now in production. Some of the best products seem to be imports whose outstanding quality follows the trend established by the importation of European free-standing stoves. Except for a very few, the bulk of the products manufactured in the USA are of relatively poor construction. Good data for quality and efficiency comparison are lacking.

Initial costs associated with installation of a central furnace are much greater than those with installation of free-standing wood stoves. The central furnace is only a portion of the capital expense. The chimney, sheet metal ductwork, and installation labor may exceed the cost of your furnace. Choosing a low efficiency or short-lived furnace is a very expensive mistake.

Here are a few ideas which may help you determine how to spend furnace dollars.

1. Look for a knowledgeable person or company to buy from. People who have no inventory or are short-changed on knowledge are likely to be expensive and in the long run simple mistakes and poor advice in this area might cost as much as two thousand dollars to correct. If possible, try to find someone to deal with whose experience began before 1973. (1973 was the year that "get rich quick artists" entered the wood-fueled appliance field.)

2. Examine the products offered. Higher quality furnaces are likely to use a great deal of cast iron in their construction. Cast iron lasts longer when used for firebox parts. Steel warps and shows heat fatigue quickly.

3. Positively eliminate from consideration any furnace

whose doors or door frames are not cast iron. When steel is used for either the feed door or door frame, warpage is likely to cause uncontrollable air leaks. Efficiency is greatly reduced and loss of combustion control frequently leads to overheating.

4. Your furnace should be occasionally inspected and serviced. It is best to make your purchase from a stable, local, service-oriented retailer.

5. Avoid furnace manufacturers whose literature is flamboyant. Traditionally the highest quality furnaces are produced by solid, conservative companies whose products are likely to outperform the claims of the manufacturer. Poor quality products are often warranted for periods exceeding the lifetime history of the manufacturer.

6. Add-on units designed to supplement oil, gas or electric furnaces are, at this time, notoriously poor quality. (The Ashley, Kickapoo and Sam Daniels are exceptions.)

The University of Maine has a pending patent on a heating system considered by knowledgeable people in the industry to represent the "state of the art" in wood combustion. Three companies have been licensed to manufacture the furnace which is an integral part of the system: Dumont Industries of Monmouth, Maine; Madawaska Wood Furnace Co. of Bangor, Maine; and Hampton Technologies Ltd. of Charlottetown, Prince Edward Island, Canada. All three versions are based on Dr. Richard Hill's original designs, but there are significant differences. Dumont's furnace is designed to be assembled on-site in new construction; Madawaska's design is a build-it-yourself model; Hampton's furnace is factory-built and installation is supervised by the retailer. In our considered judgement we feel that the Hampton design is the most satisfactory for the average homeowner, and we will describe it in more detail.

The furnace itself is carefully engineered, refractory-lined, and operates under forced draft in order to guarantee an air/fuel mix as close to ideal as is possible. This produces very

high combustion and operating temperatures. A load of wood of forty to sixty pounds is easily ignited with the aid of the forced draft from a small starter-fire of kindling, and will be completely burned in less than two hours. During steady-state operation combustion temperatures will be in excess of 1300° Fahrenheit, and at this temperature fuelwood exhibits a delay-time of about 1/10 of a second in order to achieve virtually complete combustion of all volatile gases, producing only heat, carbon dioxide, water vapor, and fly ash. No creosote.

Coupled to the combustion chamber of the furnace is an air-to-liquid heat-exchanger. A heavy investment of engineering time has produced a highly efficient heat-exchange design capable of dropping the exhaust gas temperature from 1300-1400° to 150-300° Fahrenheit. The heat exchanger is in turn connected to a large (600 to 3000 gallon) insulated water storage tank. Heat is produced during steady-state operation at the rate of 120,000 to 140,000 BTU per hour, is captured by the heat exchanger and transferred to the insulated water storage by means of a small circulating pump. The pump is turned on when the furnace is fired and maintains a constant circulation between the Jetstream's heat-exchange tubes and the storage tank.

As outlined so far, the system is closed and non-pressurized, and the water contains chemicals designed to prevent corrosion in the furnace boiler. If the water storage tank were stripped of its insulation, it would provide a gentle heat similar to that of the "Russian fireplace-stove," which uses thousands of pounds of masonry as a massive heat-sink. Those interested in active solar applications will recognize at this point how easily the Jetstream system can be integrated into an active solar installation.

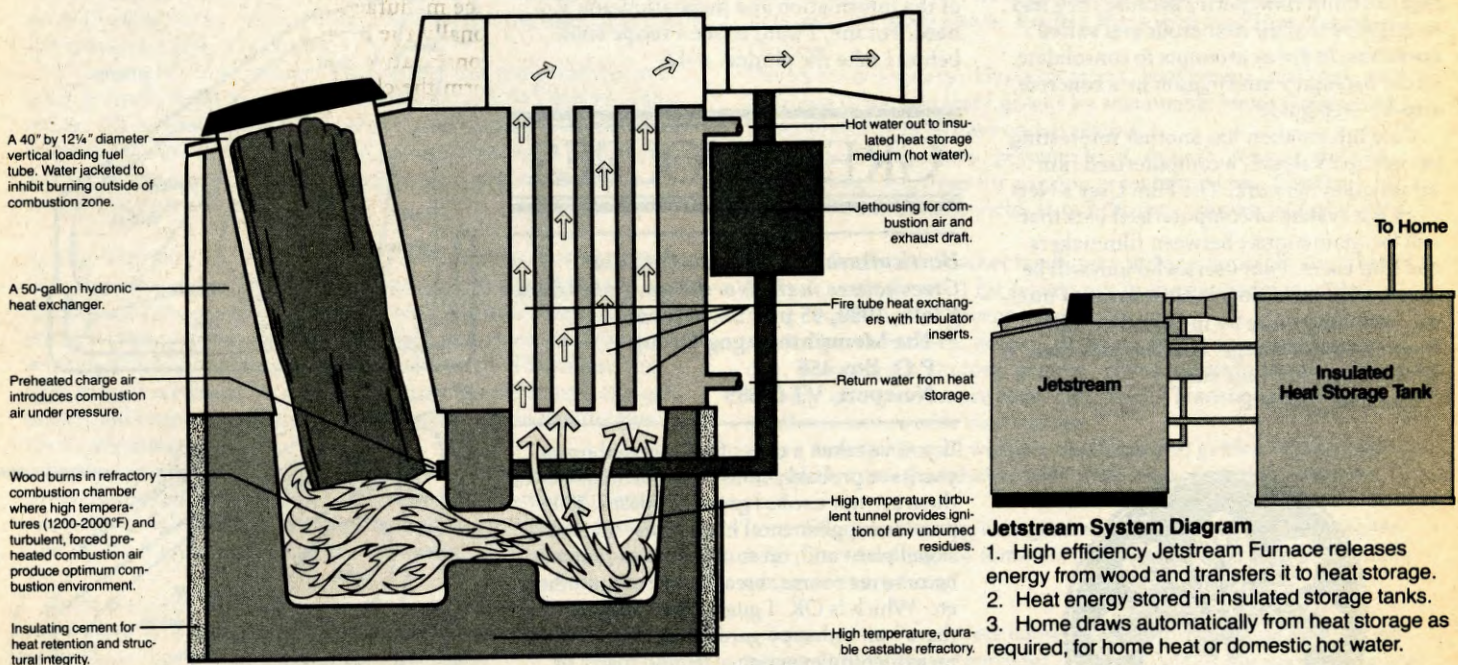
But there is more to the Jetstream system as envisioned by its designers. Depending on the type of structure to be heated, the system can take different forms from this point on. For hot-air heat in an existing structure, a liquid-to-air heat exchanger is used to draw off heat in small amounts from liquid

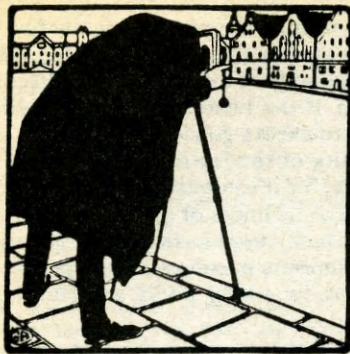
storage and send it into an existing hot-air furnace ductwork system for distribution throughout the structure. If hot-water heat is desired, a liquid-to-liquid heat exchanger is connected to a non-pressurized system. If the Jetstream is to be installed in new construction, the furnace can go either way.

At this point the flexibility of the Jetstream system becomes increasingly apparent, for it can heat a structure of any size with high efficiency up to its limits of about 120,000 BTU's per hour, and can be easily used to heat large quantities of water as well as air for domestic purposes or for special applications such as hot tubs, swimming pools, and laundromats.

The manufacturer supplies only the basic furnace and an optional digital readout panel to monitor temperatures at different locations throughout the system, such as firebox, exhaust stack, and water temperature at different locations. Fiberglass or steel storage tanks, due to their size and weight, are best sought out locally to avoid high shipping costs, and the same applies to the substantial quantity of hardware needed to complete a Jetstream system installation, such as pumps, copper piping, a small expansion tank, electrical wire and hardware, etc. The manufacturer does supply a 100-page installation and operations manual which goes into great detail and is of considerable help in assembling and de-bugging a Jetstream system as it is tailored to the individual requirements of its owner. In addition, the manufacturer selects Jetstream dealers for their knowledge of the system, its applications, their ability to supervise installations, and to troubleshoot and provide maintenance help at a later date.

Wood, as a renewable resource, has always been an excellent heat energy source. Unfortunately, it carried with it inherent problems like air pollution, and chimney fires caused by creosote buildup. Finally, with the Jetstream, these problems are virtually eliminated and a safe and sensible future for wood-burning is assured. □ □





MEDIA

In Focus: A Guide to Using Films, by Linda Blackaby, Dan Georgakas, and Barbara Margolis, 1980, 224 pp., \$9.95 ppd. from:

Cine Information
419 Park Avenue South
New York, NY 10016
212/686-9897

3 . . . 2 . . . 1 . . . FOCUS

And now, a thorough guide designed to assist individuals and groups of all kinds in the effective use of films. Every aspect of film presentation receives specific and detailed treatment, including strategies for using film in fundraising, educational, promotional, and cultural activities. Also included is an extensive resource bibliography. In working with a variety of community groups and other film users, the authors found that many were not taking full advantage of 16mm film, partly because they had no answers to their numerous and varied questions. *In Focus* attempts to consolidate all the necessary information in a concrete, step-by-step guide.

Cine Information has another interesting project up its sleeve, a computerized film information network. The Film User's Network is a system of computerized lists that will facilitate contact between filmmakers and film users. Film users who join will be informed of new films in their areas of interest, including those by independent filmmakers, free of charge. A better idea than advertising, that's for sure!

