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RAIN: Journal of Appropriate Technology

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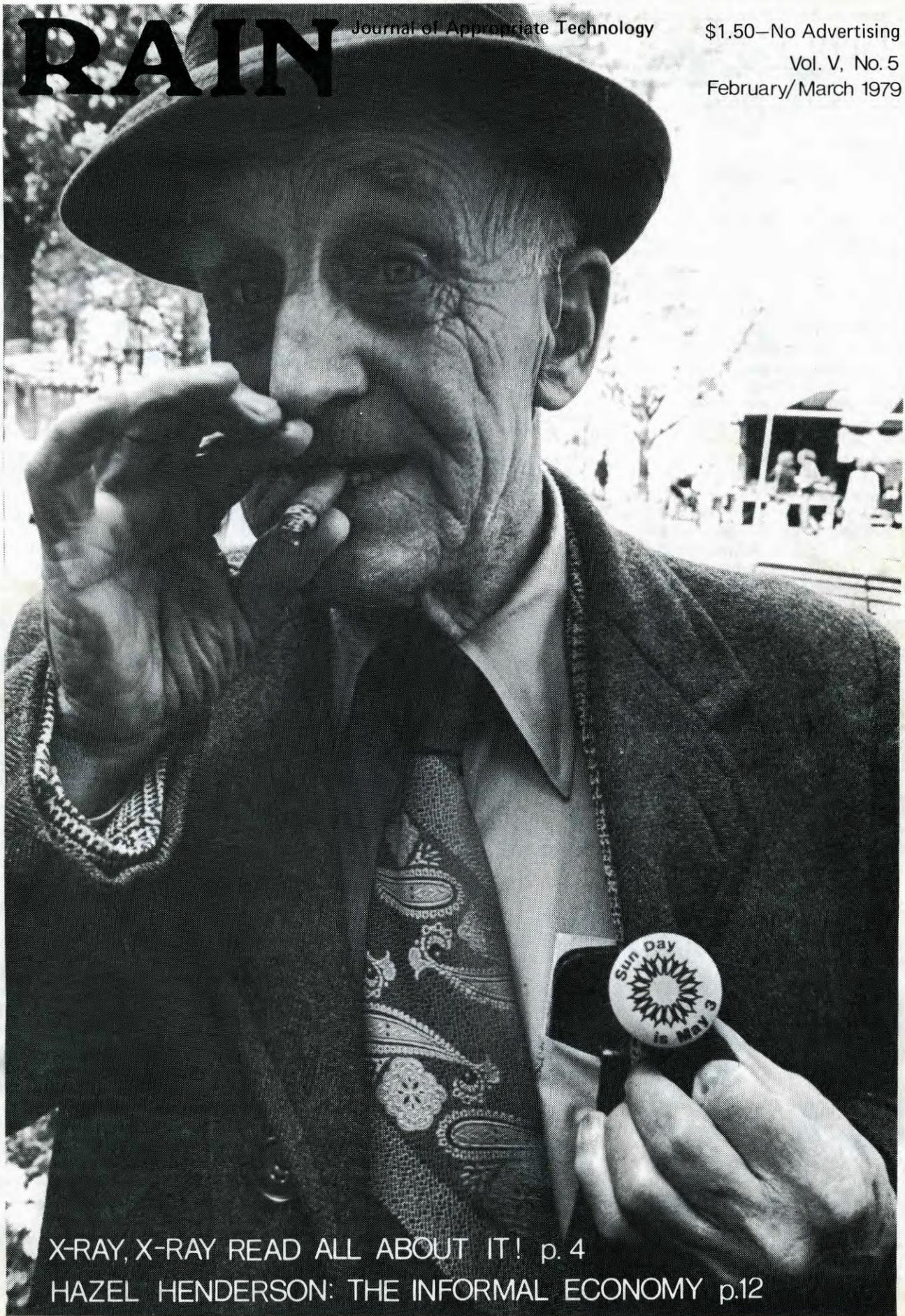
RAIN

Journal of Appropriate Technology

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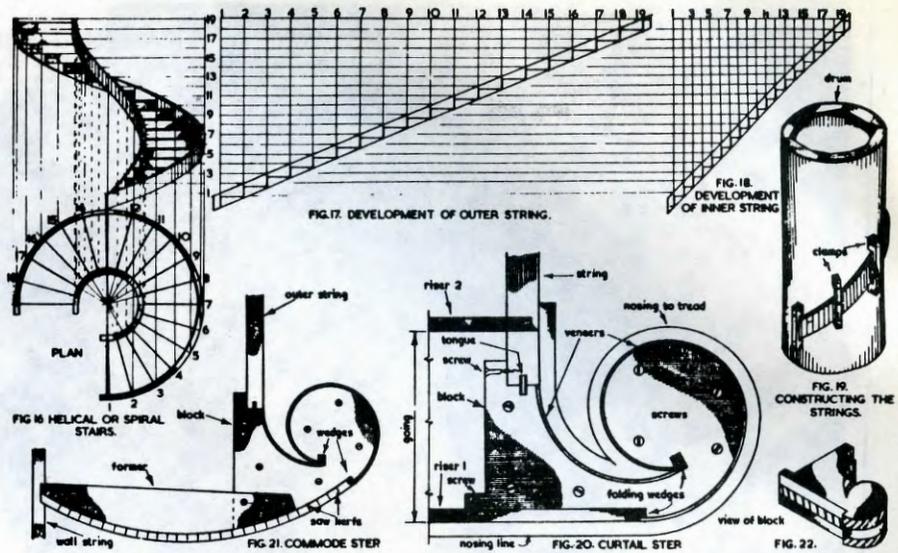
X-RAY, X-RAY READ ALL ABOUT IT! p. 4

HAZEL HENDERSON: THE INFORMAL ECONOMY p.12

BUILDING

Carpentry for Builders, A. B. Amary, 1972, \$4.95 from: Drake Publishers 801 Second Avenue New York, NY 10017

Magicians seem to a child to have special powers. By keeping their tricks close to their chests, many other professions also maintain monopolies, demand unconscionable wages, and gain undeserved respect from others. Some are starting to share their secrets—often just common sense and the accumulated wisdom of experience and previous failures. Knowing *how* to do things makes us much more liable to reach for and try to do more. This book of advanced carpentry and joinery for craftsmen gives the sometimes strikingly simple and sometimes complex details of construction of curved stairs and handrails, flashing complex dormer shapes, special cabinetmaking fasteners, paneling, cabinets, sliding doors, roof framing, concrete formwork and temporary shoring for repairing buildings. Valuable stuff when you want to get beyond 4'x8' plywood construction. —TB

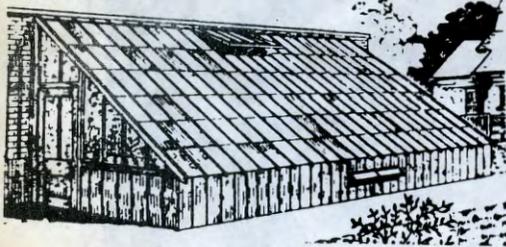


Shelter II, Lloyd Kahn, Jr., editor, 1978, 224 pp., \$9.50 softcover, from: Shelter Publications P.O. Box 279 Bolinas, CA 94924

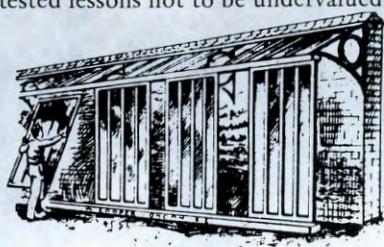
As well-rounded an overview as you might hope to find, *Shelter II* is the second in an excellent series of resource books for people discovering what they are after in building their own homes. It begins, appropriately, with a look at traditional housing forms from around the world that are a natural outgrowth of indigenous culture, climate, terrain and available building materials. Time-tested lessons not to be undervalued.

The design and construction of small, wood-framed buildings—the most practical structure for most North American conditions—is covered thoroughly here, including foundations, framing, materials, details, codes and inspectors. There's plenty of excellent advice for would-be owner/builders and appropriate technologists, including well-timed words of caution about untested or expensive alternative energy hardware and trying to live in remote, unpeopled locations. With other good additions, like Studs Terkel on *Working* carpenters, George Abernathy on moving back to the city, and examples of urban homesteading and inner-city rehabs, *Shelter II* feels like the right place for potential homebuilders to ready themselves for building in the '80s. —SA

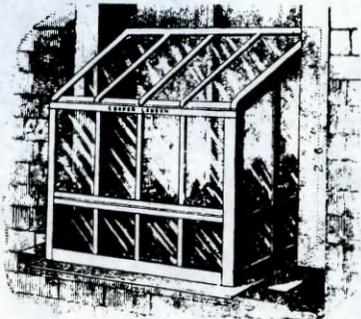
from Shelter II



Amateur forcing house



Glazed cover for fruit wall



Window conservatory



Lean-to conservatory



From *Illustrated Catalogue of Goods Manufactured and Supplied* by W. Cooper Ltd., Horticultural Providers, London. Date unknown (probably late 1800's).

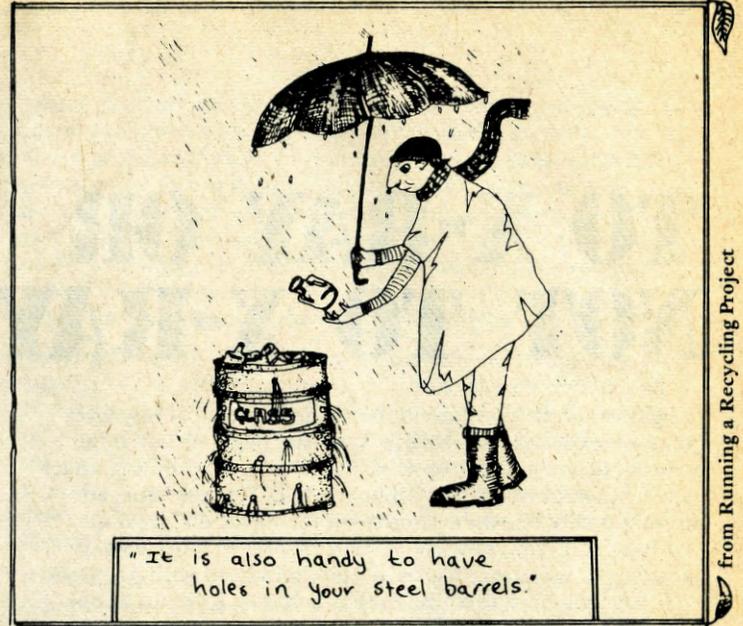
Fine Woodworking, bimonthly magazine, \$12/yr. from:

The Taunton Press
52 Church Hill Road
Box 355
Newtown, CT 06470

The same high quality and craftsmanship that symbolize a master woodworker's art is reflected in the content and style of this magazine. If you have ever hung a door, constructed a joint or made furniture, you know there are a dozen tips to make the task easier. *Fine Woodworking* provides both the tips and the in-depth understanding that you rarely find in magazines and usually only learn through experience or from another woodworker. Articles with excellent photographs and illustrations cover a wide range of subjects from use and care of tools to the making of fine musical instruments and cabinets. The best of the first seven issues of the magazine are organized in the book *Fine Woodworking Techniques* (1978, 192 pp., \$13.95 hard cover from Taunton Press). Highly recommended. —PC

from Carpentry for Builders

RAIN access



from Running a Recycling Project

AGRICULTURE

"How Durable is the Small Farm?", by Wade Greene, *Country Journal*, December 1978, \$12/yr. from:

Country Journal
P.O. Box 1225
Brattleboro, VT 05301

The factors that originally contributed to centralized agricultural production are changing. With the era of cheap energy over, economic signs point toward an increase in small-scale localized food producers. However, opposing this shift are powerful institutional factors (e.g. federal and state tax laws, agricultural price-support systems and commercial loan policies), which are heavily oriented toward large-scale agriculture. Two trends appear to be emerging: farms which are smaller and more numerous at lower acreages, and larger and fewer at larger acreages. So it appears the small farm cannot only endure, but will experience a resurgence. Numerous statements and references to studies supporting this theory are included in the article. —PC

RECYCLING

A Guide to Running a Recycling Project, 1978, 29 pp., free from:

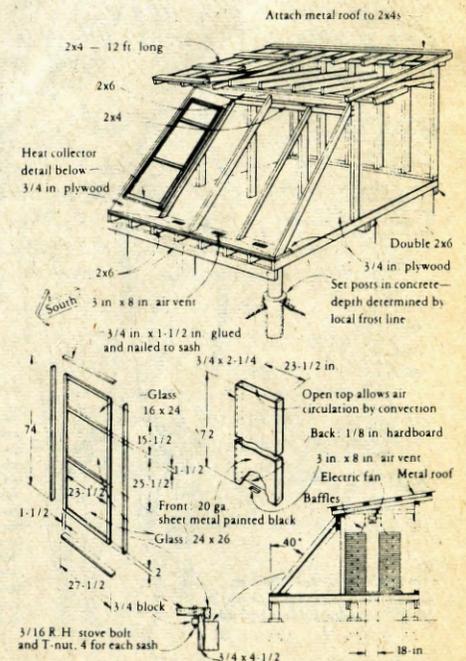
Recycling Information Office
Oregon Department of Environmental Quality
522 S.W. 5th
P.O. Box 1760
Portland, OR 97207

When you read statistics on how the average amount of refuse disposed of per capita each day has increased from two pounds in 1929 to almost 6 pounds by 1980 and is costing us \$4.5 billion a year in addition to tremendous environmental costs to air, water and land, it's enough to make you want to start a recycling project. Here is just the booklet to tell you how to do it.

A Guide to Running a Recycling Project is directed to environmental clubs, scouts, church groups, schools, service clubs and individuals who wish to earn some extra cash and at the same time take some responsibility for their physical environment. It lays out all the technical aspects of implementing and running a recycling project, such as the markets, materials, labor, publicity and legal requirements involved, as well as case histories of recycling experiences.

This guide is more than just a variation on the recycling theme. It is a lively illustrated, well laid out, step-by-step, concise guide to running a recycling project. —NS

Soil maps, properly interpreted, can be a useful tool to the small farmer in understanding and managing the land on which he lives. Maps should be available at the nearest county office of the Soil Conservation Service. If they are out of copies, contact your congressman. For the limitations, benefits and interpretation of a soil map, read *Small Farmer's Journal*, Fall 1978, p. 18, \$10/yr. (P.O. Box 197, Junction City, OR 97448). —PC



Solar kiln for drying small quantities of furniture grade lumber from Fine Woodworking, Summer '77.

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

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This important article excerpted from Whole Person Health Care, by Mark Tager and Charles Jennings, was reprinted by permission. This recently published book is available from Victoria House Publishers, 2218 N.E. 8th, Portland, OR 97212, for \$8.95. (See Rain review December 1978.)—LS

TO X-RAY OR NOT TO X-RAY?

by Mark Tager and Charles Jennings

In light of recent findings on the adverse effects of low-level radiation exposure (see Health Activism, pages 281 ff.), the medical, dental and chiropractic use of X-rays is coming under increasing scrutiny. Helen Caldicott, M.D., of Australia, an internationally known authority on the medical effects of low-level radiation, now claims that there is *no* safe level of exposure to radiation. We are deeply impressed with her work.

It has long been established that even low levels of radiation (for sustained periods) can produce mutations in plants and animals by bringing about changes in chromosomes. There is every reason to conclude that these genetic changes occur in humans also. Children of American radiologists have been found to suffer genetic defects well above the statistical norm, and the tragic effects of radiation on the children of survivors

of Nagasaki and Hiroshima are well known. Perhaps the most disturbing aspect of the radiation problem is that there appears to be no exposure level below which health and genetic effects are entirely absent.

While all the evidence regarding the diagnostic use of X-rays (a form of radiation) is not yet in, there have been enough scientific correlations drawn between X-rays and cancer to lead us to believe that they are indeed dangerous. Unfortunately, there are times when *not* allowing your physician to take X-rays of your condition may be even more dangerous. The only prudent course open to us at this time is to assume that there is no such thing as a safe X-ray, and try to evaluate when the acknowledged risk of X-ray exposure will be worth taking.

To X-ray, or not to X-ray?

The decision of whether to use X-rays in diagnostic procedures is too important to be left to the doctor alone. Doctors are as human as the rest of us, and not every decision is made from an enlightened health perspective. Some doctors make use of X-rays when the waiting room starts to fill up ("Why don't you send the kid with the knee pain to X-ray first?"), others use them to enrich their personal store of medical and anatomical knowledge, and still others make extensive use of X-rays to assure that their own posteriors are well protected from the boot of malpractice. You may not want to expose your organic molecules to the threat of radiation for these reasons.

Yet obviously there are many other reasons for taking X-rays which may be well justified. In a general sense, the most valid X-ray is one which will affect the course of treatment by providing information which cannot be obtained in any other manner. And so a final determination of whether or not to take an X-ray in any specific instance must focus on the medical treatment which follows the X-ray. This, we believe, is the central issue in the diagnostic use of X-rays. What kind of treatment is being considered? Will such treatment vitally affect your life and function, or is it designed to correct a minor annoyance or pain? In other words, will the treatment which results from the X-rays save or prolong your life, or have a direct bearing on your ability to function as a human being? If it arrests a malignancy, heals a duodenal ulcer, mends a fractured bone, or permits a dentist to eliminate a painful throbbing toothache, the answer is yes. If the treatment is related to a self-limiting condition—a short-term injury which will heal itself, or a short-term disease with no lasting consequences—the answer is no.

In order to help you come to an understanding with your doctor concerning the use of X-rays, we have prepared a list of X-ray guidelines which refer to specific types of diagnostic X-rays. This list is in no way intended to replace your physician in the X-ray decision-making process. Admittedly, our list is oversimplified. We offer it primarily to provide a frame of reference within which to discuss this whole question with your doctor.

IONIZING RADIATION

THYROID
IODINE-131
Half (physical): 8 days

SKIN
SULFUR-35
Half: 87 days

LIVER
COBALT-60
Half (physical): 5 yrs

OVARIES
THE REPRODUCTIVE ORGANS are attacked by all radioactive isotopes emitting gamma radiation. In addition the deadly PLUTONIUM-239 is known to concentrate in the ovaries. The radiation it emits can render birth defects numerous and miscarriages in the first trimester after exposure and/or successive generations.

IODINE-131
Half: 8 days

COBALT-60
Half: 5 yrs

KRYPTON-85
Half: 10 yrs

RUTHENIUM-106
Half: 1 yr

ZINC-65
Half: 244 days

BARIIUM-140
Half: 13 days

POTASSIUM-42
Half: 12 hrs

CESIUM-137
Half: 30 yrs

PLUTONIUM-239
Half: 24,000 yrs

MUSCLE
POTASSIUM-42
Half: 12 hrs

CESIUM-137 (and general)
Half: 30 yrs

LUNGS
RADON-222 (and whole body)
Half: 3.8 days

URANIUM-235 (and bone)
Half: 700,000 yrs

PLUTONIUM-239 (and bone)
Half: 24,000 yrs

KRYPTON-85 (and 9)
Half: 10 yrs

SPLEEN
POLONIUM-210
Half: 138 days

KIDNEYS
RUTHENIUM-106
Half: 1 yr

BONE
RADIIUM-226
Half: 1,600 yrs

ZINC-65
Half: 244 days

STRONTIUM-90
Half: 49 yrs

YTRIUM-90
Half: 64 hours

PROMETHIUM-147
Half: 2 yrs

BARIIUM-140
Half: 13 days

THORIUM-234
Half: 20 days

PHOSPHORUS-32
Half: 14 days

CARBON-14 (and the)
Half: 5,600 years

This is how ionizing radiation is concentrated in the human body. All this radiation is harmful to normal tissue, because it damages cells of the body. Generally speaking, alpha and beta rays are harmless to you as long as you don't breathe or eat them, but if you ingest them they set up permanent disease next to the marrow of your bones, in your reproductive organs or vital parts.

The effects of ionizing radiation are not immediate. Exposure to radiation can cause cancer many years later. Exposure to very low levels of radiation can be equally dangerous over time.

The times listed next to the type of ray emitted are the half-lives—how long it takes for half of the radioactive material to break down.

CLAMSHELL ALLIANCE
STOP NUCLEAR POWER
49

OCTOBER 1978 NO NUKES NO NUKES

Clamshell Alliance Poster

X-ray Guidelines

Skull X-rays. When head trauma results in unconsciousness, and physical findings (like unequal pupils, blood behind the eardrum, depressed bone fragment) suggest serious injury, skull X-rays are certainly appropriate. In situations where there is no loss of consciousness, where head trauma has been minimal, and no physical findings present themselves, close observation may be substituted for an X-ray. Many emergency-room doctors will recommend X-rays on children in this situation, but responsible monitoring of the child by the family must be considered a realistic option.

Neck X-rays. Indirect trauma to the neck, as in whiplash, often results in taking numerous X-rays in the region of the neck. Ironically, these X-rays are often taken at the insistence of the patient, rather than the doctor; insurance claims and lawsuits, rather than any medical priority, are the reason. If you want to win your lawsuit, you may need the X-ray. But if you are primarily concerned about your health, a good physical examination of the neck can often make X-rays unnecessary. Physical diagnosis of neck problems, and corresponding treatment utilizing massage, physiotherapy, and spinal adjustments, are areas where chiropractic excels. If you can convince your chiropractor to proceed without X-rays, chiropractic treatments can sometimes offer a radiationless alternative to medical procedure.

X-rays of the neck are also commonly taken to diagnose arthritis; again, the salient question is, will the results of the X-ray alter treatment of the condition, whether or not the condition is officially labeled arthritis.

Chest X-rays. We do not believe that chest X-rays should be used for routine screening for TB or other chest disorders in asymptomatic individuals. Yet in cases of chest trauma, shortness of breath, chest infections accompanied by chills and fever, and situations where the active presence of cancer or TB is expected, they are necessary.

Cardiovascular X-rays. This is one area where routine physical examination offers insufficient data upon which to base a diagnosis. There are a number of heart conditions which cannot be treated without the information provided by an X-ray. Congestive heart failure, valvular lesions, and congenital heart problems are examples of such conditions. In cases of heart failure, chest X-rays may be necessary to monitor clinical progress, and a series is usually taken over a period of time.

Arteriograms, in which dye is injected into the arteries and an X-ray taken to determine the condition of the blood vessels, is becoming an increasingly popular procedure. These should not be done simply for a "look-see," but limited to cases in which the patient is a bona fide surgical candidate, and where the surgery itself offers a realistic hope of improvement.

In general, because of the serious nature of cardiovascular disease, cardiovascular X-rays are an important part of a successful diagnostic and treatment program.

Upper gastrointestinal X-rays. These are often necessary to confirm the presence of an ulcer, and to distinguish between a gastric and duodenal ulcer, as the two have distinctly different treatments. Also, in the case of gastric ulcers, X-rays are needed to rule out the possibility of cancer.

Lower gastrointestinal exams. This procedure involves the use of barium enemas to obtain information about the condition of the rectum and lower intestine. The most valid indication for their use is bleeding from the lower intestinal tract which cannot be identified by sigmoidoscopy. The vast majority of serious rectal conditions are within the reach of the examining finger and the sigmoidoscope. X-rays may also be used in select cases of colitis when it is medically important to determine the extent of involvement.

Kidney X-rays. Generally, this is an area where X-rays are used appropriately. Often they are performed when bleeding from the urogenital tract cannot be accounted for by the presence of infection and rouses suspicion of cancer or chronic kidney disease. Recurrent episodes of kidney and bladder infections in both adults and children also call for X-ray diagnosis. Rare cases of hypertension may be caused by abnormalities of the kidney which can be disclosed through X-ray.

Extremities. X-rays are indicated whenever physical examination points to the possibility of a fracture. X-rays of the extremities are probably the least risky, and the degree to which they aid the doctor in the job of setting the bone is considerable. Additional X-rays can be expected and justified when fractures are not healing properly, or when a functional deformity is present. In cases where lingering bone muscle or joint pain does not respond to conservative treatment over time, an X-ray would be indicated. Arthrograms (dye injection of the joints) may be helpful to the operating surgeon after the decision to operate has been made. Rarely should these findings alone be used to determine the course of treatment.

Dental. We cannot recommend routine use of X-rays for dental check-ups. A good diet and proper care of the teeth and mouth can make such X-rays unnecessary to begin with. Furthermore, a skillful dentist should be able to look, pick, and diagnose most dental problems without resorting to X-rays. In certain instances, a spot film of a specific problem area may help guide your dentist's hand. Above all, however, be wary of a full mouth series "just to be safe."

Chiropractic. This is a difficult area to evaluate, since many chiropractors feel that X-rays are vital to their practice. Some of the most skilled chiropractors make little use of X-rays, trusting instead in their hands and powers of observation for diagnosis. The individual consumer of chiropractic care has two options: (1) search out a chiropractor who is willing to work without X-rays, and (2) evaluate the need for X-rays as a part of beneficial treatment, focusing on the question of whether the treatment offers sufficient improvement in life and function to warrant the risk. Our general feeling on this matter is that chiropractic would do well to reduce greatly its reliance on X-rays.