The End. —MR



FOOD

The Home Grown Vegetarian, by Pat Labine, George Burrill and James Nolfi, 1980, \$4.50 from:

Center for Studies in Food Self-Sufficiency
109 South Winooski Ave., Office 203
Burlington, VT 05401

Here's a book that appeals to my sense of reason, but causes my stomach to rebel. *The Home Grown Vegetarian* presents both the argument and the information needed for a locally grown, nutritionally sound (though supplemented) vegetarian diet. Sigh, there go the pineapples and bananas. While drawn specifically from Vermont agricultural patterns, the nutritional information and concept are broadly applicable. There is a detailed chapter on nutritional requirements of various vegetarian diets (still a hotly contested issue), with references to sources of additional information. The book goes on to present sample diets for various styles of vegetarian fare (Strict Vegetarian Diet I, II and the lacto-ovo diet) utilizing those foods grown and harvested in the New England region. A cost comparison of this eating system, whether store-bought or home-grown, completes the book. The appendices, which cover approximately a quarter of the publication's 53 pages, provide additional facts and figures on food values and nutritional summaries of the various diets. For people devoutly committed to change on the personal level, this new publication has most if not all of the information and inspiration you'll need. For me, I want to see a recipe book before I take the plunge. —LS

GREENHOUSES

Horticultural Management of Solar Greenhouses in the Northeast, by Miriam Klein, 1980, 95 pp., \$5.00 from:

The Memphremagog Group
P.O. Box 456
Newport, VT 05855

If you've taken a tour of solar greenhouses you have probably noted that the majority of them are not used as growing spaces. They provide supplemental heat, house an occasional plant and, on sunny days in January, become tea rooms, breakfast nooks, studies, etc. Which is OK, I guess, but I suspect that there's an unhappy gardening experience or no gardening experience behind many of those under-used spaces. A lack of good, organic horticultural information has frightened off many would-be growers. General information could be ferreted out (a bibliography is included in Miriam's book) but I

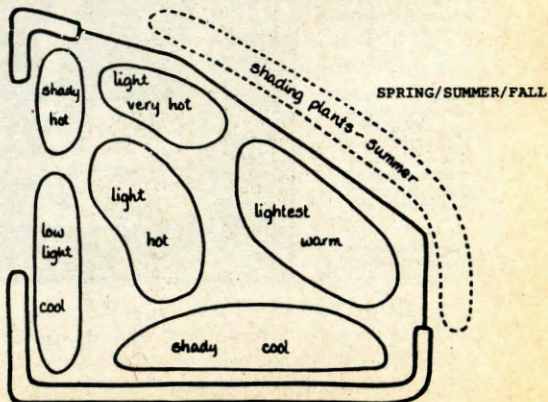
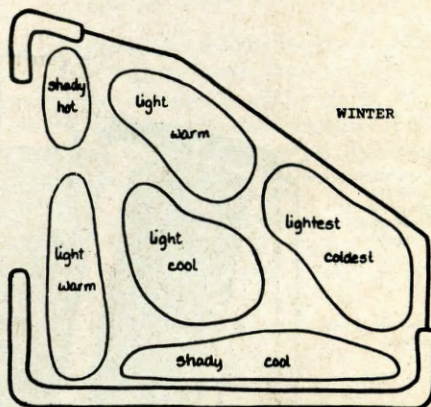
found myself having to modify all of that to suit the very cold/very hot extremes of temperature that I lived with in Minnesota. Regionally specific information is necessary, and for the Northeast at least, that need is met here. Drawn from the Memphremagog Group's own work and the experiences of 20 growers in their area, the book has a combination of science and common sense that fills it with good advice. There are design suggestions for greenhouses "as if plants matter," an annotated list of good plant varieties for solar greenhouses, descriptions of pests and their management, and more. A lot of generally valuable experience is condensed here, but for the Northeastern grower the book is as important a tool in the greenhouse as a trowel. —CC

The Food and Heat Producing Solar Greenhouse, by Bill Yanda and Rick Fisher, 1980, 108 pp., \$8.00 from:

John Muir Publications, Inc.
P.O. Box 613
Santa Fe, NM 87501

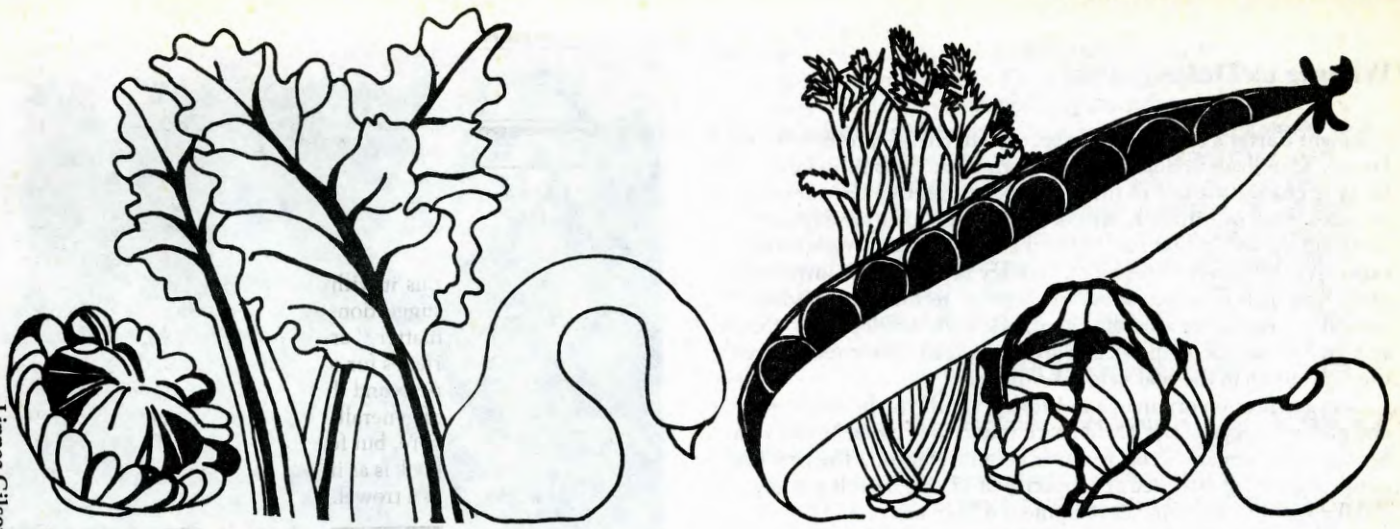
The very best beginner's guide to solar greenhousing is back, bigger, more beautiful, and packing several years more experience between its covers. That first version was quite the groundbreaker, but it was quickly passed by more comprehensive books. This 1980 edition takes "the state of the art" one step further with a wide selection of recent designs and new data observed in the interim four years. It's not simply a "beginner's guide" anymore. —CC

CLIMATE AREAS (Side View)



From *Horticultural Management*

Linnea Gilson



Seasonal Planting in the Northeast

by Miriam Klein Excerpted from Horticultural Management of Solar Greenhouses in the Northeast.

There are three somewhat distinct seasons in a solar greenhouse.

Winter: October 1–February 1

Spring: February 1–April 1

Summer: April 1–October 1

Keeping in mind that all three seasons tend to overlap considerably, here are some guidelines for each.

Winter: During the winter season there are two limiting factors to plant growth.

1. Short days and low light intensity. In the winter, neither the day length nor the light intensity is optimum for warm-season fruiting plants such as tomatoes, peppers, and cucumbers. Though it is possible to obtain fruit during these months neither yield nor quality is as high as during spring and summer months. You can bring in these plants from the garden and hold the mature plant over until December. This allows you to extend their season but avoids the pest and disease problems that may occur if you try to grow them as winter crops. (Cucumbers are not included. They will not transplant from the garden.)

2. Low night temperatures. The average low temperatures in a solar greenhouse in the Northeast range from 30–45 degrees Fahrenheit. These low temperatures are very stressful for warm season crops and lowers their resistance to pests and diseases. Leafy greens and root crops respond best to the environmental conditions in a winter solar greenhouse.

Spring: February and March are very cold months, but since both light duration and intensity are increasing, it is a good time to start seedlings for the greenhouse spring crop. You don't want to pull the entire winter crop but some plants will be past their prime and other seedlings should be transplanted by mid-March. This is also the time to start seedlings for outdoor planting in cold frames and gardens. Cold frames can be used to great advantage in conjunction with a greenhouse.

Don't start all your flats at the same time. Stagger plantings at intervals one to two weeks apart. This is particularly important if you want to sell seedlings. People don't all buy at the same time, nor can you handle them all at the same time.

If you want to grow spring tomatoes and peppers, start them in mid-February. By late April they can be transplanted into beds and by late June they should be starting to produce.

Summer: For people with a very short growing season, a solar greenhouse is a godsend in the summer. You can be sure to have ripe tomatoes and cucumbers early in the season without worrying about those early August frosts. Really long season plants like egg-

plant and cantaloupe can also be grown in the greenhouse during the summer, or it can be used for drying herbs and fruit. If your summer growing season is really quite adequate and you have a large garden to take care of, you may want to let the greenhouse rest during July and August. There's nothing wrong with this either.

A possible one-year plan:

Mid-August: Start seedlings of cabbage family, chard, beets, lettuce, chard, chicory, corn salad, parsley, scallions, endive.

Early September: Seed peas, radish, carrots into beds.

Late September: Transplant mature plants of broccoli, tomatoes, peppers, and chard from the garden into the greenhouse.

October: Harvest radish, thinnings and transplant seedlings into beds. Start more seedlings of lettuce, chard, kale, broccoli.

November: Begin to harvest leafy greens by sustainable yield.

Late November: Harvest remainder of tomatoes, peppers, cucumbers and pull those plants. Replace them with seedlings started in October.

December & January: Harvest carrots, beet greens, scallions, and continue to harvest leafy greens by sustainable yield. Growth is generally slow so go easy on harvesting.

February: Start tomato, pepper, chard, spinach, lettuce, and Chinese cabbage seedlings for a spring greenhouse crop. Continue to harvest by sustainable yield. Late February, growth begins to pick up again.

March: Start cool weather seedlings (cabbage, broccoli, cauliflower, spinach, collards, etc.) for setting out in the garden in late May. Start cucumbers for greenhouse spring crop.

April: Start tomatoes, pepper, herb and flower seedlings for garden. Transplant tomatoes, peppers, chard, spinach, lettuce, Chinese cabbage into greenhouse beds. **Late April:** Transfer cool weather seedlings into outside cold frames.