Retakes. Any of the above X-rays may have to be repeated in order to get the desired results. To err is human, but it's your health that the technician is erring with. If you suspect that you have an inexperienced technician at the controls, demand to see his or her superior to discuss the situation. The X-ray room is no place for on-the-job training—at least when a human body is on the X-ray table.

As we have mentioned earlier in this section, your ability to communicate and carry on a meaningful relationship with your doctor is a very important part of receiving good health care. This matter of X-rays is an excellent case in point. The doctor's needs in this area must be balanced against your own, and this can happen only when the doors of genuine communication are open. Generally speaking, a good doctor

will use fewer X-rays than a poor one. The more skilled the doctor is in the whole art of diagnosis, including the physical diagnostic skills of looking, touching, and listening, the less he or she will have to rely on X-rays to "get the picture." When a good doctor meets an activated patient, X-rays can be placed in the proper perspective. ■

GOOD THINGS

Older Women's Network
3502 Coyote Creek Road
Wolf Creek, OR 97497
Newsletter available, supported by
donations

Wonderful Older Women
1014 S. 47th St.
Philadelphia, PA 19143

The energy and honesty of these two groups of women turns me on. Older Women's Network (OWN) is a country collective in Southern Oregon which puts out a newsletter filled with warmth and caring. In past workshops they have constructed a solar greenhouse, taught country survival skills and held support rap sessions. In contrast to the rural setting of OWN is Wonderful Older Women (WOW), an urban collective associated with the Movement for a New Society (4722 Baltimore Ave., Philadelphia, PA 19143). They offer workshops, perform street theater and write songs. —PC

Jean Rose's Kitchen Cosmetics: Using Herbs and Eatables in Natural Cosmetics, 128 pp., \$3.95 from:
Panjandrum/Aris Books
99 Sanchez Street
San Francisco, CA 94114

The word cosmetics, from the Greek root Kosmetiko, really means the art of beautifying the body. Commercial cosmetics have a tendency to deal with external applications alone, where *Jean Rose's Kitchen Cosmetics* is concerned with gradual and long-lasting effects which harmonize and bring a balance to skin functions. Her cosmetics recipes, many that work from the inside to the outside, are devised to keep you not only looking but feeling healthy and attractive from head to toe. Rose spices her simple recipes with herbal lore and witty epigrams. Based on common kitchen and garden ingredients, from yogurt to strawberries, it also offers general hints on the gathering and preparation of fresh plants for cosmetic application. Here is a book which should be kept on the kitchen shelf next to your favorite cookbook and used just as much. —NS

Indian Artists at Work, Ulli Steltzer, 1978, 163 pp., \$8.95 softcover, from:
University of Washington Press
Seattle, WA 98105

One of *Rain's* favorite books, from which we have drawn both a cover photo and a photograph for *Stepping Stones*, Ulli Steltzer's perceptive documentary of the Native craftspeople of British Columbia is now available in softcover at a lower price. Over 200 penetrating photographs and short texts come together to remind us that "the only way tradition can be carried on is to keep inventing new things."
—SA

Herb and Ailment Cross Reference Chart, \$6.00 plus \$1.00 postage from:
United Communications
Box 320
Woodmere, NY 11598

If you are not intimidated by fine print and take the time to read the simple instructions as to how to use the chart, this 30"x40" hand-drawn pen and ink labor of love can be an invaluable guide to any of you interested in the medicinal application of herbs.

This chart is thoroughly cross-referenced with just about every herb book I own or would like to own, from Jethro Kloss' *Back to Eden to Culpeper's Herbal* and V. J. Vogel's *American Indian Medicine*, to mention a few.

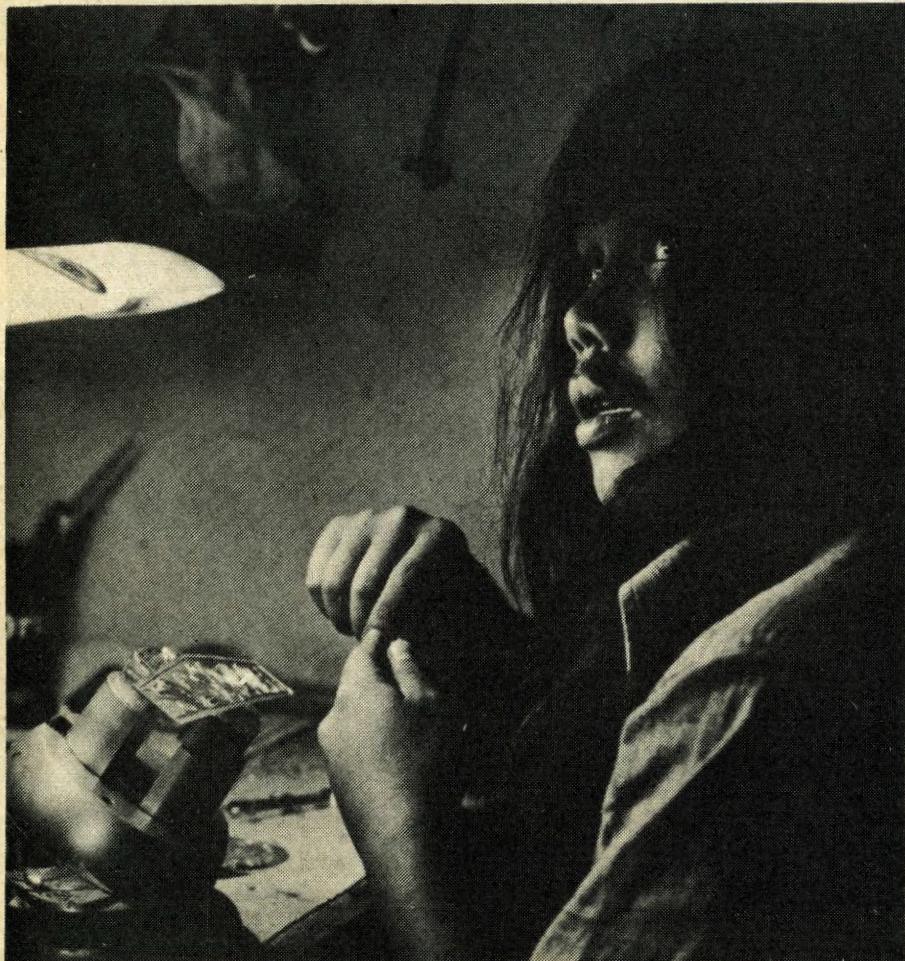
Just in case you don't have six hands and 30 fingers to assist in the cross-reference process, a yardstick type strip containing the ailments comes with the poster, making it easier to correspond ailment to herb. Uses, minerals, symbols, vitamins, properties and definitions are all found in this visual encyclopedia of herbal lore . . . and coloring it in makes it that much more useful. —NS

FOOD

A Guide for Action on Food and Hunger in the School and Community, John Ripton and Susan Hall, 1977, 50 pp., \$1 from:

WHY
Box 1975
Garden City, NY 11530

Looks like a good guide to get teachers and students involved with the issues surrounding food in their community. Suggested classroom and community activities are intertwined to examine food production, marketing and advertising, nutrition, hunger and community gardens. Anyone using the pamphlet also might want to consider the subjects of recyclable containers and compost operations to complete the cycle. Resource list of films, books and groups included. This booklet is for doers. —PC



from *Indian Artists at Work*

LAND

Are the Rockies Too Big to Worry About?

Peter Berg & Linn West, editors,

Seven Piece Portfolio, \$3.00 from:

Planet Drum Foundation

Box 31251

San Francisco, CA 94131

Planet Drum's new "bundle" of materials is a wholistic exercise in bioregional consciousness, focused on the backbone of North America, the Rockies. Its fold-outs, maps and flyers will expand your perspectives on their geological time, a hydrologic system that affects an entire continent and every ocean surrounding it, the seasons that can be measured in the cycles of wild animals and wild flowers, mountain poetry and inter-species regard. Here are new glimpses of a bioregion almost too great to comprehend. You can threaten it with the destruction of unplanned and irresponsible demands, or you can seek to live here rooted in the soils and in touch with its integrity and power. Knowing the whole helps you make the right choice. —SA

A Research Report on Developing a Community Level Natural Resource Inventory System, Deborah Barlow, George Burrill, James Nolfi, 1978, 49 pp., \$3.00 from:

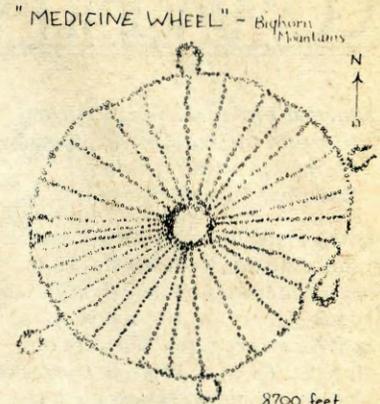
Center for Studies in Food Self-Sufficiency

Vermont Inst. of Community Involvement

90 Main St.

Burlington, VT 05401

Observing that most methodologies used for comprehensive rural planning efforts are misplaced urban planning techniques, the Center for Studies in Food Self-Sufficiency in Vermont set out to develop a planning tool designed specifically for rural areas. What they came up with was a computer-based resource inventory system which overlaps and stores mapped information, prints maps of any individual category or combination, and determines total acreage of any category or combination. Named SEURAT, after French Pointillist Georges Seurat, their system has been used in pilot studies in both Brattleboro and Middlebury to assess planning questions concerning available agricultural land and waste disposal alternatives as



8700 feet,
just above timberline
on a flat-topped shoulder of
Medicine Mountain, a
74-80 feet diameter circle
of white or cream-colored
limestone slabs.

from *Are the Rockies Too Big*

a factor in land development. Their *Research Report* is an overview of this process. We'll be eager to learn how these efforts affect their long-range goal of developing a self-sufficient, diversified agricultural economy in Vermont. —SA

BALANCE OF THE GARDEN, RHYTHM OF THE LAND

The Ocean in the Sand, Japan: From Landscape to Garden,

Mark Holborn, 1978, 104 pp., \$6.95 softcover from:

Shambhala Publications, Inc.

1123 Spruce St.

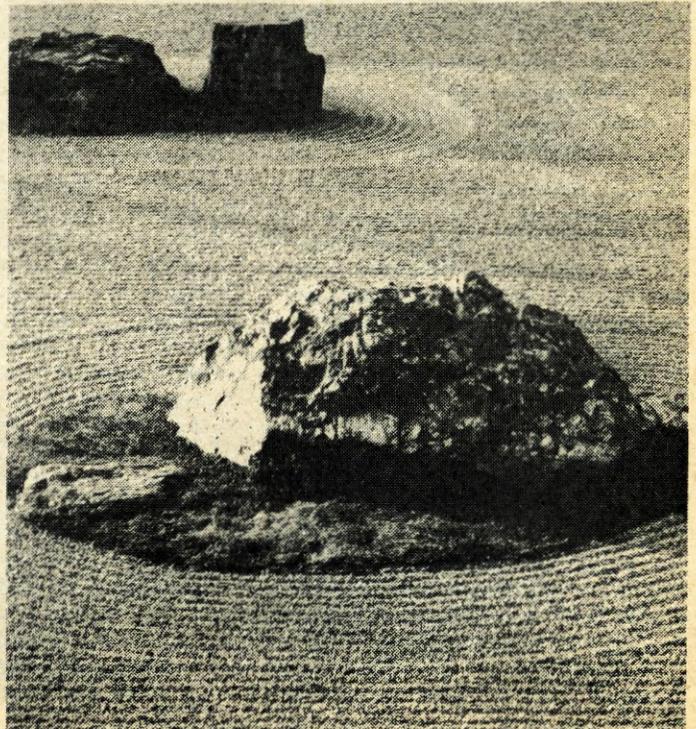
Boulder, CO 80302

While the formal gardens of the West reflect a linear worldview that seeks to impose order on nature, the gardens of Japan reflect its historical identity with the flow of nature, and the inherent harmony of natural form. *The Ocean in the Sand*, Mark Holbrook's deft exploration of the relationship between culture and nature, traces the traditions which have infused Japanese gardens with a natural mythology that persists today, despite the country's transfiguration into an industrial superpower. Shinto, Geomancy (the sacred science of land surveyance), and especially Zen have all contributed to the garden's heritage as a vehicle of balance in a land of contradictions. Perhaps most artful has been the Japanese mastery for creating illusions of space in small garden enclosures, and to use that space to produce either a sense of transience—or a sense of focus.

The Zen-influenced Garden of Stones at the Temple of Ryoanji outside Kyoto gives us more insight into that mastery. Here, five groups of large, moss-ringed stones are arranged simply in a bed of coarse sand. "Within the space of the garden, framed by the wall, images are compressed that extend from a view of the landscape that is cosmic, to a pinpoint focus on matter which is microscopic. You can refer immediately to the native landscape that is reflected—the rocks stand like rugged islands in the waves of an ocean, an image so familiar after the native coastline; or they rise with the thrusting volcanic rhythm of the mountains, the sand swirling around their base like a cloud lingering on the lower slopes. . . ."