May: Transplant cool weather seedlings into garden. Transplant cucumbers into greenhouse beds. Pull whatever is left of winter crop.

June: Begin harvesting new greens, spring tomatoes, and peppers.

July: Start seedlings of tomatoes, peppers for fall crop. Continuous eating of everything!

Keep in mind that these dates are flexible depending on your particular climate, frost-free dates, and how cold or hot you're running your greenhouse. Check the chart on germination to give you an idea of what minimum temperatures are required for which plants.

Only plant what you can eat, sell or use. Space is precious. Use your space for what you cannot grow outdoors at that time of year.

Winona La Duke © 1980

President Carter's two-pronged approach to energy problems—the Energy Mobilization Board, and the Synthetic Fuels Bill—are likely to change the face of the nation permanently. The administration's mark of 2 million barrels of synthetic fuels per day by 1990 and the \$88 billion subsidy to the industry have made a very expensive, relatively untested technology possible. It is surprising, given how little is known about the history, technology, environmental and economic aspects of synthetic fuels development, that so many plants are predicted and are going relatively unnoticed as they sprout up in the coal fields of America.

Coal gasification originated in World War II. As the machinery and ground troops of the Third Reich found they could not rely on foreign oil, Germany's coal reserves became Nazi oil. The first coal gasification plant operated at a capacity of 17,000 barrels per day, stabilizing the armies and development of Germany.

South Africa has been in a situation similar to Hitler's Germany. Sanctions against the South African government, initiated by the United Nations, have put the minority regime into a precarious position in regard to further industrialization. South Africa has been preparing for these economic sanctions since the early 1950s. Having no oil of its "own," the South African government constructed a coal gasification plant, SASOL I, which became operational in 1955. Of the oil South Africa imported, 90 percent came from Iran. After the revolution, Iranian oil exports to the R.S.A. were abruptly cut off, forcing South Africa to either buy oil at the spot market price, or develop its own alternatives. Two coal gasification plants, SASOL II and III, are nearing completion, the latter scheduled for late 1982. When complete, these plants will literally become the backbone of South African industrialization, a stabilization made possible primarily by a U.S.-based corporation.

Black liberation forces have carefully monitored the development of the South African synthetic fuels facility, and in 1980 managed to postpone the timeline for South African energy independence—the African National Congress bombed the storage tanks at two of the refineries in early June.

The introduction of the synthetic fuels industry to North America promises to be quite a sensational event. According to a 1976 report of the MITRE Corporation, 24 "pilot projects" have been in operation in the United States for several years. For various reasons, however, it appears that the technology or economics of the U.S. synthetic fuels facilities are not deemed to be "the state of the art" at this time. In 1979 the Department of Energy obtained State Department clearance to buy the SASOL I Data Bank from

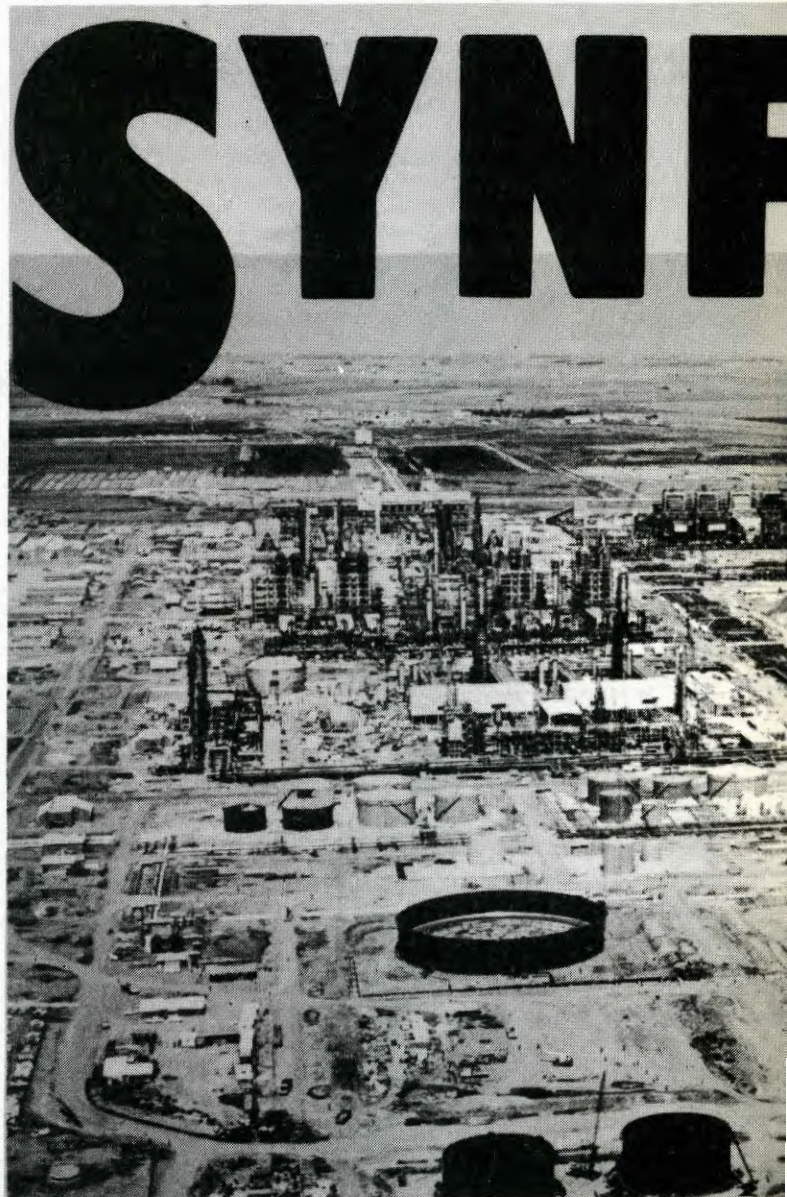
The introduction of the synthetic fuels industry to North America promises to be quite a sensational event.

the South African government.

Synthetic fuels facilities are now predicted for virtually every coal rich area in the United States. In the first Synfuels Funding Cycle, the Department of Energy awarded monies to corporations interested in building plants almost everywhere—from Maine and Alaska to New Mexico. The West, of course, will receive a good share both of funding and eventually facilities—24 "synfuels" plants are projected for the western coal fields.

From Black to Red—Bantustans to Reservations

On July 10, 1980, the Crow tribal council received a \$2.7 million grant from the Department of Energy to conduct a feasibility study on a reservation-based coal gasification plant. Other reservations which, according to the Council of Energy Resource Tribes, are likely sites for on/off-reservation synfuels facilities include Northern Ute (Colorado), Navajo (Four Corners), and the Fort Peck reser-



From Club 20

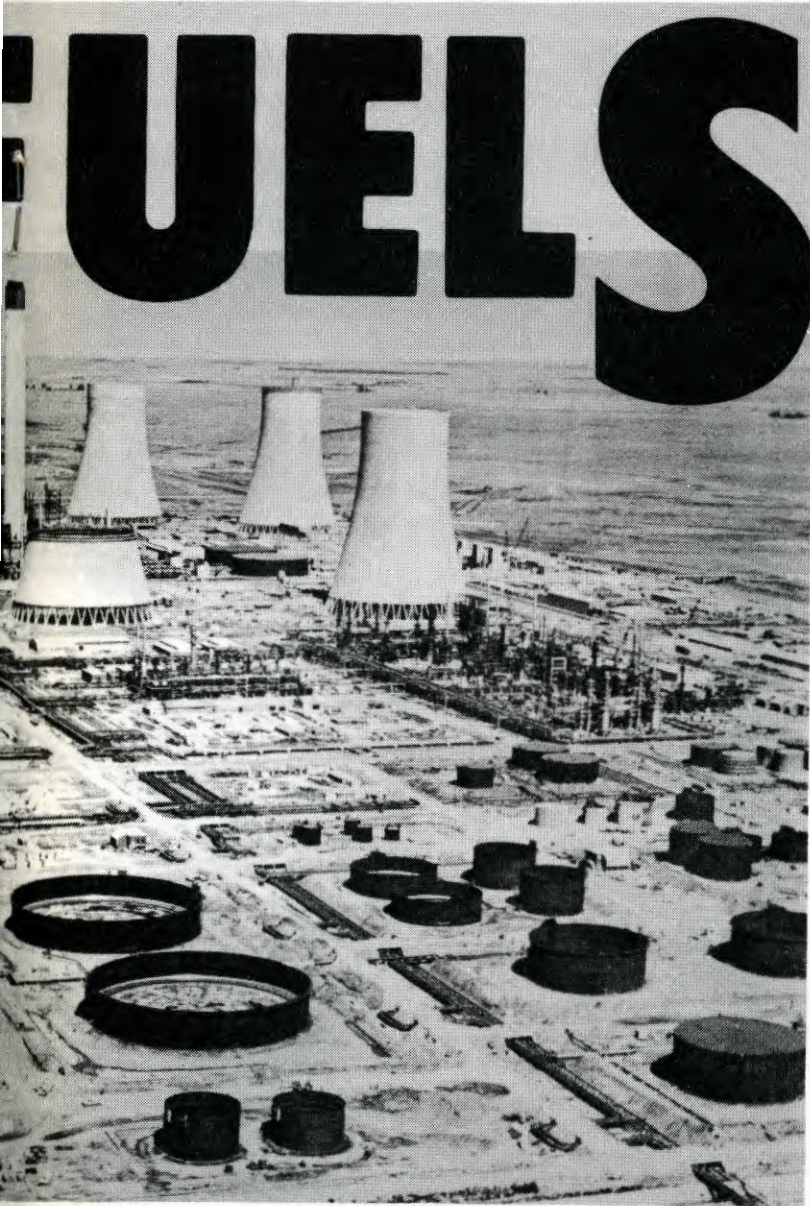
South Africa's Synfuels facility—constructed by the U.S.-b

FROM SOU TO THE HIG

vation in Montana. For such impoverished reservations, a synfuels facility estimated to cost up to \$4 billion (just for construction) is an enormous expenditure; however, some very powerful interests and financial institutions appear prepared to put the plants on the reservations at all costs.

According to *Business Week* (March 24, 1980), Equitable Life Assurance of New York has agreed as a first step to "help the Crows get the \$900 million in financing needed to build their 800-megawatt power project."

As an Equitable official notes, "Energy developments owned by Indian tribes have the potential to become excellent investment opportunities." Equitable is in a very good position to know these things. Aside from being a participant in the Peabody Coal Holding Company (a company which controls fully one-third of all Indian coal leases and incidentally an 11,000-acre lease on the Crow reservation), Equitable is a major stockholder in most energy corpora-



ased Fluor Corporation for the government of South Africa

OUTH AFRICA H PLATEAU

tions in the United States. Equitable is the top stockholder in Southern California Edison, and the number four stockholder in CONOCO and ARCO. Equitable also has a very direct connection to both the federal and Indian energy regions. Equitable was recently named to the Carter Administration's 7-member board of the Energy Security Corporation—the federal authority which supervises both purchases and subsidies from the federal level. In addition, Equitable does feasibility studies for CERT (see box), and has been directly involved in advising CERT and several other organizations. In one "advisory" Indian organization, Americans for Indian Opportunity, Coy G. Ecklund, Chairman and Chief Executive Officer of Equitable, sits on the board of directors.

Another common denominator in reservation-based energy projects is a construction firm. The Fluor Corporation (another part-owner of the Peabody Coal Company) was the contractor involved in the SASOL complex in South Africa. Fluor is also involved in the

both the Crow and Navajo coal gasification projects.

The prototype of synfuels, Fluor's model in South Africa provides some insight into what not only the tribes but other communities might expect from the final product of Fluor's work. Feeding the SASOL complex is a mining operation consuming some 27 million tons of coal annually—the largest mine system in the world. As the coal is processed into liquids and gases, 20,000 tons of "ash" per day is discharged into the environment. Employment is high, though mostly in the construction stages. Job opportunities dwindle from 22-25,000 in the building process down to 500-1,000 for actual operation of the facility. In operation, the SASOL complex requires 1200 megawatts of electricity, equivalent to a large coal-fired power plant, or enough to supply the needs of Oakland and San Jose (CA) combined.

The price tag for these facilities is not a minor factor. An estimated \$4 billion for one facility might easily be doubled by "accessory costs"—coal-fired power plants, mine systems, etc., with an added sum to be paid for any repairs or "mistakes" during the 35-year "life expectancy" of the facility. As Ben C. Ball of the Massachusetts Institute of Technology reported, should one of these facilities end by virtue of a series of human errors, "corporate failures,

What the states can't be forced into, the tribes may be "advised" into.

if and when they occur, will be enormous by any standards. The failure of a single synfuels plant producing 50,000 barrels per day would be equivalent in size to the bankruptcy of the 100th largest U.S. corporation."

Meanwhile, from South Africa to Washington, the U.S. government continues to bolster the industry. While the failure of the Energy Mobilization Board—a board which would have given federally designated "priority projects" virtual eminent domain—has caused a collective sigh of relief in many communities, the pressure has increased on the reservations. What the states can't be forced into, the tribes may be "advised" into. For the oil companies who control more coal reserves than they know what to do with, the synfuels industry is a bonanza in the "alternative market." However, the Indians, farmers and ranchers have quite a few questions which, as yet, remain unanswered. What effect, for example, would \$88 billion in taxpayer expenditures on small-scale alternative energy projects have on the rural economy? That question, and a number of others, could provide some alternative advice and answers before any more "technological testing" occurs in the name of "Energy Independence." □

The Energy Think Tanks of the West

It seems like everyone these days has an advisor. And on the pressing issues of energy development who gives the advice, and what they say, is becoming increasingly important. In the western United States, two governmental bodies have a significant influence on both federal policy and on the economy of the nation—the western governors and the Indian tribes. In the age of the "Sagebrush Rebellion," individuality is making its mark on the West—and the "think tank" which has been perhaps most influential on this major move by the western governors is the Western Interstate Energy Board.

The Western Interstate Energy Board (WIEB) actually began as the Western Interstate Nuclear Board. Situated in the same Denver office building as the Western Governors Policy Office (WESTPO), communication between the two is enhanced. The WIEB queries corporations on their plans for the West, then turns this information over to WESTPO. One of the WIEB's first projects was a study on "Nuclear Energy Centers" in the West. Completed in 1977, these nuclear energy centers or "nuclear parks" were comprised of 25-40 nuclear reactors situated in "low population zones." After

Synfuels Cont.

carefully studying both industry and governor sentiment, seven possible sites were selected in the western United States as suitable for these facilities. Ironically, and without exception, these sites are located on or adjacent to Indian reservations.

As of 1980, only two governors remained seriously interested in pursuing the nuclear parks. Green River, Utah, and the Hanford Nuclear reservation in Washington state are the two most likely sites for these facilities. [Dixy Lee Ray's recent electoral defeat in Washington probably eliminates the Hanford site. —eds.] The expectations of the industry and the governors have been scaled down considerably—the “nuclear parks” are now expected to include only 10-12 nuclear reactors.

In 1979 the Western Interstate Energy Board became primarily interested in synthetic fuels and the potential of the coal industry. In a 1979 annual report 24 synfuels facilities, 16 coal slurry lines, and up to 30 coal-fired power plants were predicted for the western United States.

The Council of Energy Resource Tribes (CERT) is the Indian Energy Think Tank. Working with 26 tribes, the advice and information provided by CERT to the tribal chairmen has a very direct influence on “decisionmaking, and eventually on the entire nation. Half a dozen studies on uranium potential, numerous studies on resource inventory, coal potential, the feasibility of coal-fired power plants, and synfuels facilities have been the major reports of the organization. Several studies on environmental options and regulations open to the tribes have also been conducted. When compared to both the funding and time allocated to gasification, however, plus the potential for a nuclear power plant on the Spokane reservation in Washington state, CERT's advice appears to be geared towards exporting resources to the United States.

Reasoning out CERT's advice, it appears to have some logical explanations. First and primary, the economic situation of most reservations—from 70 percent unemployment to an average reservation per capita income of one-fourth the national average—is a spur towards “economic development.” The most efficient means toward this goal of “development,” according to CERT, the Departments of Interior and Energy, and several other bodies, is by resource exploitation and export.

Perhaps the most significant concern of governors and Indians in the West is water. In this case, the tribes are the wild card to any energy development. Legally entitled to most of the water in the arid West, if a tribe opts for energy development the precious re-

source can be “dewatered,” become a “coolant” (for coal and nuclear power plants), and finally be slurried to Arkansas. On the other hand, if a tribe comes out opposed, energy development in the West could be in jeopardy.

This issue more than any other makes the advice and plans for Indian country of vital concern to the entire nation. □□

TRIBE	KNOWN AND POTENTIAL RESOURCES					
	COAL	URANIUM	GEOTHERMAL	NATURAL GAS	OIL	OIL SHALE
Acoma Pueblo (NM)	☐	✱	☐			
Blackfeet (MT)	☐			☐	☐	
Cheyenne River Sioux (SD)	☐	✱		☐	☐	
Chippewa-Cree (MT)	☐		☐	☐	☐	
Colville (WA)		✱	☐			
Crow (MT)	☐			☐	☐	
Fort Belknap (MT)	☐		☐	☐	☐	
Fort Berthold (ND)	☐			☐	☐	
Fort Hall (ID)			☐	☐	☐	
Fort Peck (MT)	☐		☐	☐	☐	
Hopi (AZ)	☐	✱	☐			
Jemez Pueblo (NM)		✱	☐			
Jicarilla Apache (NM)	☐	✱	☐	☐	☐	
Laguna Pueblo (NM)	☐	✱	☐			
Navajo (AZ, NM, UT)	☐	✱	☐	☐	☐	
Nez Perce (ID)	☐		☐			
Northern Cheyenne (MT)	☐			☐	☐	
Santa Ana Pueblo (NM)		✱	☐			
Southern Ute (CO)	☐	✱	☐	☐	☐	
Spokane (WA)		✱	☐			
Utah-Ute (UT)	☐	✱		☐	☐	☐
Ute Mountain (CO)	☐	✱	☐	☐	☐	
Wind River (WY)	☐	✱		☐	☐	
Yakima (WA)			☐			
Zia Pueblo (NM)		✱	☐			

From CERT

CORPORATIONS

Big Business & Renewable Energy Sources: An Analysis of the Corporate Connection, October 1980, \$1.50 plus \$.25 postage from:

**Citizens' Energy Project
1110 6th Street N.W.
Washington, DC 20001
202/387-8998**

The people at Citizens' Energy Project (CEP) have put out stacks of reports on various aspects of renewable energy development, many of which have been reviewed in RAIN. This one, though, is gonna blow the roof off. The report details the encroachment of the major oil companies and energy conglomerates into the young renewable energy industry. Some highlights of the 18 month-long study:

- Nine of the ten largest photovoltaic companies are owned by multinational corporations and six are owned or controlled by major oil firms.

- Ninety-nine percent (99%) of domestic copper production, essential for making solar heating equipment, is owned or controlled by the oil industry.

- In each of the last five years, big businesses have received no less than eighty-seven percent (87%) of the government prime solar contracts. This occurs despite the fact that eighty-five percent (85%) of solar businesses are small firms (less than 500 employees).

- A National Science Foundation study shows that small businesses are at least 20 times more cost-effective and innovative than big businesses in developing new technologies. However, the Department of Energy's (DOE) patent policies, solar standards, and equipment procurement practices handcuff small solar businesses—giving major energy corporations an unfair competitive edge.

- The media campaigns of big oil firms have, in the past, decried solar energy's potential as trivial and they continue to downplay solar despite the fact that, given proper incentives, solar energy could, according to DOE's estimates, easily contribute 20% of our nation's energy supply by 2000.

- Major corporations receive at least 75% of all government windpower contracts. For example, corporate giant Rockwell International administers the DOE Small Scale Wind Program. Trends suggest that the major oil companies also seek to dominate the research and development, manufacturing, and distribution of alcohol fuels.

The CEP study concludes that solar energy development in the U.S. is being frustrated and stymied by big oil companies, the energy conglomerates, and their advocates in government. The data suggests that by dominating the new solar energy industry, the major oil firms hope to restrict solar's growth while simultaneously maximizing their profit margins in conventional fuels. In light of these findings, CEP offers several policy recom-

mendations, including:

- Prohibit multinational corporations from investing in more than one area of energy development through horizontal divestiture.

- Reorganize the DOE to ensure that solar development is given equal support in both financial and policy terms to the level of support now given to other energy R & D programs.

- Mandate that the FTC's Bureau of Competition and the Department of Justice aggressively and accurately monitor big business involvement in solar energy and pursue litigation where necessary.

- Mandate that at least 46% (the annual % contribution of small businesses to the nation's GNP) of all government solar R & D and procurement contracts be awarded to small businesses.