Such intuitive knowledge of nature seems to stand in stark contrast to the devastated, polluted landscape of much of modern Japan. Yet Japan, says Holbrook, like its gardens, contains a world within a world. And within, there remains a spirit close to the pulse of nature. The garden is a key to that source. —SA

from *The Ocean in the Sand*



COMMUNITY

Municipal Fire Insurance, \$2 from:
Institute for Local Self-Government
Claremont Hotel Building
Berkeley, CA 94705

There's little incentive for a community to fund and work for better fire prevention and suppression when the benefits never return to the community in lower insurance rates. The city of Mountain View, California, tried it and found its property owners paying out \$2.5 million in fire insurance premiums against an average loss rate of \$500,000. For every dollar of insurance payments, the companies were pocketing four dollars of excess premiums! One wise alternative is municipal fire insurance—where the community insures as well as educates and prevents and puts out fires—all from the same pocket. This report details historical development of fire insurance, prevention and suppression along with the problems and benefits of combining them into a single self-balancing institution. One of a series of reports on pragmatic specific alternatives to traditional local public safety services. Write for publications list. —TB

Organizing Production Cooperatives: A Strategy for Community Economic Development, Alvarado-Greenwood, Habersfeld and Lee, 1978, 220 pp., \$7.50 CDCs and community organizations eligible for Legal Services Assistance, \$15 all others from:

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

Production cooperatives offer workers an opportunity to own and control their workplace. This type of co-op can be used in many fields, from farming and produce distribution to manufacturing and janitorial services. While members can privately own their work units, such as truck, farm and boat, the co-op operates financially on a cooperative basis with organizational decisions made democratically. The structural and procedural features of a production co-op are described in this how-to manual with heavy emphasis on the financial and legal aspects. People interested in implementing this idea might want to consider the *Consumer Co-op Bank* as a possible source of financial assistance. It is authorized to loan up to 10 percent of its capitalization to producer co-ops. —PC

Institute for Community Economics
639 Massachusetts Avenue
Cambridge, MA 02139
617/661-4661

One of our readers recently wrote to us enquiring about *The Community Land Trust: A Guide to a New Model for Land Tenure in America* by Bob Swann, 1972, which was listed in *Rainbook* (p. 155), from International Independence Institute, whose forwarding address has expired. Coming up very close in time to that request—as things cosmically do at *Rain*—is the connection and source for that book. I hope that person reads this because we wrote to him/her about a week before this answer appeared.

The International Independence Inst. initiated the Community Land Trust concept in 1969 and has established the National CLT Center to help spread the word. The Institute for Community Economics seems to be an umbrella for the national CLT, along with Community Investment Fund, Inc., an alternative investment fund. The Institute is focused on creating alternative economic systems for decentralized community development. The National CLT Center has an excellent publications list including the *CLT Guide*, "Model Community Land Trust Corporation By-Laws," 26 pp., \$2.00, and "Land Trusts as Part of a Three-fold Economic Strategy for Regional Integration" by Robt. Swann, 1973, 8 pp., \$.80. Write to them for further information and publications list. —LS

Co-op Bank Act

Numerous articles have been written about the potential impact and possibilities of the recently passed National Consumer Cooperative Bank Bill (see *The Neighborhood Works*, October 13, 1978, \$20/yr. individual and non-professional organization, 570 W. Randolph, Chicago, IL; *The New Harbinger*, Winter 1979, \$8/yr., NASCO, Box 7293, Ann Arbor, MI 48107). A four-page report, *The Co-op Bank: New Funds for Community Development*, containing the legislative history and a section-by-section summary of the Act, condensed from the Report of the Senate Committee on Banking, Housing and Urban Affairs, is available for \$.50 (bulk rates available) from:

Conference on Alternative State
and Local Public Policies
1901 Q St., N.W.
Washington, DC 20009

—PC

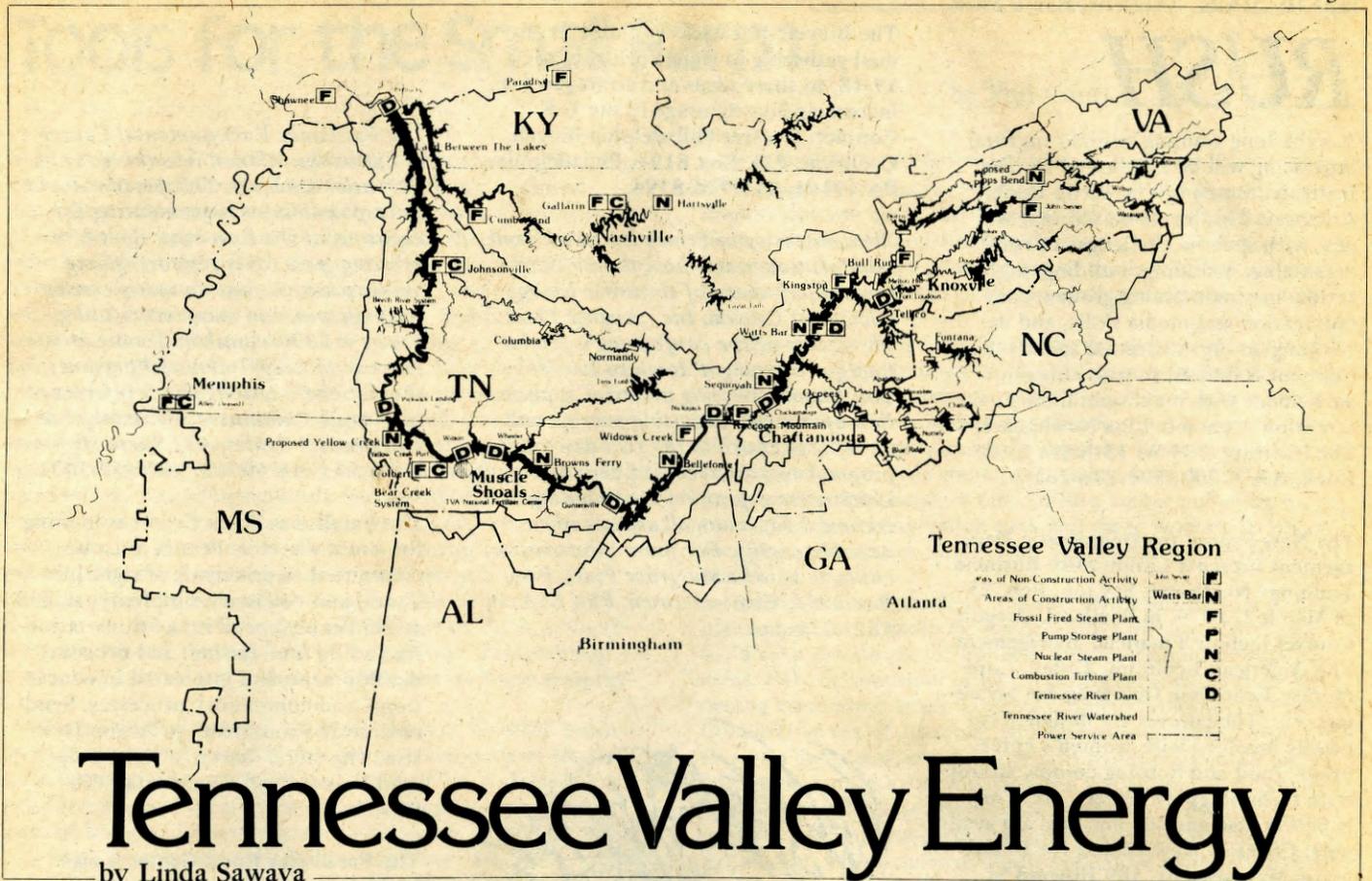
Neighborhood Composting in New York City, Douglas Daly and Elizabeth Christy, 1978, 36 pp., \$.55 from:

Council on the Environment of
New York City
51 Chambers St.
Room 228
New York, NY 10007

A recent Gallup poll found 32 million American households (44 percent) raised some fruits and vegetables—\$10 billion worth. With that type of activity, can composting be far behind? Neighborhood composting in New York City makes a lot of sense when you realize the city produces 10 million pounds of compostable organic waste a day and has more vacant open space now than in 1900. The booklet is a good model to use in getting neighborhoods involved with recycling their compostable waste. The pamphlet includes sections on compost methods and structures (bin, drums—appropriate for apartment buildings, schools, etc.), operation and a list of what ingredients to include and where to obtain them. —PC

Energy Forum Northwest
316 Lewis Hall DW-20
U. of Washington
Seattle, WA 98195
206/543-0980

Energy Forum Northwest is a continuing education program that consists of a three-part project in community development: a community Energy Demonstration project assisting two Puget Sound communities to learn skills in use of small scale energy projection systems and conservation methods. They're putting together a community energy awareness exhibit and an Energy Resource Guide with a planning and organizing workbook for the Pacific Northwest. Anyone in this region who is involved in a community energy project can contact Gordon Thompson at Energy Forum to be included in the resource guide. The third part of the program is a regional conservation workshop planned for Sept. 1979. It's so good to see a university project focus on neighborhoods and communities in a relevant way. The success of this project seems to rely on the communities' involvement, so get in touch if you want to see something good come of it. —LS



Some exciting possibilities are in store for the Tennessee Valley Authority region with Carter's appointment of David Freeman (former director of Ford Foundation's Energy Policy Project) as director and chairman of the TVA Board, and Fran Koster (former head of the U. of Massachusetts Energy Policy Office and founding member of *new roots*) as chief of TVA Solar Applications. Brian Crutchfield, former NCAT regional outreach worker in North Carolina, is now also on board as an A.T. specialist for the TVA Office of Tributary Development, which is the smallest of TVA's three offices. The Office of Engineering and Design has 2000 employees, and the Office of Power (47,000 employees) includes the Division of Conservation, under which exists the Solar Applications Dept. There you have the rough structure of this mammoth agency, which generates and distributes electric power in six states.

Tennessee Valley Coalition

Appalachian Science in the Public Interest
P.O. Box 612
Corbin, KY 40701
606/523-0918
Al Fritsch, exec. dir.

SW Virginia
Coalition of Appalachian Energy Conservators
P.O. Box 275
Castlewood, VA 24224
703/762-5408
Richard Austin

Mississippi Solar Coalition
887 Briarwood Drive
Jackson, MS 39211

Alabama Solar Energy Assn.
U. of Alabama
Huntsville, AL 35807
205/895-6361
Gerald R. Guinn

Long Branch Environmental Education Center
Rt. 2, Box 132
Big Sandy Mush
Leicester, NC 28748
704/683-3663
Paul Gallimore

Tennessee Solar Energy Assn.
P.O. Box 127
Kodak, TN 37764
Joe Hultquist

Southern Unity Network-Renewable
Energy Project (SUNREP)
3110 Maple Dr., N.E., Suite 412
Atlanta, GA 30307

Information clearinghouse and fund
finding assistance in A.T. projects in
the Southeast U.S., organized by Merle
Lefkoff, of Georgia Conservancy and
SAVE, Ron Mitchell, bottle bill lobby-
ist, and Len Levine, community or-
ganizer in Atlanta. (From *Self-Reliance*)

Tennessee Energy Authority
Suite 707, Capitol Blvd. Bldg.
Nashville, TN 37219

This agency is beginning a ride sharing
program in Nashville via buses, van
pools and carpools. Check with them
about this and other programs (from
People and Energy).

Fran Koster-Solar Applications
TVA-426 United Bank Bldg.
Chattanooga, TN 37401
(615) 755-3587

FLASH! TVA's solar division is looking for
7 people now to fill technical and managerial
positions. Contact their staff recruitment at
the Solar Applications address above for more
information.

(Thanks to Joe Hultquist for this information.)

Brian Crutchfield
Office of Tributary Area Development
TVA-124 Evans Building
Knoxville, TN 37901
(615) 632-2494

A pilot program of the Solar Applications Dept. that Travis Price (technical consultant on 519 East 11th St. in New York) consulted on, called the "Memphis Solar 1000" program, has been underway since September 1, 1978. 1000 homes were to have solar hot water systems installed for \$12/month, and \$1 maintenance, in the city of Memphis.

With people who are supportive of appropriate technologies in key positions at TVA, the momentum and positive energy is picking up. A coalition of regional groups has formed to encourage and provide grassroots input and networking, citizen advocacy and a newsletter. If you live in the TVA region or know of anyone who does and wants to plug in, this is a good time to do it. The following groups are forming a coalition to put together a publication: contact Joe Hultquist of Tennessee Solar Energy Assn. for further information.