Alarmed at the concentration CEP describes, the Senate Anti-Trust Subcommittee, chaired by Sen. Howard Metzenbaum (D-OH), set hearings for October 17, 1980. As we go to press the hearings have been postponed until November 14, 1980. —MR

The Big Business Reader, edited by Mark Green and Robert Massie, Jr., 1980, 640 pp., \$4.95 from:

**The Pilgrim Press
132 W. 31st Street
New York, NY 10001**

This is one of those books whose message remains with you long after you put the book down. While none of the information presented here is shockingly new (we all know that big business is unhealthy for people and the environment), I often found myself returning to information I'd read here to illustrate a point I was trying to make in some other context. The articles are well-researched and drawn from a variety of sources—from a former GM executive looking at internal policy making in that corporation to Ralph Nader on nuclear power. Corporate Governance, Technology, Health and Labor are among the topics covered. Good background reading for anyone seeking some of the better articles on this subject. —LS

"South Africa's foot-dragging vexes U.S. Companies," Business Week, Oct. 20, 1980, \$1.50 from:

**Business Week
P.O. Box 430
Hightstown, NJ 08520**

Gold is to South Africa what oil is to the Middle East . . . very big money . . . the sort of balance of trade scenario (5-year pay-back on investments!) that attracts the multinationals. Undaunted by the "hassle factor" of political unrest, some American-based corporations are cleaning up in South Africa. The Fluor Corp., chief contractor for the SASOL Ltd. coal-liquefaction complex (see Winona's article, this issue) seems unaffected by "the blend of South African constraints, polemics back home from apartheid spokesmen, and pressure from stockholding

churches, universities, and other institutions on U.S. companies to divest themselves of their South African operations." Fluor is acquiring valuable experience there that will turn an even bigger buck back home when they cash in on our \$88 billion Synfuels program. This *Business Week* article really looks more at the overall state of the economy in South Africa than at Bob Fluor's little business, and the article's tone is certainly "Business Week" as usual. Still, reading *B.W.* is one good way to keep track of the comings and goings of corporate hoo-hahs. They're popping up all over the planet.

—CC

Friendly Fascism: The New Face of Power in America, by Bertram Gross, 1980, 420 pp., \$15.00 from:

**M. Evans & Company
216 East 49th Street
New York, NY 10017**

Bertram Gross is an old-time New Deal Democrat with a long involvement in government planning and liberal reform. As a result, *Friendly Fascism* is interesting both because it is written from an insider's perspective, and because Gross is saying some fairly radical things for someone who has been so deeply involved in the rise of modern corporate society. If you've paid much attention to the increasing power of the corporate/government structure, then you probably won't find many startling revelations in this well-presented book. If the threat of fascism with a human face is a new concept to you, however, this book is definitely worth checking out.

Two important points emerge as Gross analyzes the shape and future of the American corporate state. One is that corporate fascism is not only possible, but almost inevitable in a centralized corporate society. The other is that very few of the political and social reforms that occur in such a society will be effective over the long run. The only effective way to counter modern fascist tendencies and achieve meaningful reform is through a decentralized, locally controlled economic and political structure. —KB

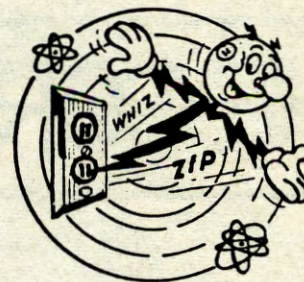
EDUCATION

Hucksters in the Classroom: A Review of Industry Propaganda in the Schools, by Sheila Harty, 1979, \$20.00/business groups, \$10.00/educators, from: Center for Study of Responsive Law P.O. Box 19367 Washington, DC 20036

Twenty years ago the complaint about our school system was that it no longer taught the basics: reading, writing and arithmetic. Today it is criticized on a much more fundamental level—for stifling the creativity of youth, their ability to think critically and to

REDDY KILOWATT.

The Mighty Atom in Person!



I'm a busy little atom! I split myself in two!
I multiply as many times as I have jobs to do!
In Summer, Winter, Spring or Fall
I'm ready every hour;
Just push a switch and watch me zip
With light or heat or power.

From Hucksters in the Classroom

be self-reliant. *Hucksters in the Classroom* is an exposé of the insidious and successful means by which corporations have entered the classroom, promoting their products to captive children under the guise of objectivity, generosity and consumer interest.

Free handouts have an immediate and obvious appeal to overworked teachers whose materials budgets (often one percent of a school's overall budget) have been severely slashed. Yet the information that actually reaches the students is often biased, filled with half-truths and misinformation. Students are taught to read using worksheets which display food and toiletry products as teaching tools ("A" is for Agree: the Shampoo and Conditioner that honestly helps the greasies"), cartoons are used to present the case of nuclear power (a Disney/Exxon comic, "Mickey Mouse and Goofy Explore Energy") that appeals to a child's "natural credulity and sense of loyalty" while making light of such serious issues as nuclear waste.

The first half of *Hucksters in the Classroom* uncovers corporate propaganda in nutrition, energy, and economics education. The second half explores the means and manner of regulating corporate trafficking: who should be screening educational material? While corporate contributions are not outrightly rejected, several valuable recommendations have been suggested to curtail their use: 1) that materials be chosen discriminantly; 2) that they be used as a supplement rather than a basic teaching device; 3) that practices followed in selection be put in writing, officially adopted and widely circulated; and 4) that state law be used as a means of regulatory action. While changes in educational practice are necessary, the process will be a long and arduous one. *Hucksters* doesn't offer any easy solutions, but it does raise important questions about the role of corporations in education and the responsibility of the educator to screen "free" handouts more carefully so that students will get the education they deserve. —LS

THE CORE OF THE STRUGGLE

AN INTERVIEW WITH JOHN TRUDELL

This summer we had the opportunity to meet and become friends with John Trudell. We've heard him speaking at anti-nuclear and Survival Gatherings over the last year or so, and have been impressed with his ability to draw insights from dozens of directions and use them to get to the core of difficult issues and concepts: how we communicate, how our history has served and limited us, our broader goals. . . . The following conversation sheds some light.

—RAIN

Rain: Please tell us about your background—how you got involved in AIM (the American Indian Movement).

Trudell: Well, I grew up in the Midwest. I was raised in Nebraska and left there when I was seventeen and went into the service. That was in 1963. I spent almost four years in the Navy and got out in June of 1967. Then I went to college in San Bernardino for almost two years. The Alcatraz occupation started in San Francisco and I went to Alcatraz and stayed there. It was then that I really started to move back into my own community. The years in the service and in college I was just kind of drifting around for lack of a better place to go or better things to do.

“If Indians really hated, there wouldn't be any Indians.”

Rain: You weren't political then?

Trudell: No, not really. I was just surviving.

Rain: What year did AIM begin?

Trudell: AIM started in July of 1968.

Rain: Were you in on its founding?

Trudell: No. In 1968 I was in San Bernardino and went from there to Indians of All Tribes, which was the name of the people who were occupying Alcatraz, and I stayed with them from December of 1969 until July of 1971 when the occupation ended. Then I went to Oklahoma and started working with some young people for an Indian organization there. It was at that time that I started working with AIM directly.

Rain: What was your first involvement?

Trudell: I can't single out any particular thing that was my first involvement other than we started working together. I worked with the AIM leaders during the time I was at Alcatraz. This was the time when I met Russell Means, Dennis Banks, and Clyde Bellecourt. We all became friends and we were just working together. We started out at Alcatraz talking about honoring the 1868 Fort Laramie Treaty, and we were talking about our people needing education and housing and health services. We were talking about op-

pression, and while we were doing this on the West Coast, AIM was simultaneously doing another form of it in the Midwest. All of a sudden it seemed like it was a coordinated effort, but in actuality, I think it was just a natural event that was happening. The voice just started to come out and kept on coming. When I think about my involvement in AIM or any of the other things that I've involved myself in in this struggle, I just look at all of them as people's efforts and I work with the organizations as best I can, because that's part of organizing: working with organizations and being part of these things. So, I consider myself to be a part of any organization that I feel is effectively and practically speaking to the people's needs.

Rain: How would you define an effective organization?



Trudell: I don't consider most bureaucracies very effective. I guess it would have to do with philosophy more than organization, because I believe the only true alliance the indigenous people are going to make amongst themselves and with other people is one based on earth consciousness—a respect for the earth. So I look for groups of people who are talking about protecting the earth. To me, that consciousness is a part of a cooperative, sharing consciousness, but yet it places our value on the earth. We're not just doing it for us, but for the earth and for all the things that are a part of the life of the earth. To me, these are what are really important issues. I don't want to get caught up in chasing revolutions that aren't real. I have to live by my practical experiences in America and my involvement in America, because that's where all the controls that have ever been imposed upon me have been imposed. One of the things that I will never forget is that Americans had their version of a revolution two hundred years ago, and I'm not into revolution. I don't see the answer as being there. I think we're talking more in

practical terms of liberating ourselves from a mentality and a value that has been imposed upon us. That's the oppression that allows all the brutality and the violence and the sexism and the racism, the double standard of justice. The value that people have been conditioned to accept. I believe that the only way to challenge that value is to look to where our real purpose in life comes from, and our situation in life. That situation is that we are a part of the earth and I believe that we've got to develop our consciousness into protecting that earth. By doing that, we're protecting ourselves. If we attack the earth, we're attacking our own spiritual balance.

Rain: We understand what you're saying, but you sound a little like people who are into a new age/mellow speak kind of rap: "consciousness is it; you don't need any action." But you do a lot of practical action. How does that fit into your idea of social change? You say you're not into revolution . . .

Trudell: I'm into "let's liberate ourselves, let's take our minds away from the oppressor's control. Let's come to peace with ourselves. Let's understand our individual limitations. Let's under-

"If the Indians were successful in talking about self-determination, maybe cities would want to do it, or counties, or all the white people."