RUSH

A week long training seminar on rural organizing will be conducted by The Institute, March 4-9, in Little Rock, Arkansas. This hands-on seminar will deal with specific challenges of rural organizing, including: building, mobilization and maintaining groups, communication and media skills, and developing an organizational agenda. Enrollment is limited to provide each participant with maximum individual attention. Contact: Lina Newhouser, The Institute, 523 W. 15th St., Little Rock, AR 72202, 501/276-2615.

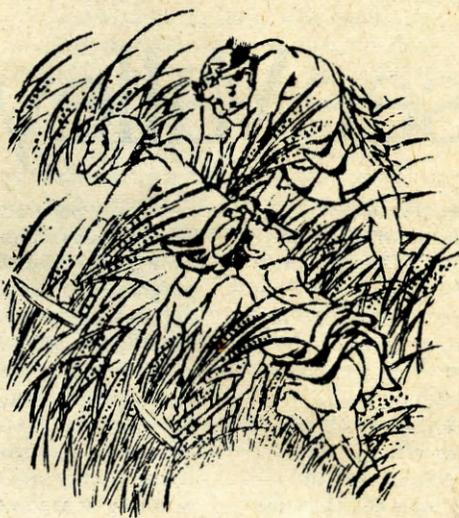
The New School for Democratic Management presents Community Business Training—Northwest Session, Feb. 25 to March 2, 1979, in Portland, Oregon. Courses include Financial Management, The American Economy Today, Community Economic Development Strategies, etc. The courses are designed for people involved with women's enterprises, food and housing co-ops, appropriate technology producers, etc. Tuition is \$60/course and scholarships are available. Contact: New School for Democratic Management, 589 Howard St., San Francisco, CA 94105, 415/543-7973. In Portland, call 503/224-7541.

In March, 1979, the University of California Energy Extension Service is sponsoring 3 programs on practical energy conservation applications to be held at the University of California, Davis, campus. The programs are: Energy and Landscape Architecture, March 3-4, The Water Pumping Windmill, March 12-16, and Gasification Update, March 31-April 1. Contact: Patricia C. Erigero, University Extension, University of California, Davis, CA 95616, or call 916/752-3090.

The Phoenix-Next Earth-Art Center, a non-profit educational cooperative whose purpose is to provide a climate which will foster creative and ecological solutions to societal problems, is conducting a number of weekend workshops in South Acworth, NH. They are: Psychodrama, Feb. 9-11; Animal Vegetable and Minerals—how they relate to healing and other aspects of human nature, Feb. 23-25; Community Education, March 9-11; Be a Clown, Be a Clown! March 23-25. The fee for a full weekend (including meals) is \$35 (resident), \$30 (non-resident). For more information, contact Phoenix-Nest Earth-Art Center, South Acworth, NH 03607, 603/835-6902.

The Bicycle Network will hold its annual gathering in New York City, Feb. 17-18, to share ideas and strategies for increasing bicycle usage in the U.S. Contact: Greater Philadelphia Bicycle Coalition, P.O. Box 8194, Philadelphia, PA 19101, 215/726-8794.

The University of Prince Edward Island, Charlottetown, will host the 1979 National Conference of the Solar Energy Society of Canada, Inc., August 18-21. The theme of the conference is "Solar Energy: Bringing it down to Earth." This theme, stressing practical application of current renewable energy, will be reflected both in the two-day public program and the technical sessions. Conference organizers are soliciting technical papers on all aspects of renewable energy. For more information contact: Martha Musgrove Pratt, P.O. Box 2932, Charlottetown, PEI, C1A 8C5, Canada.



A natural farmers' meeting will be held in Columbus, Ohio, March 4, to discuss methods, marketing possibilities, and a communication network for people farming without petrochemicals. For more information, contact Kathleen Cusick, 513/683-9483, at the Rural Resources, R.R. 1, Box 11, Loveland, OH 45140.

The 5th Annual Minnesota Energy Conference is planned for Feb. 22-23 in Minneapolis. Two days of intensive lectures, case histories, and practical how-to-do-it workshops. Contact: Minnesota Energy Conference, 414 Nicollet Mall, Minneapolis, MN 55401, 612/330-5696.

The Fairbanks Environmental Center in Fairbanks, Alaska, is looking for an Executive Director. This person would be responsible for implementing the decisions of the Executive Board, organizing grass roots support, giving public presentations on many conservation issues, and many other tasks. Salary is \$800/month and some assistance in moving. Interested persons should send a resumé and 3 references to: Search Committee, Fairbanks Environmental Center, 431 Skese Highway, Fairbanks, AK 99701, 907/452-5021.

The Farallones Rural Center is looking for a new director. Person must be committed to principals of right livelihood and voluntary simplicity, skilled at (and experienced in) administration (including fund raising) and program development, and interested in educational and community processes. Send resume and comments to Alison Dykstra, The Rural Center, 15290 Coleman Valley Road, Occidental, CA 95465.

The Farallones Rural Center is also looking for a builder/teacher to coordinate an 8-week hands-on workshop focused around the construction of a solar facility. Opportunity to live at Farallones and share in the benefits of living in a stimulating community and educational center from late May through July or early August. Contact Alison Dykstra at the above address.

A few people are in the process of starting a collectively run, non-profit, natural foods restaurant/coffee house/community center in Binghamton, NY, and are looking for people to help them start this dynamic new business. Contact: People's Power Plant, 43 South Washington St., Binghamton, NY 13903.

A Symposium on Geothermal Energy and its Direct Uses in the Eastern United States will be held on April 5-7, 1979, at the Homestead in Hot Springs, VA. The program will provide a basic background on geothermics, as well as present testimony from 5 (or more) people who are currently using geothermal energy in their businesses. Topics for discussion include: Exploration and Drilling Methods, Heating and Air Conditioning with Geothermal Energy, etc. Contact: Geothermal Resources Council, P.O. Box 98, Davis, CA 95616.

Tools for the Small Farm

by Phil Conti

In the past several decades, agricultural research and development has focused on the demands of the large, chemical-dependent, capital-intensive, mechanized farm. Development of technology appropriate for the scale of the small family farm has been overlooked. Because of this small family farms have become increasingly "uneconomic." Now, however, there are signs that this may be changing. Gene and Steve Talbot, an innovative father and son team operating a ten-acre organic farm in the Willamette Valley of Oregon, have developed an integrated system of diversified row crop production. Central to the operation is a transplanting machine. The transplanter works by using prefertilized water under pressure to drill a muddy hole into the cultivated beds. The seedlings are then hand set. By providing moisture immediately, there is significant reduction in the shock and mortality rate associated with transplanting, plus there is minimum interruption of plant growth. The usual row crops of lettuce, onions, tomatoes, corn, broccoli, squash, cucumbers, etc. can be planted with this system. An article in the Fall '78 issue of *Tilth*, a Northwest agricultural journal, tells of successfully transplanting celery last July during a week of 90 degree daytime temperatures.

The methods employed by the Talbots at Windfall Farm provide a model that could change the economics of small scale farming. The system consists of four main elements: a solar greenhouse, specially designed transplanting trays, permanent beds, and the transplanting machine.

- Solar greenhouse—16'x96' contains over 80,000 seedlings in transplanting flats supported by 55-gallon drums. The drums act as a thermal storage mass and reduce any radical fluctuations in temperature. The Talbots are currently experimenting with dried molasses as a component of their soil mix. The results have been positive, with an increase in both the micro-organism population and resistance to aphids.

- Speedling transplanting trays—produce a seedling root base with tapered sides in the shape of an inverted pyramid. Seedling production costs currently run 1¢/plant, including labor, heat, soil mix and depreciation on trays and greenhouse. Transplanting allows intensive use of the land. Four crops of lettuce can be harvested in the usual three crop season (180 days).

- Permanent beds—five feet wide, prevent compaction of soil and allow continuous building of organic material.

- Transplanting machine—available in three sizes: a hand held sprayer which hooks to a garden hose or backpack has three nozzles; a push cart which supports a twelve-gallon pressurized water tank has eight nozzles, drills 1000 holes/hour/nozzle, approximate cost \$600; a trailer pulled by a tractor holds a thirty-gallon tank and three workers to plant seedlings, six nozzles, drills 2000 holes/hour/nozzle, approximate cost \$6,500.

Intensive use of the land and successful production transplanting do not have to be restricted to farm use. This high-yield crop system can be applied in more densely populated areas. For the suburban or urban gardeners who do their gardening after work or on weekends, time is an important factor. Cooperative use of adjacent backyards and common ownership of a cultivator, transplanter and greenhouse could produce abundant crops at low cost and within the available time limitations. The same cooperative approach could also be taken by community garden members and neighborhood associations. For a more in-depth evaluation of the push cart model, marketed as the Jetmaster, read *Tilth*, Fall '78, "Evaluation of the Jetmaster" (subscription \$5/yr., Rt. 2, Box 190-A, Arlington, WA 98223). For more information on the transplanting system, contact the Talbots at:

Windfell Farm
P.O. Box 172
Banks, OR 97106



Steve Talbot uses the pushcart transplanter on Windfell Farm.

Right: Diagram of nozzle drilling hole and seedling with specially tapered root base being set.



Maryanne Caruthers-Akin

It's important for those of us pushing the economies of self-reliance to understand how we interface with the larger system and to know which public policies will truly help in our work. As Hazel Henderson, futurist and author of Creating Alternative Futures: The End of Economics (Rain, April '78) notes here, the historical management tools known as Keynesianism can no longer effectively control the nation's larger economy without huge inequities and chronic inflation. Yet economists have still not learned to account for the power of once and future non-monetary economies to support and even replace those expensive habits we cannot afford. It's time to put our good work up front and make it known that we are a societal force worth investing in. —SA

Despite the latest OPEC price increase, it is useless to make scapegoats of the Arabs. They deserve credit for the thankless job of teaching Americans some of the global realities of the declining Age of Petroleum. New oilfields, whether in Mexico or China, do not belong to us. We must *pay* for our oil imports. This year we will pay \$4 billion more, with the usual effects of worsening our balance-of-payments deficit and depressing the dollar while increasing domestic inflation. This, in turn, further depresses the dollar, and the cycle begins anew, as OPEC says it must raise prices again to correct for the fallen value of our dollar payments.

The remedy involves correcting a long-standing conceptual error propagated by economists long before Keynes: the *equating* of our society's total socioeconomic productivity with that portion of it based on competitive, market-based cash transactions and the flows of money they generate—measured as the Gross National Product (GNP). Economists only plot this “formal,” “official” economy of market-based production of goods, commodities and services and the jobs they provide in the private sector, along with the taxes, jobs, services, subsidies and transfer payments that make up the public sector. But we are so used to this “money veil” (as economists admit) and its statistical illusions that we forget that alongside this “official” economy there is and always has been a shadowy, “unofficial” or “informal” economy. It is based on our traditional heritage of cooperation, reciprocity, barter and use-valued (rather than market-valued) productive activities. It includes home remodeling and fix-ups, mechanical repairs, home workshop and craft production, furniture refinishing, food growing and canning and all the vital community-based voluntary and unpaid household production (including parenting children, caring for the old and sick, ameliorating the stresses of the marketplace competitors and cleaning up the messes left by careless production and consumption.)

Such socially indispensable work, though unpaid, has always provided the essential cooperative social framework which allowed the highly-rewarded competition of the marketplace to be “successful.” This “informal” economy was estimated in 1969 as equivalent to some \$300 billion annually (more than all the wages and salaries paid out by all the corporations in the U.S.) if it had been “monetized” and included in the GNP, according to Scott Burns in *The Household Economy*. As the GNP-measured “formal” economy declines, luckily this “informal” emerging Counter-Economy will continue its rapid growth, providing a safety-net for many and a bridge to a more balanced socioeconomy for the future.

SEEING OUR ECONOMY WHOLE...

by Hazel Henderson

The failure of Keynesianism can now be seen as our over-reliance on the institutionalized, “formal,” cash economy to provide for all our needs, goods, services and jobs. Instead, it is bogging down in debt and inflation. We are perilously dependent on the now-bankrupt economists' policy tools of centrally manipulating an abstraction called “total economic demand.” A few simple levers are relied on: either continuing to print more money or administering the “old time religion” of arranging a recession by squeezing credit and hiking interest rates, or slashing the federal budget or de-regulating already high gas and oil prices. All of these policies are now inflationary.

The old Keynesian tool-kit worked with much smaller rates of inflation back when we could expand the economic pie using cheap inputs of energy and resources, fuel our consumption with credit and provide larger slices to all the competing groups in society. Now these ineffective Keynesian band-aids are being peeled away to reveal underlying social conflicts about how to slice the now-stationary GNP-section of the pie. Some are intensified but familiar battles between special interests, as when older energy industries struggle to retain their subsidies in the face of newer upstarts, like the burgeoning solar energy industry. Others involve ominous new clashes that politicize credit, investment and debt: such as conflicts between city workers in Cleveland and New York and their bondholders and banks; labor and business arguing over wage/price guidelines; Wall Streeters fighting over capital availability and possible credit controls, over which investments are “productive” versus those that are “unproductive,” or whether credit for homeowners must be squeezed as competing financial interests attempt to divert mortgage funds and force the housing sector to bear the brunt of recession. Similar crunches appear in the conflicting requirements between needed rates of saving, investment and consumption, where equally painful trade-offs will have to be negotiated. Yet we must avoid the “easy” route of allowing the poorest and most powerless groups to bear the brunt of stabilization efforts, through job layoffs and rationing by price.

Politicians vied with each other at the last elections in offering voters phony tax cuts and escapism rather than helping us face the inevitable austerity period ahead as all industrial economies make the painful transition to less resource-intensive forms of production and consumption. Today we need to understand this transition and how the Soaring Sixties bogged down in the Stagflation Seventies. The Economizing Eighties will be a period of belt-tightening and hard choices during which we can re-deploy our enormous assets and lay the groundwork for the sustained-yield productivity and renewable resource-based economies of the dawning Solar Age

of the 1990s. The Eighties will be a period of re-conceptualization and innovation; of redirected investments; recycling; redesign for conservation; rehabilitation and reuse of buildings for new life; revival of small towns and small businesses, and resurgence of neighborhood-based and local enterprises, co-ops and community development that release human energy and potential in new local and regional efficiencies of scale.

Already, these growing shoots of the decentralized, informal Counter-Economy are booming: 50 million Americans belong to co-ops; in 1977 another 32 million grew \$14 billion of their own vegetables; 5 million belong to self-help health care groups; do-it-yourself renovation accounted for some \$18 billion of building supply sales, while 10 percent of the increase in total employment last year was not provided by the "formal" economy but was due to the increase in self-employed people. Stanford Research Institute's 1976 report on *Voluntary Simplicity* noted that 5 million Americans have already dropped out of the industrial rat race, reduced their cash needs in favor of simple lifestyles and inner enrichment, rather than keeping up with the Joneses.

As the defectors from the formal economy increase, or opt for part-time work and less cash income, they will relieve some excess demand pressures and open up more jobs for those who want *into* the industrial economy's newer sectors. However, short-term macroeconomic policies will still be checkmated if they remain blind to the full range of socioeconomic strategies available. The narrow, monetary, fiscal and price system choices reduce to either accepting more inflation in order to keep the debt economy rolling over, or engineering the first clearly *inflationary recession!* Economists need to accept the reality of the non-GNP socioeconomy, and recognize the potential of consciously and democratically determined conservation and selective demand-reduction, instead of the "buckshot" of the old monetary, fiscal and price levers which work only on across-the-board demand.

Selective, *non-monetary*, demand management would target *only* the bottleneck areas, such as legislating better mileage, smaller cars, and instituting equitable, white-market rationing of gasoline to reduce non-essential driving, so as to address the immediate problem of oil imports. We might target the energy over-use with full-scale public service campaigns for conservation (as in Britain) and ban advertising that encourages energy waste (as in France). Varying the total volume of product commercials on radio and TV up or downward could provide another non-inflationary demand-management tool. Another step toward political demand-management has been taken in voluntary wage/price guidelines (proving that our economy needs cooperation now as well as competition).

The balanced, renewable resource-based socioeconomy of the future must be designed and capitalized now, and can provide satisfying work and rewarding lifestyles for all our people. We now need economists who can see our economy whole: both the older GNP economy which is running out of steam and the emerging Counter-Economy which will broaden the way to a viable alternative future. □

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Jill Stapleton



The Myth of Perpetual Affluence

Spending my winter holidays in and around the Great Lakes region was yet another lesson in the contorted economics of the larger system that envelops us. All the way home—from Toronto, through Detroit and Ann Arbor, back in Toledo—I was impressed over and over by the grand illusion of affluence that colors the lives of North Americans. Not that there isn't a great deal of money around. There is. But it's not doing a lot for most of us. While the '70s have taught us a lot about looking good, under the veneer, quality of life is getting harder to find. We are getting poorer all the time.

Toronto glittered with ostentatious prosperity; yet Canadians on the cross-country train were worrying out loud about their sagging dollar and the massive foreign ownership of their country and its resources. In Toledo, the suburban malls were packed with big automobiles and record volumes of Christmas shoppers, but downtown the city fathers were giving away public tax subsidies so the largest corporations would build more skyscrapers rather than relocate some place else. Everywhere, people seemed to be laboring under the risky assumption that not only do they *need* more of everything, but that if they go for it, they will sooner or later get it. Hence, they were spending money they really didn't have, or investing in things that will bring little or no return on their quality of life.

So what's new? While the great expectations of most folks are on the rise, spurred on by the consumer economy and advertising media, *real* wealth has been headed in the other direction, eroded by the centralization of capital, goods production and public services, money-gobbling big energy development, and subsequent inflation. Not surprisingly, there is an undercurrent expectation—acknowledged by many—that having gone up, the larger economy must now come tumbling down. People who are grasping for more of everything are, at the same time, fantasizing all manner of economic apocalypse—which makes them grasp even harder. The apparent contradiction persists.

Up against a slick wall! With my preference for simpler lifestyles and a planet left intact, the logic of all this seems too warped! Our goal should be simple to discern: to reject the ethics of boom and bust, restructure the use of our affluence for sustainability, and look after our basic needs more frugally and fairly. Can these honest alternatives be so difficult to put in front of people? Is anyone out there listening?

Well, no one can deny that there are a lot of people who are trying hard to turn things around. Public interest, environ-

mental, consumer and self-help groups have multiplied incredibly in the last decade—there must be millions of folks out there pushing the system to respond in a hundred different ways. The consciousness of social change is light years beyond the '50s. But somehow that change keeps avoiding critical mass. The larger system is more rigid, its problems more intractable, and its captive audience more transfixed than ever. And so our change work is at once more timely *and* more difficult. If the self-excited failure of the macroeconomy is to avoid a psychological sense of closure, painful dislocations for the working and even middle classes, political reaction, and who knows what else, there is going to have to be a great deal more cooperation among the many groups and individuals who hold pieces of a workable future in their hands—and more deliberateness in reaching out to the greater public.

The True Test of Our Vision

No doubt, this is some of the potential of the network of people involved with appropriate technology. Those of us who in one way or another are working for local power, decentralized economies, soft technologies and cooperative institutions know this experientially and intuitively. These tools and ideas have a kind of practicality and common sense about them that is capable of exciting all manner of people. Appropriate technologies can give us an enabling philosophy for a world shortchanged by high-tech, high-capital solutions; they can be the nuts and bolts of social empowerment. We have in our hands the means to push past the myth of perpetual affluence into that of sustainability.

But where is the commitment to make this happen? When it comes to sharing our tools and vision with other social change groups, or in reaching beyond to all those people trying so desperately to Beat the Crunch, we seem to be slow on the take. For a movement of people's technology we have too much hesitancy and reserve about us—even elitism. Maybe it comes from all that college education and freedom of personal choice so many of us have enjoyed. It's made it difficult to identify with working people who've never gotten themselves off the treadmill long enough to see the new possibilities we envision. Perhaps it comes from our sentimental attachment to the days of "counter" culture, when the easiest way to survive unbearable reality was to opt out. It's made us move in directions unthinkable by most.

Now we are beginning to structure an alternative reality that just might work. But if we never succeed in sharing it with others, it will always be just an alternative. The true test of our vision has got to be how broadly it can be sown in the real world—in turning the heads of people who need living



...DRAWING THE CIRCLE WIDER

proof, in supplanting the power of monolithic institutions to stifle their creativity. Simple things, like community energy audit teams and conservation remodelling, farmers markets and community based credit unions, need to be seeded in every locality. If these things can take root, then perhaps our more elaborate visions of biotechnics and planetary consciousness will follow. I doubt if it will happen the other way around.

Why We Need One Another

This uneasiness at reaching out is not unique to the appropriate technology network. People in many of the other movements for social change have constantly reasoned or been manipulated to believe that they cannot rely upon one another, or the larger public, lest they lose track of their constituencies and wander too far afield. And when struggling groups with slim resources are isolated from one another, the larger movement for social change is rendered less effective. This has been an historical problem in this country. No one wastes much time anymore arguing that the major problems of the day are not interconnected. Western industrial societies are waking up to the wholeness of the dilemma. If change groups could begin to act on the undeniable connectedness of the solutions—not to mention that of all people—their effectiveness would increase markedly. We might finally rise to the challenge. Individually, it means seeing the validity of each person's perspective on the problem and the ways in which they try to respond to it. Societally, it means picking up the historical threads of cooperation and giving rise to a new tradition of social consensus.

Politically, coalition-building is a major step in that direction—a difficult but worthy goal. Fortunately, it seems of late there have been new efforts among change groups of many motivations to push strongly for more coalitioning. The times might not have it any other way: in the squeeze of critical issues—finite resources, corporate statism, unemployment—many activists find that they have been pushed onto common ground. Like concentric circles, consumerists, environmentalists, minorities are starting to see the convergence of their priorities into the seed of a shared agenda. In the last year we have seen that common ground better defined, especially in that kingpin of issues, energy. Groups with less-than-good relations have reached out to support each other on specific causes: anti-nuclear groups plugging for labor law and utility rate reform; progressive unions backing Sun Day; national urban interests tying jobs and hope for poor people to soft energy path strategies. Special working coalitions, research groups and far-flung networking of information have emerged

I hope you all don't mind this sermonette. A lot of it can be traced back to my own personal experience, and my puzzlement with those who keep trying to divide the whole into smaller pieces, who always tell us we can't do or be more than one thing at one time. I see a little bit of everyone else in myself, and there's always something around the corner I've never even known. Hence, my thoughts on the task that lies ahead. Hope we can keep you posted on the good developments that are starting to come to our attention. —SA

by Steven Ames

within and without the energy nexus, bringing the problems and the solutions closer together. These are powerful models to build on.

Beyond activists and coalition-builders, there are other connections happening on the open market of politics that hint of an even more basic shift in the American consciousness. These connections are stretching the old labels of radical and conservative to the max, as people's perceptions of their self-interest readjust to changing circumstances. Forget the much-hyped and exploited taxpayers' revolts—there have been more interesting responses on the part of dyed-in-wool conservatives: like the rejection of the Sundesert nuclear plant by the voters of conservative Kern County in California, or the militant campaign of rural people in Minnesota and New York to block the construction of environmentally ruinous power lines. Such actions would have been unpredictable five years ago. These folks are reaching for the platform that spares them their communities and economic base. That their tactics and allies may be on the other side of a political fence seems to be secondary.

Many liberals and left-liberals, on the other hand, are now shifting in vaguely analogous patterns, as they realize that the liberal corporate state can only deliver the goods by crippling its own best objectives: social equality comes at the expense of personal freedom—or vice versa; prosperity has a price tag of inflation—even war. Thus many are deserting the attitude that the system need only be fine-tuned; they are the mainstay of much of an increasingly assertive public interest movement. At the same time, many are beginning to acknowledge the attractiveness of conservative virtues, such as a sense of family and community, traditions, and the need for vastly simpler lifestyles. A decade ago, such people would have been considered an anomaly.

Such kinds of convergence of politics and values signal a balancing momentum in a society where people who might otherwise be cooperating together have been kept poles apart by any number of contrived or manipulable differences. It is not yet a major force in the larger system, but may portend how quickly and positively our focus can change when other options around us are closing down. This social balancing needs to be explored—we need to find some kind of unity in our diversity. Those of us already committed to some kind of change work can boost that momentum by working through our own networks to shape a larger movement that has the power of cooperation in its roots, which is not afraid to move out into the larger world. Let's look for the connections which seem the most difficult to forge and see what consensus we can build. People who are caught in the dilemma need the good hope this kind of model will provide. □

MEDIA

The Rubber Stamp Album, by Joni K. Miller and Lowry Thompson, designed by Louise Fili, 1978, 216 pp., \$6.95 from:

Workman Publishing Co.
231 E. 51st St.
New York, NY 10022

Rubber Stamps have always been exciting to me—there's a special feeling of pleasure in the act of stamping, as the authors have described:

"Rubber stamps have a universal and almost inexplicable appeal. The feel of a stamp in hand gives a feeling of power and command. Stamping is the grand communicator In an environment that puts distance between people and things in every respect, stamps bring things into contact. When there is a sameness to things, stamps are an inter-rupter, a displacer, a visual pause."