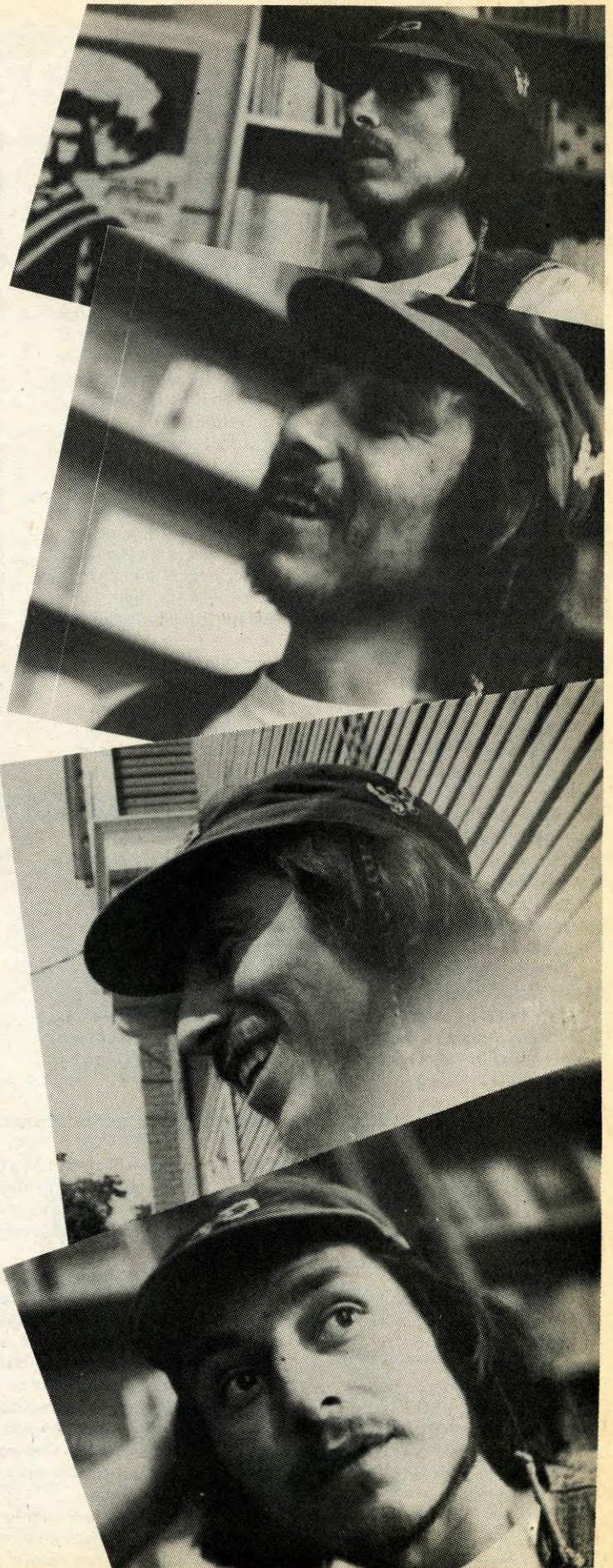
stand the necessity to pass on to coming generations a stronger spirit in resistance, less confusion than we had." I believe we live in a time when our oppressors have conditioned us to be reactionary, not to think. . . . Almost every time, we react to something that they do, and every time that happens, it means that we continue to be manipulated. We're not laying out an effective resistance to break away from that manipulation. I've seen the white people try to do it through politics—worker's rights, women's rights, equal rights, or whatever. But all of these are only parts of a total. The earth is our total existence. If we can just understand that, maybe we'll learn to love ourselves, liberate ourselves.

Let's not confuse tactics and consciousness. You don't know what you're going to have to do in your struggle for liberation, militarily or politically, but you've got to do it based on something stronger than hate. Let's not get caught up in the romantic rhetoric of revolution, because revolution isn't practical in America. If the American power structure felt jeopardized by revolution, they wouldn't have allowed the selling of Ché posters in 1967. For the revolutionary in America, the idea and romanticism of revolution keeps him in his place, just like the illusionary electoral voting system keeps the citizen in his place. So we've got to find a way to overcome these things. We've got to free our consciousness from what is being imposed upon it. That's a liberation. It's not enough that we're in the right, we've also got to be realistic.

Rain: How would you apply that kind of philosophy to Wounded Knee, where you would likely have a feeling of hatred toward your oppressor?

Trudell: We get confused in our feelings sometimes. You have a feeling of anger. You see that there is an enemy come to destroy you. You can deal with that enemy out of anger just as well as you can out of hate. You can be just plain pissed off about the things that are happening. Hate to me is a different consciousness, because if Indians really hated, there wouldn't be any Indians. The real haters outnumber us. A lot of times we think we hate something, but we're really just mad at it. At Wounded Knee, it was just a practical matter of survival, and not something based on hate. The U.S. government was launching an attack on the people at Pine Ridge because of the resources on the land. Indian militants were gaining momentum and public support, so the government had to make an

cont. —



Trudell Cont.

example of them. They couldn't allow one group of people to start to get control of their lives and start to take it away from the profit maximizers. The next thing you know, if the Indians were successful in talking about self-determination, maybe cities would want to do it, or counties, or all of the white people. . . . That's what the whole thing was about.

Rain: How do you feel about the direction of the anti-nuke movement?

Trudell: The best I can see of it, it's made up of people who are truly afraid of nuclear power: young people from the unorganized "youth movement," remnants of the civil rights movement, other segments of other movements. What I hope is that all of them will start addressing themselves to their relationship with the land. The radiation helps us to see this relationship and helps us to help others to see it. It affects the ground, the water, etc. Right after Three Mile Island, I was in various places kind of feeling out the anti-nuclear movement. One of the feelings I got at that time was that we weren't taking things seriously enough. It's not enough that we're in the right, or that we're turning people out for anti-nuclear protests, because we have to understand that the other side has gone to great pains to neutralize any political resistance that will come out in the '80s, and I don't think we're as aware of that as we should be. I worry sometimes that the anti-nuclear movement is going to have to take an ass-kicking to understand that. We're in the right, but the energy corporations are into profit, and nuclear power and control of energy is profit.

In a way, we've got to be resetting up our communications with each other, because this time around—more than in the '60s—we've got to try to have a better level of honesty. Not that I mean we deliberately lied to each other, but we misled ourselves then. When the government and the corporations send their spies and provocateurs amongst us, how can they survive? They survive on their lies, and it's quite obvious to me that *their* lies don't stand out because they're hidden among our lies. We're talking now about the experience of resistance versus the emotional momentum of movement, and I think we've got to look at some of that. We said in the '60s that we were against war, but we weren't really being honest about it, because when it came right down to it, and we were offered the bribe, everyone settled for withdrawal from Vietnam. Somewhere in there we made a compromise amongst ourselves and we weren't honest about it.

Rain: We're finally saying it. We're finally getting at the core of what we've been struggling about for ten, twenty or more years: that it's not ending any one war or getting one particular bit of civil rights, but rather it's opening our brains back up and becoming strong people—then saving the planet.

"For the revolutionary in America, the idea and romanticism of Revolution keeps him in his place, just like the illusionary electoral system keeps the citizen in his place."

Trudell: That's where I think there's more at stake here than we're really aware of. It's going to be easier for our side if the anti-nuclear movement doesn't compromise itself by becoming just a one-issue movement, and further re-divide into sub-movements which concern themselves only with reactors or weapons or uranium. I hope that doesn't happen, because I think we can be a very formidable force.

Rain: It seems a key to it is that it's not just what they do with resources, but that *they* control resources. We have to re-establish our priorities so that it's not just the anti-nuke movement, but a movement that addresses itself to the whole concept of controlling land and resources.

Trudell: They control the resources because they control us. When you have an attitude that you can own the land, that attitude should not be that you can own everything that goes with it, too. That attitude is an unnatural act. We're not fighting them for ownership at all. We're fighting them about how it's going to be used, and what our place is going to be on it. And our grandchildren's place. □□



REGIONALISM

Devolutionary Notes, by Michael Zwerin, 1980, 63 pp., \$2.95 plus \$5.00 postage from:

Planet Drum Foundation
P.O. Box 31251
San Francisco, CA 94131

Zwerin has written a strange and fascinating little guidebook to a movement that is "re-designing the map of Europe." He introduces us to places like Cymru (Wales), Breizh (Brittany) and Euskadi (Basque country) and to the people who live and struggle there. Like Basque "separatist" Juan Jose Echave:

"There will always be a Basque problem until they give us full autonomy. Because—let me make this very clear—I was not anti-Franco, and I am not anti-Suarez. I'm anti-Spain."

Although Zwerin confines himself to Europe, this movement does not. All over the world, in places we think of as Greenland, New Zealand, Quebec, and Native American "reservations," in socialist as well as non-socialist states, there are people advocating autonomy. What condition do they share?

Occupation. Occupation is the imposition of rule by aliens. Occupation can take political, sociological or cultural form. States occupy nations.

Nations should not be confused with States. A Nation is an organic social, economic and geographical unit with common history, language and mores . . . a clan or a

collection of clans. States are artificial political assemblages . . . superimposed over nations.

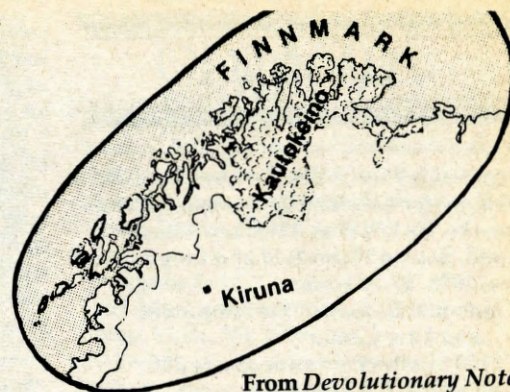
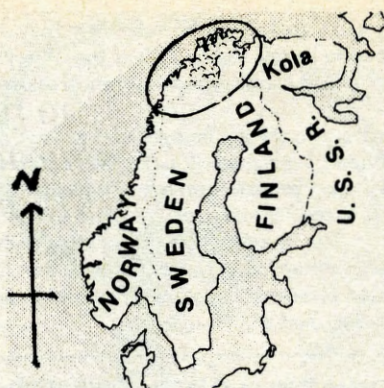
Zwerin dubs this movement of national minorities "nationism," which he describes as a new form of nationalism based on "the will to remain different, minority cultures fighting a last-ditch battle to save themselves from . . . this conglomerization called internationalism." All right, perhaps, but what do these people actually want? Won't this be just the same boring transfer of power from one oppressor group to another? Zwerin insists otherwise.

Autonomists, devolutionists, separatists, nationists, whatever we choose to call them . . . the heart of their platform calls for a breakdown of power. They are the only politicians anywhere near the mainstream interested in destroying the power of the State

rather than capturing it for themselves. What happens after that? Will they be any better than other politicians? Well, personally, I would rather see Idi Amin president of Uganda than of a United States of Africa. You have a point there, Michael. —MR

The Northwest Experience, Volume 1, edited by Lane Morgan, 1980, 180 pp., \$4.95 from:
Madrona Publishers
 2116 Western Avenue
 Seattle, WA 98121

"The Northwest Experience is in itself an inquiry into the nature of regionalism and an attempt to define the Pacific Northwest as a region," writes the publisher of the first volume of this open-ended series. The anthology consists of 21 essays and articles on Northwest life past, present and future. With authors ranging from William O. Douglas to Ray Mungo to the City of Portland, the collection covers the history and early planning, if you can call it that, of Seattle, Tacoma and Portland, moves on to housing, finance, and residential displacement, and eventually settles on myths, architecture, and regionalism.