This book is delightful and playful and explores and invites us to enjoy an appropriate tool in a creative way. Has all the information you need to DIY, lots about inks, making stamps, history, lists of catalogs, etc. I bought it for a Christmas gift, and haven't been able to give it up yet! —LS

Copy Art: The first complete guide to the copy machine, Patrick Firpo, Lester Alexander, Claudia Katayangi, Steve Ditlea, 158 pp., \$7.95 from:

Richard Marek Publishers Inc.
200 Madison Ave.
New York, NY 10016

Another "technological tool" becoming popular as an art form in recent years—perhaps simultaneous with the birth of rubber stamp art, also evolving into a mail art movement. Copy art's instantaneous "nature" is extremely consistent with and reflective of our instant—no fuss, no muss—push button society. More and more our cultural pattern seems to mimic as well as incorporate technological tools into art: as a means of confronting it, challenging it, and becoming un-alienated from it. Perhaps it makes those technologies more approachable to us all. Laser art, electric art, auto art, nuclear art? The technologies are there and are continuing to be developed, so how do we as a society deal with them? As artists, as appropriate technologists.

I have friends who are fanatic and fantastic xerox artists. Within any creative medium there is an element, potential, possibility to educate, communicate, and I wonder if using xerographic art to educate about a.t. is a contradiction in terms. In doing *Rain* layout, xeroxing has been an incredible and

primary means for us to perfectly reproduce line artwork with excellent results at very low costs, and thereby share with you information and illustrations that would otherwise be financially prohibitive to reproduce. Another area of contradiction within xerography is the area of privacy, bureaucracy, politics. The authors of this book state that "The copying machine has already altered the course of world history. Without a copier Daniel Ellsberg might never have been able to leak the Pentagon Papers, and for all we know the U.S. might still be entangled in a war in Southeast Asia. . . . It is ironic that back in 1950 the CIA bought the world's first commercial dry copying machine. . . . Today the Freedom of Information Act, by which anyone can request copies of U.S. Government records, including the CIA's, would be impossible to implement without the instant copier." This medium has other political implications as well—the "information industry is the nation's second largest business. . . . The largest is still energy and now the Exxon Corporation has become Xerox's latest direct competitor. . . ." Hmmm

Copy Art, although mentioning political importance of the copier, is primarily dealing with the use of the machine as an art medium, and this is done very dada-ly, with a collection of incredible images. —LS

VIDEO HEALING

Videographer/herbalist Loren Sears will show excerpts and review his work in a discussion titled *Planet Medicine: Healing Ourselves, Healing the Community, Healing the Planet-Corrective Cultural Strategy*. Sears began Tribe of All Nations, a community collective, and the Tribal Vision Network in 1971, traveling the West Coast in a video-van, reporting life-style evolution and native medicine. Diverse interests and information processes, Indian Shamans, herbal medicine and raising horses, as well as many collaborators contribute to the holistic view he presents. His works, which include *Day/Year—The*

Pacific Lake, Tribal Vision, poetic descriptions of small post-industrial communities along the Pacific Coast; *Spirit Doctor*, a view of Dr. Raymond, a Shoshone healer; *Native Medicine*, practices of Pomo, Maidu, Paiute and other tribes; and *Huichol Marrakames*, portraying the activities of Mexican Indian Shamans, will be available for screening in full at the Video Access Project until February 16, by appointment. (223-3419). Presented at and co-sponsored with the Northwest Artist's Workshop and the Video Access Project, 117 N.W. 5th, Portland. Admission \$2 general, \$1.50 members.

Precis

The process is evolution. The hurdle, cultural transition. Problem is incapacitation of ourselves, individually and collectively, to accomplish it. As mediciners and videographers, what methods heal the planet?

Alienation from self, and from each other, is a health crisis. Ecological and political disaster, as well. Holistically, health of the individual corresponds with, and is not separable from, health of the living community. Contemplating this reciprocity yields bio-morphic descriptions of culture which are healing and transformative. Scaling it to each other and the planet, we view traditional, indigenous cultures for example and standards of comparison. Video offers means of mediating social change.

♦ ♦ ♦ ♦

The promise that television began with was you'd be able to see people all over the world at the place, in the way they live. The anticipation was that some of them were *your* people—kin. Broadcasts were bought, however, by business, whose interest it is to keep us apart. The Tribal Vision Network was

construed to move through boundaries of alienation and create paths of relation identical with the distribution of peoples. It meant to augment the development of autonomous lifestyles by connecting people where they live/grow their families, and to place it in a context of the planet instead of nation/state domain.

In doing this, we have traveled the Pacific coast, widely; through communities and families of the Northern Sierra; and to developing life regions of Southern Colorado and Northern New Mexico. We have become skilled at gathering images as well as food, and distributing some; we image the poetry of being alive and seek to learn and share local medicines—the basis of a health analogy lent to these spawning cultures. Music, food, images, medicine are gathered, prepared and distributed as we travel these roads; scribes with tape, informing a culture of diverse peoples in wide-spaced locations at the planet.

—Loren Sears, at the Pacific Lake

(Thanks to Jack Eyerly)

Conservatree Paper Co.
2749 Hyde Street
San Francisco, CA 94109

Distributes 100 percent recycled paper, including paper that is suitable for xerox machines! Another discovery about xeroxing that you might not know of: many types of copiers print on both sides of the paper—saving, of course, half as much paper—even though you still pay for two copies.
—LS

One Book, Five Ways, \$9.75 from:
William Kaufmann, Inc.
One First Street
Los Altos, CA 94022

Originally prepared as a workbook for the 1977 meeting of the Association of American University Presses, it is a detailed account of how five different presses evaluated, contracted and processed the same book manuscript for publication. Contains promotion plans, details on "overhead" charged by various publishers, page and cover designs for the five books, contracts, financial analyses and copy editing. Very valuable to any author in dealings with a publisher, or to anyone interested in some of the inner workings of the publishing business. —TB

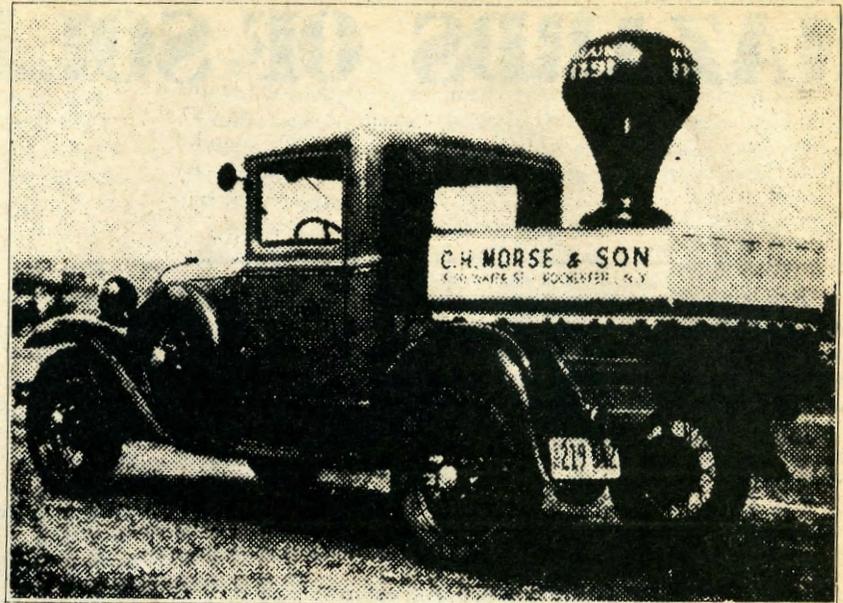
Dear Friends,

Many thanks for your magazine. I enjoy it immensely. Request: Can you tell me the name of the New Mexico school which offers a course in rebuilding wind machines? Thank you again,

Jim Copia

Dear Jim:

The course is how to rebuild water-pumping windmills. Contact Kenneth M. Barnett, New Mexico State University, Physical Science Lab, Box 3548, Las Cruces, NM 88003, 505/524-2851.



from The Rubber Stamp Album

Dear Rainpeople:

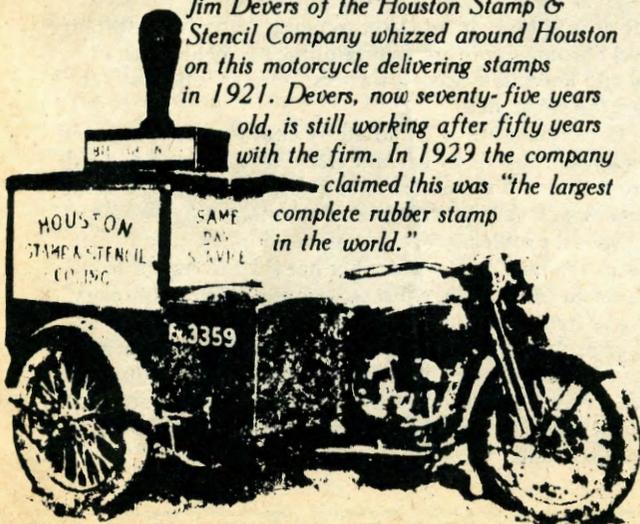
Just a short note to ask that you renew my sub to *Rain* as well as send a gift sub to a friend. . . . Thanks for all the hard work that goes into *Rain*. By the way, I have just moved to Colorado and am working at the Governor's Office of Rural Health—if you had to suggest one contact person for me to talk to in order to get plugged into the network in Denver, etc., who might that be? I've inclosed a postcard.

Yours sincerely,
Bob Bruegel

Dear Bob,

The answer would be Malcolm Lilywhite, Domestic Technology Institute, Box 2043, Evergreen, CO 80439.

Jim Devers of the Houston Stamp & Stencil Company whizzed around Houston on this motorcycle delivering stamps in 1921. Devers, now seventy-five years old, is still working after fifty years with the firm. In 1929 the company claimed this was "the largest complete rubber stamp in the world."



Dear Rain:

I am a cost estimator working with the Garrett County Community Action Weatherization Project in Maryland. At the present time we are weatherizing about 20 low-income homes a month.

Since our program is 3 years old and about to start the 4th year of operation, we have noticed an upsurge in trailer/mobile homes in our applications. I have also noticed a lack of information about weatherizing the homes. This presents a dilemma on the part of myself and the surveyor. For the past year we have been offering vented under-skirting and front door enclosures. The underskirting uses a 2x2 frame and painted homosote with block vents. We feel that this impedes air flow under the trailer. With the 4x4 air locks/porch enclosure we feel that they will act as air locks and prevent a lot of air leakage for the trailers.

I was wondering if you had any research information and/or suggestions for trailer weatherization for our office.

Thank you in advance for your help.

Sincerely,
Marcus Oliver
Cost Estimator
Garrett County, Maryland
Community Action Committee

Anyone having good resources for Marcus could let us know and we'll print them up.



HAZARDS OF SOLAR ENERGY

by Ken Bossong

Ken Bossong makes us aware of some problems in the movement towards more benign and appropriate technologies. Even though some of these problems have been dealt with and are resolved, it is important to be familiar with them to maintain credibility. For a copy of this report in its entirety, send 75¢ to Citizens Energy Project, 1413 K St. N.W., Washington, DC 20005. Reprinted by permission. —LS

Solar energy, frequently touted as being an environmentally benign technology by its advocates, may not be all that it is promised to be. Small-scale, dispersed applications of solar technologies are unquestionably superior to their fossil fuel and nuclear competitors; they produce more jobs, stimulate more new businesses, yield fewer pollutants, and offer a range of social benefits. Nonetheless, solar collectors, passive designs, wind generators, photovoltaic cells, wood stoves and other solar technologies do have their shortcomings.

The long-run prognosis for evolving a solar economy may well depend, at least in part, upon a realization now of the technology's problems. This is necessary in order to address trouble spots while the industry is still young and flexible; it is necessary to avoid possible injury to would-be solar purchasers; it is necessary to lessen the chance of a negative backlash against solar when the general public realizes that it is not a perfect technology; and it is necessary if current solar advocates are to retain their credibility.

Of most immediate concern are active solar collector systems used to provide hot water and space heating; more than 50,000 units have already been installed on homes and other buildings in the U.S. Many collectors use working fluids such as ethylene glycol to prevent freezing in the winter months; these working fluids frequently contain other additives such as rust inhibitors and biocides as well. Since the fluids degrade after four or five years, they must be flushed out and replaced. Presently no program exists to prevent the waste fluids being flushed into waterways and onto landfills where they will pose certain environmental hazards.