From *Devolutionary Notes*

Perhaps most interesting is Peter Scribner's piece, "An Ecocity for Puget Sound." Taking into account numerous environmental and social factors, Scribner proposes an ecocity for the northeast corner of the Olympic Peninsula, in the rainshadow of the Olympic range.

Reading through the book, especially Dick Pintarich's "The Portland that Might Have Been," enriched my sense of place. I'm looking forward to future volumes in this series. For, as publisher Dan Levant recognizes, "If regionalism is important to the future of the United States—economically, culturally,

socially, or in whatever sense the term is used—the Pacific Northwest, with its tremendous natural advantages, should offer the best insight into what forms regionalism can take." —MR

North America's Nine Nations



A new regional map of North America, as visualized by Joel Garreau and drawn by Richard Furno. From Garreau's forthcoming *The Nine Nations of North America* (Houghton-Mifflin, May 1981). Reproduced by permission, © *The Washington Post*.

WORK

Organizing Production Cooperatives: A Strategy for Community Economic Development, by William Alvarado-Greenwood, Steven Haberfeld and Lloyd C. Lee, 1978, \$7.50 from:

National Economic Development and Law Center
2150 Shattuck Avenue, Suite 300
Berkeley, CA 94704

Coming from a background in consumer co-ops, it was interesting to learn more about producer/worker co-ops. Basing their work on the premise that increased economic power is a prerequisite to political power, the authors have created a "how-to" manual for organizing production co-ops for community economic development.

Often judged in comparison to community development corporations (CDCs), co-ops have both advantages and disadvantages unique to their structure. Beginning with a useful comparison of these two alternatives, the authors cover such nuts and bolts topics as: organizing a feasible business, taxes and securities, and creating a co-op management system. The three appendices provide additional information such as a list of co-op extension service offices and a questionnaire to help members in planning and research. While I feel some reservations about their initial analysis (that money is the key to resolving questions of inequality) *Organizing Production Cooperatives* is unquestionably a valuable resource for any community group considering production co-ops or CDCs.

—LS

Casting New Molds: First Steps toward Worker Control in a Mozambique Steel Factory, a conversation with Peter Sketchley and Frances Moore Lappé, 1980, \$2.25 from:

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

"Our struggle is not just a struggle for production. It's a struggle also for making ourselves more human, for creating among ourselves human relationships of a new kind."
—A Mozambiquan factory administrator, chosen by the workers.

Based on the experience of Peter Sketchley, a foreign advisor to Mozambique, *Casting New Molds* is a unique and personal account of the efforts of a newly independent steel factory to achieve cooperative ownership. Years of exploitation by the Portuguese robbed the Mozambique people not only of their wealth, but of their confidence and pride. In the five years since its liberation, the Mozambique government has demonstrated a commitment to a democratic participatory society that goes beyond mere

changes in structure. Lappé and Sketchley touch upon heated topics such as the concepts of leadership, planning, and technical assistance.

Contrary to the media's stigmatized and bleak view of socialism, *Casting New Molds* offers a more realistic and hopeful picture of both its successes and problems in this new country. The process of creating a truly participatory democracy, rather than the presentation of a static concept, is demonstrated in its pages. —LS

"Microelectronics at Work: Productivity and Jobs in the World Economy," by Colin Norman, *Worldwatch Paper #39*, October 1980, \$2.00 from:

Worldwatch Institute
1776 Massachusetts Ave. N.W.
Washington, DC 20036

In 1946, ENIAC, the world's first electronic computer, was switched on at the Moore School of Engineering in Pennsylvania. It was a room-sized monster which contained 18,000 vacuum tubes and consumed enough power to drive a locomotive. A present-day computer of equivalent capability fits into a pocket, costs less than \$100, and runs on flashlight batteries. That comparison sums up what a committee of the National Academy of Sciences has called "a second indus-

trial revolution." Advances in microelectronics are already altering our lives in countless ways, but Worldwatch researcher Colin Norman believes we are just at the beginning; attempting now to assess the social and economic impact of what is happening is "akin to forecasting the impact of the automobile as the first Model T rolled off the assembly line."

Nevertheless, an assessment must begin immediately if we are to counter the potentially negative impacts of the microelectronic revolution, and Norman's preliminary findings deserve wide attention. Many of the impacts he notes will be in the areas of industrial and office employment. The microelectronics industry itself can be expected to generate additional jobs in the coming years, but already a single microelectronic device can substitute for hundreds of mechanical parts which previously required human labor to assemble. Increasingly, computerized robots are being used to perform the assembly jobs which remain, and this trend will accelerate as new robots are perfected with a well-developed sense of "sight" and "touch." In the "electronic office" of the near future there will be less call for proofreaders, accountants, secretaries, telegraph operators and billing clerks. Women in traditional job roles can be expected to bear much of the brunt of this change.



From *Casting New Molds*

Can industrialized countries choose to avoid job displacement by avoiding computers? Norman says that every expert who has studied the potential impact of computers has come to the same conclusion: "more jobs will be lost in those countries that do not pursue the technology vigorously than in those that do. The reason is that microelectronics will enhance productivity to such an extent that the industries that move swiftly to adopt the technology will have a competitive advantage in world markets." The result could be a period of "jobless growth" with higher earnings for a few and displacement for many unless ways are found to distribute the benefits of the new technology more equitably. What is essential, concludes Norman, is "a combination of revitalized employment policies, greater industrial democracy and new ways of distributing both the hours of work and the fruits of technological change . . ." —JF

FOREIGN

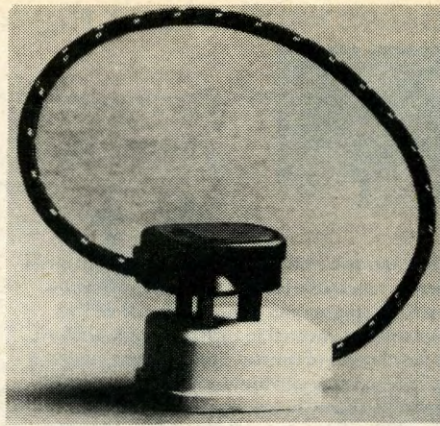
Ecology versus Politics in Canada, edited by William Leiss, 1979, 282 pp., \$7.50 from:

University of Toronto Press
33 East Tupper St.
Buffalo, NY 14203

William Leiss is the author of two of the most intellectually exciting books I have ever read. *The Domination of Nature* (1974) explores the relationship between domination of the natural world and domination in the social world; it is essential reading for social ecologists. *The Limits to Satisfaction* (1976) takes a critical look at the forces in industrial societies that create endless "needs" that can only be "satisfied" through the marketplace, and then only at the expense of ecological, social, personal, and psychological well-being.

More recently, Leiss and his colleagues at York University and elsewhere, under the sponsorship of the University League for Social Reform, have organized this anthology on Canadian ecology and politics. Twelve original essays focus on how ecology blends with politics, government activity, and economic theory; on government inaction with regard to industrial and occupational diseases; on the social and environmental issues raised by our search for energy, particularly nuclear electricity; and on administrative aspects of environmental policy-planning and environmental assessment.

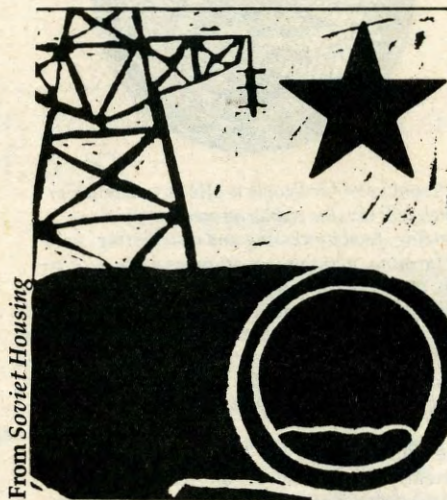
While these essays are, in the main, case studies, most deal with broad conceptual themes or with everyday situations in which citizens now confront pollution or occupational health hazards. In particular, the essays by Grahame Beakhuist, Robert Sass, and Leiss himself will be of interest to non-Canadians as well as Canadians. —MR



Soviet Housing and Urban Design, 1980 from:

U.S. Department of Housing and Urban Development
451 Seventh St. N.W.
Washington, DC 20410

Soviet Housing and Urban Design is a set of dry papers on the centralization and standardization of Soviet urban planning and construction; the current situation and future prospects of Soviet cities, especially new towns; socio-economic aspects of city life, particularly housing; and technical and practical achievements of Soviet construction. While it contains virtually nothing about Soviet architecture, the sociology of urban life, or construction financing, there is some



interesting information on cogeneration (a single combined heat-electric power station directly supplies one half of Kiev's population—approximately one million people), building materials and components ("the oft-noted shoddy exteriors of Soviet buildings generally conceal sound interior structures"), and *novye goroda*, or new towns (the "more than one thousand new urban settlements, which among them contain [depending on the definition] from one-tenth to better than one-quarter of the entire urban population").

Hopefully reports like this can help us replace some of the myths and propaganda surrounding Soviet life with understanding based on open and honest contact. —MR

ODDITIES

Vicious Circles and Infinity: An Anthology of Paradoxes, by Patrick Hughes & George Brecht, 1975/79, 84 pp., \$2.95 from:

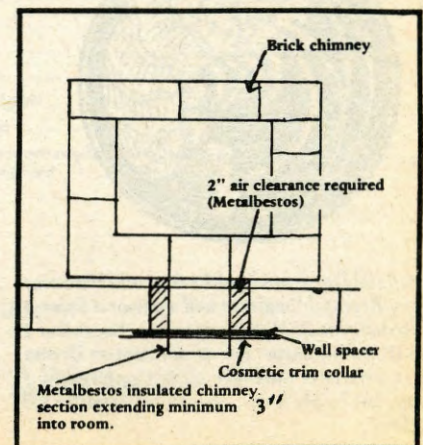
Penguin Books
625 Madison Avenue
New York, NY 10022

"This sentence is false."
"That don't bother me none."
"In principle I am against principles."
"Me too. Huh?"
"Never say never."
"I never do."
"All generalizations are dangerous, even this one."
"Especially that one!"
"Trying to define yourself is like trying to bite your own teeth." (Alan Watts)
"Speak for yourself."
"The more you know, the less you think you know."
"I know."
"If I don't know I don't know, I think I know. If I don't know I know, I think I don't know." (R.D. Laing)
"Oh, no!"

Is there a mathematical genius, a philosopher king/queen, or an uncorkable punster in your life? If so, buy this book, stare at the pictures—especially the snake eating itself, the hammer nailing itself, and the hand drawing itself (I wonder if this book wrote itself)—then give the book to your friend before it gives you what it gave me—a royal headache! —MR

CORRECTION

Oops! Example D in last month's article on fireplace retrofits should have shown this diagram rather than the one we printed. The series of diagrams appears corrected in Bill Day's revised *Woodstove Guide* (see order form).



RUCTION

Rodale Press is gathering material for a project book on handmade house details. Owner-builders, custom builders, and craftspeople who have designed and built unusual and beautiful details in their own homes or for others are invited to contribute. The emphasis is on natural materials, and details to be included are doors, windows, walls, floors, ceilings, fireplaces, stairways, lofts, tubs, sinks, and decks. Rodale will pay for photographs and manuscript copy or for interview time if your project is selected to be included in the book. As a first step, send a snapshot of the detail and a brief description of the building process you used to Amy Zaffarano Rowland, Rodale Press, 33 East Minor Street, Emmaus, PA 18049 or call 215/967-5171 ext. 457.

"Earth-Sheltered and Passive Solar Housing" will be the theme of a one-day seminar to be held at Jordan College in Cedar Springs, Michigan, on January 24. For details contact Linda Bouwkamp, Energy Programs, Jordan College, 360 West Pine Street, Cedar Springs, MI 49319, 616/696-1180.

The Center for Responsive Governance and Delphi Research Associates will convene a symposium on "Living with Scarcity: European Perspectives on Energy Futures" in Austin, Texas, December 10-11. For information contact Nelson Rosenbaum at the Center for Responsive Governance, 2000 Florida Avenue N.W., Washington, DC 20009, 202/265-4818.

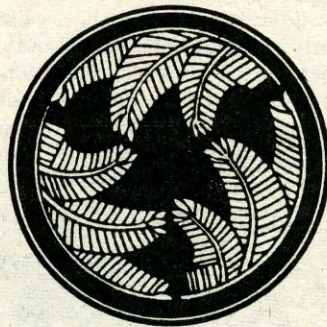
The Grantsmanship Center will offer its five-day intensive funding workshop in a number of cities during December and January, including Los Angeles, New Orleans, San Francisco, New York, Washington, Salt Lake City, and Houston. The workshops will include presentations on program planning, proposal writing, and federal, corporate, and foundation funding opportunities. Contact Joan Sullivan, Program Registrar, Grantsmanship Center, 1031 S. Grand Avenue, Los Angeles, CA 90015.



The federal Department of Energy and the Solar Energy Research Institute will sponsor a Solar Industrial Process Heat Conference, December 16-19 in Houston, Texas. For details contact Donna Post, Conference Manager, SERI Conferences Group, 1617 Cole Blvd., Golden, CO 80401, 303/231-1861.

Where can you find thousands of books and magazines on renewable energy, organic agriculture, recycling, appropriate technology, and all the other subjects covered in each issue of RAIN? At the Rainhouse, of course! Stop in when you're in the Portland area and browse as much as you like. Our usual library hours are 9 to 5, Monday through Saturday, but call ahead (227-5110) to make sure we're in. The strange people you may see scurrying about, mumbling something about a "copy deadline," are generally harmless and will be glad to help you with your reference needs.

A Passive Solar and Earth-Sheltered Housing Conference will be held in Birmingham, Alabama, February 19. The event will be sponsored by the Alabama Energy Extension Service and the Home Builders of Tuscaloosa. For more information contact Alabama Energy Extension Service, Auburn University, Auburn, AL 36830, 205/826-4718.



National Land for People is offering internships which will involve public interest research, organizing, food processing and distributing, natural farming, plant propagation, and low-tech energy and construction. There is a minimum time commitment of six months; full year preferred. Food and sleeping space provided, but no stipend for first six months. Academic credit is possible. Contact National Land for People, 2348 N. Cornelia, Fresno, CA 93711, 209/237-6517.

The California Office of Appropriate Technology currently has openings for an Architect/Solar-Conservation Designer, a Mechanical Engineer, and a Design Team Manager. For details, contact Governor's Office of Planning and Research, 1400 Tenth Street, Sacramento, CA 95310, 916/322-3170.

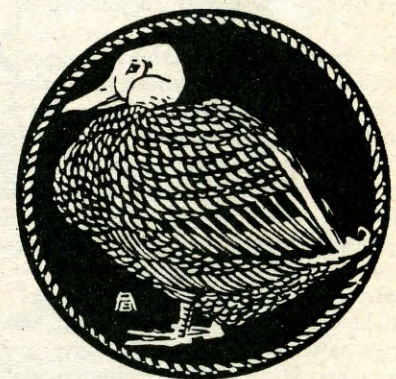
INTERN WANTED. The Farallones Rural Center is looking for a person to fill a one-year internship in an edible landscaping program. Focus will be on tree crops and intensive methods of tree crop culture. The program will involve lots of hands-on experience supplemented by some lecture and directed study. Persons selected will be asked to pay \$200/mo. for room and board. Send resume to Robert Kourik, Farallones Rural Center, 15290 Coleman Valley Road, Occidental, CA 95465, or call 707/874-3060 9 to 5 weekdays.

"Energy from Biomass and Wastes" will be the topic of a conference to be held in Buena Vista, Florida, January 26-30. The Institute of Gas Technology is the conference sponsor. Discussion will center around conversion processes, integrated systems, biomass production, factors affecting commercialization, net energetics, and more. Contact Kathy Fisher, Institute of Gas Technology, 3424 S. State Street, IIT Center, Chicago, IL 60616, 312/567-3650.

"Zoning for Solar Access" is the subject of a short course to be offered January 15-16 by University of Wisconsin Extension in Madison. The same institution will offer "Alcohol Production for the Farm" January 17-23. For details on either course contact University of Wisconsin Extension, Dept. of Engineering and Applied Science, 432 N. Lake Street, Madison, WI 53706.

The Owner Builder Center in Berkeley is now accepting applications from people interested in being trained to teach housebuilding courses in their own communities. Emphasis will be on the potential for inexpensive, self-reliant approaches to housing. Next training program will be held January 25 to February 8, 1981. For further information contact the Owner Builder Center, 1824 4th Street, Berkeley, CA 94710, 415/848-5951.

Antioch University's Northwest Regional Branch offers graduate education in appropriate technology under its Urban Studies and Planning masters program. Courses are currently available in Seattle and may soon be available in Portland as well. For information on the program contact Ted Gage, 1729 17th Avenue, Seattle, WA 98122, 206/323-2270, or Donna Grund Slepach, 817 Brighton, Oregon City, OR 97045, 503/657-3811.



Corrections:

We published an access piece in our October issue (p. 9) for the President's Clearinghouse for Community Energy Efficiency in which we stated that one of their jobs is to provide energy conservation information to "the general populace." They inform us that their mandate is actually to inform local government officials.

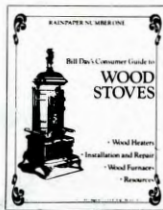
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Bill Day

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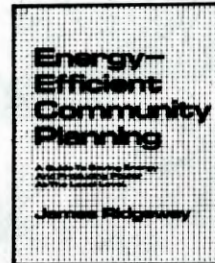


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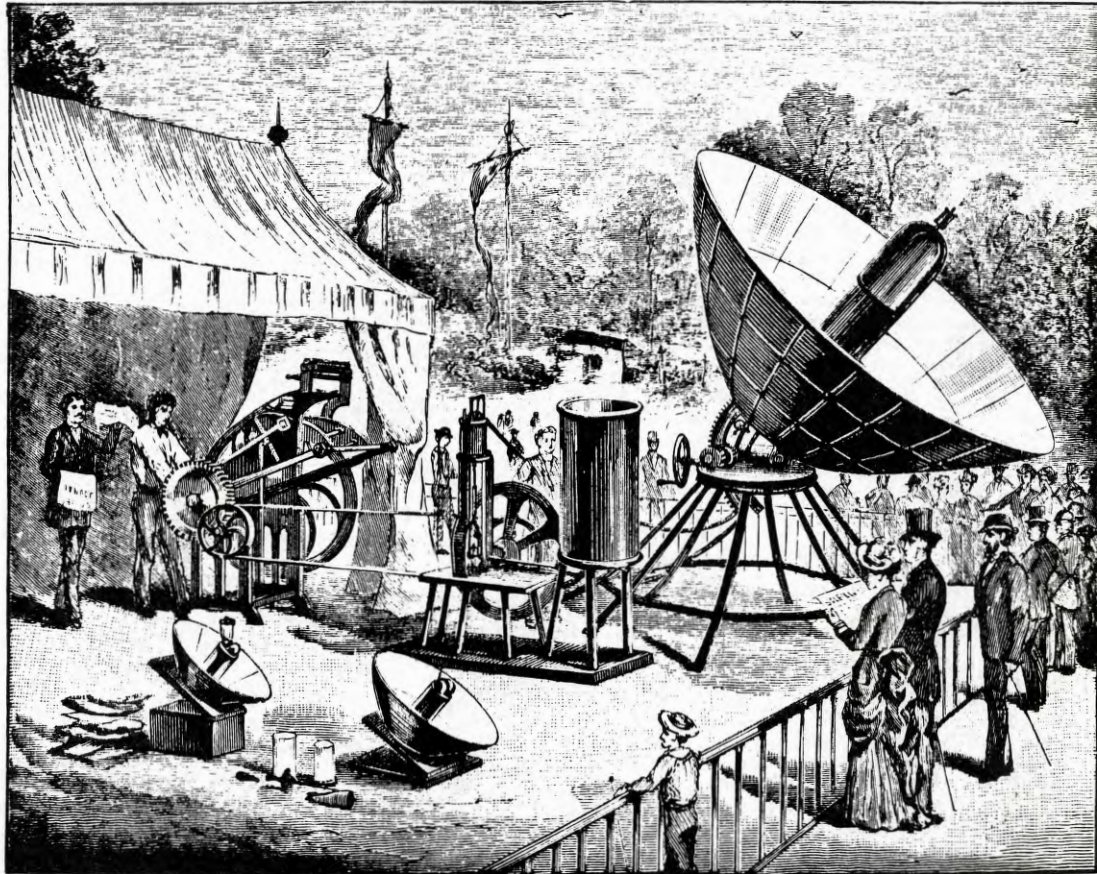
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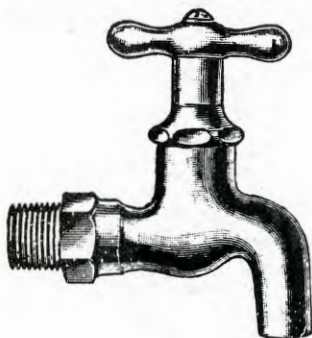
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