A related problem is the emission of toxic gases from solar collectors (i.e. "outgassing") particularly in instances when a collector might be overheated; the released fumes could include fluorinated and chlorinated hydrocarbons and acids. Other potentially significant problems include exposure of workers in collector manufacturing plants to potentially toxic substances such as those used in selective coatings. A large market demand for the hardware could result in significant depletion of some resources such as copper or could increase emissions by industries that produce the raw materials for collectors (e.g. aluminum smelting). Lesser problems might include structural collapse of a building unable to support the weight of a collector on its roof or injury due to broken glass.

Though generally acknowledged as the safest of potential space-heating technologies, passive solar systems also have potential drawbacks. Perhaps greatest among these is the possibility of degradation of interior air quality in a well-sealed passive building; concentrations of indoor chemical pollutants, accumulation of molds or fungus, high humidity and stuffiness are all apt to result. A second problem is that passively designed structures may compromise the fire integrity of a building by allowing for easier circulation of interior air; a related problem is that decreased window area (or windows that are more tightly sealed) may make escape from a building on fire more difficult.

While posing fewer problems once installed and operating than active systems, photovoltaic solar cells may pose more serious problems in the earlier stages of manufacture. Given that most cells now produced are primarily silicon, one must note the hazards associated with an expanded silicon mining (pit mining) industry. These include a higher-than-average level of worker injuries and chronic respiratory problems induced by breathing in silicon quartz dust (i.e. silicosis). The digging of silicon mining pits will disrupt the surrounding ecosystem in much the same way any mining operation will and there is a problem of ultimate disposal of mining wastes. Damage to nearby homes from mine blasting (similar to that found widespread in coal mining areas) as well as destruction of roads and problems of fugitive dust can be expected.

In the manufacture and refining processes for silicon, gaseous carbon monoxide and submicron-sized particulates of silicon oxide are discharged; the latter is a potentially serious respiratory irritant. Further, for every metric ton of silicon processed, 28 kilograms of solid metal chloride and undetermined amounts of gaseous hydrochloric acid can be produced at the workplace.

During the fabrication of the cells themselves, various toxic gases such as boron trichloride and phosphine are released into the atmosphere; in addition to being a noxious substance, low-level chronic exposure to phosphine has been traced to anemia and nervous system disorders; standards do not yet exist for the substance.

Similar problems may be posed by cells that are produced using cadmium sulfide or gallium arsenide. Extraction of gallium from zinc and aluminum ores yields mercuric and acidic effluents as well as large volumes of alumina sludge which poses disposal problems. The arsenic used in the production of gallium arsenide cells is a worker hazard and highly toxic cadmium can cause kidney disease, emphysema, pulmonary edema and hypertension.

Lesser problems posed by photovoltaic cells include minor changes in local climate (e.g. "heat islands" could reduce wind speed and relative humidity while increasing temperatures and cloudiness slightly). There is also an ultimate problem of disposal of used cells.

Small wind generators, while preferable to competitive forms of electricity production, also have an environmental price tag. Wind systems are material intensive and large-scale applications will require mining, manufacturing, processing and waste disposal—each with its own set of impacts. Birdkills, particularly from migrating flocks, are a major concern. And wind systems are possible sources of interference with communications such as ground-to-air controls, automatic train controls, and possibly TV and radio signals.

Burns, shock and electrocution from improper handling or poorly maintained equipment are other hazards; this is especially true for utility linemen who could be zapped by an unexpected surge into a grid from a connected windmill. Poorly designed windmills could throw a blade, and the generators' towers would be good targets for lightning.

A large wood-cutting industry accompanying the widespread use of woodstoves could pose many of the same problems now associated with the logging industry. Heavy wood cutting could result in the removal of a forest's nutrient base, encourage stream sedimentation, pose problems of fugitive dust and facilitate increased flooding in surrounding areas. Heavily logged areas would become unsuitable for wildlife or for recreational use.

Woodburning itself could result in the release of a considerable amount of particulate matter which poses both an immediate air pollution problem as well as a subsequent disposal problem; ash tends to be acidic and as such can pose a threat to both soil and water environments. In addition, some increases in the emission of carbon monoxide and hydrocarbons might be expected. And finally, wood stoves could increase the likelihood of home fires or the incidence of serious injuries due to burns.

Bringing any significant number of the thousands of potential small-scale hydro sites available around the country into production can result in the flooding and loss of nearby acreage. Small dams can serve as traps for organic and inorganic compounds which could be released into waterways; low oxygen effects and the presence of hydrogen sulfide can induce fish kills. The operation of the dam turbines can injure aquatic life as well and restrict upstream fish migration and/or reduce breeding sites.

Some storage systems such as batteries pose a range of environmental and health concerns. Their use will probably entail the consumption of significant quantities of lead, nickel, antimony, zinc and other materials that are persistent, cumulative environmental poisons. Lead acid batteries can cause electric shock, fire, spillage of sulfuric acid; charging and operation can generate explosive hydrogen gas. The manufacture of such batteries releases lead residuals into the atmosphere. And various chemical forms of nickel such as nickel carbonyl which may be used in production of nickel/zinc or nickel/iron batteries are known carcinogens; dermatitis and neoplasms are among the industrial health problems encountered by workers in the nickel industry.

There are, of course, safer storage alternatives, such as flywheels, cold water storage and rock bed storage. However, there are environmental impacts with these as well. In rock bed storage, for example, there is the problem of fungus growth which invites the use of herbicides and fungicides.

Beyond problems of environmental impacts and personal or worker safety, there are a broad range of social impacts that should be considered. Those, however, would require a second article. These and many other solar shortcomings are largely avoidable with some careful planning and general awareness of their existence.

However, solar advocates would do well to remember the axiom that "nature gives nothing away free; everything has a price." While solar technologies are, by and large, vastly preferable to nuclear power and fossil fuel options, they still have negative impacts. It should be the pro-solar community that is in the forefront of those interests addressing these shortcomings; solar proponents will seem all the more responsible if they acknowledge the problems of their own technology and work to implement solar policies that lessen or eliminate these shortcomings.

Resources:

- 1) An 8-page report, *The Hazards of Solar Energy*, is available for 75¢ from the Citizens' Energy Project, 1413 "K" St., N.W., Washington, DC 20005.
- 2) *Social Assessment of On-Site Solar Energy Technologies—June 1978* is available from the Office of Energy Programs, School of Engineering & Applied Science, George Washington U., Washington, DC 20052.
- 3) *Environmental Readiness Documents* are being prepared by Robert Blaunstein, DOE Asst. Sec. for Environment, Office of Technology Impacts, Washington, DC 20545.



Jan Faust

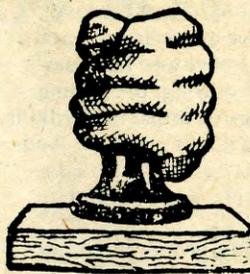
For some time, the Wood Energy Institute (representing mostly wood appliance manufacturers) has been promoting "safety." Voluntary adoption of safety testing standards has been vigorously promoted. A new industry—wood stove safety testing—has been spawned. Many localities now require a UL (Underwriters Laboratories) or an ICBO (International Congress of Building Officials) approved label for appliances being installed. Ostensibly these requirements are designed to protect the public from shoddy, dangerous products. In effect, it's most likely the new standards will provide domestic manufacturers a certain amount of protection from imported stoves.

In the guise of protecting the consumer, some products are likely to disappear from the market even though their continued use and manufacture over the last 100 years has produced no safety problems. Low quality, high profit appliances are more likely to be submitted for testing than are high quality, modest profit products. The large testing fees are likely to eliminate small manufacturers or those whose market price does not have enough "fluff" to pay the extensive testing costs.

I've noticed some of the "listed" or approved appliances have the approved labels removed by retailers who find that their products did not meet the previously accepted clearance requirements for "unlisted appliances."

Here in Oregon, I have been unable to find a situation where a poor quality stove has actually caused a fire. There are, however, several fires caused each winter month by improper stove installations.

Improper installation can be caused by a variety of circumstances. (1) Greedy, unknowledgeable stove dealers often do not supply the consumer with necessary information to complete a safe installation. (2) Confusing building codes are likely to be such an obstacle that home owners defy the law. Here in Oregon we are supposed to have a uniform building code; however, in actual practice, each county and municipality interprets the code in a variety of ways. Phone calls directed toward building permit issuing agencies are likely to elicit completely different responses from each individual working in the same office. (3) "Chiseling costs" seems to be a way of life for short-sighted consumers. There are easier ways to commit suicide than to improperly install a wood stove.



wood

I feel that more attention paid to correct installation would be of far more benefit to the consumer than a set of artificially contrived standards for manufacture. Product testing is not a substitute for responsible installation and safety inspection of wood burning appliances.

The Wood Energy Institute reports that the most comprehensive wood energy exhibition ever held will be here in Portland, Oregon, March 21-24, 1979. The exhibition will be open to industry participants the first three days and to the public on March 24. Brochures and registration information are available from John Webster, Project Manager, Wood Energy Institute, Box 800, Camden, ME 04843.

Please excuse my blooper: triple-wall air siphon chimney has not been banned in the state of Vermont, re: *Rain*, August-September 1978.

Last August, I reported that Washington Stove Works was marketing two new products. It appears that poor assembly and design errors have been responsible for a high percentage of product failures resulting in broken castings. Improved Crest assemblies are available now. Arctic Air-Tight top plates are being reinforced and should be available soon. —Bill Day

SOLAR

The Job Creation Potential of Solar and Conservation: A Critical Evaluation, Meg Schacter, 1978, available free from:

Meg Schacter, Dept. of Energy
Rm. 6E, 068 Forrester Bldg.
1000 Independence, S.W.
Washington, DC 20585

A two-part study looking at the relationship of alternative energy and jobs. Part one outlines the factors of job creation, both qualitative and quantitative, to consider when comparing energy alternatives. Part two evaluates the "state-of-the-art" of employment impact analyses. Several recent job/energy studies are examined. —PC

Solar Energy Information Locator, by Solar Energy Information Data Bank of SERI, 1978, 32 pp., free from:

Stephen A. Rubin
Solar Energy Research Institute
1536 Cole Blvd.
Golden, CO 80401
303/234-7171

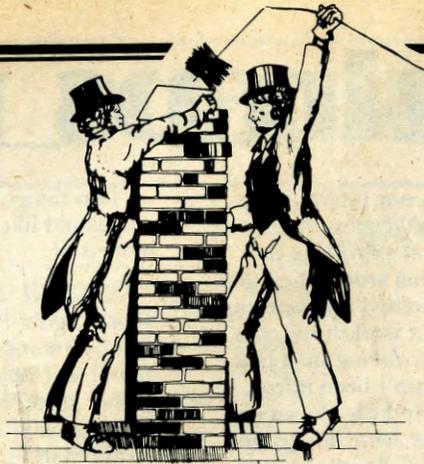
This booklet covers a limited number but a wide range of places to go to begin looking for information on Solar Energy. (In case you didn't know, the Information industry is the nation's second largest business, next to Energy!) From groups like AERO, Ecotope and *Rain* to NTIS, Library of Congress, ISES, local libraries and state energy offices, it's a good resource for groups that do information referral. Indicates briefly the types of information and publications to be obtained from those references. —LS

FORESTRY

Timber Harvest Levels for National Forests—How Good Are They?, CED-78-15, January 24, 1978, free from:

General Accounting Office
DHISF, Box 6015
Gaithersburg, MD 20760

When different government agencies start reviewing and investigating each other, whose reports do you trust? None, I hope. But in the process of seeing several different reports, many of the hidden agendas and special interests favored by their policies begin to show through. This report is ostensibly about improving the reliability of the data used in establishing the U.S. Forest Service's so-called "sustainable" timber harvest levels. But the errors

from *Wood Energy*

Wood Energy, Mary Twitchell, 1978, 170 pp., \$7.95 from:
Garden Way Publishing Co.
Charlotte, VT 05445

This "easy to read" consumer oriented paperback is an attractive, well illustrated (Cathy Baker) sourcebook. Some of the material has been previously published in *Garden Way Bulletins*. Major areas of information concerning product selection and correct installation are well written.

I would like to caution readers concerning possible safety problems concerning instructions for "Blocking" off the Fireplace" (page 57). Exhausting a stove directly into the fireplace cavity may produce large, potentially dangerous accumulations of creosote. (See Jan. 1979 *Rain* for details concerning an improved procedure.) This problem can be avoided by extending the smoke-pipe beyond the smokesheff or damper. My experience indicates that the use of fireplace tube-type (round or square) heat exchangers is dangerous enough that they should be avoided completely. One never knows when they might fail, the result is a shower of ashes and embers sprayed into your home.

The chapter "Wood Stoves—Old & New" offers some good advice for the potential stove buyer. Some outstanding bits of wisdom are offered concerning warpage in steel stoves, local availability, parts supplied by reliable manufacturers, operational safety, etc.

—Bill Day

ENERGY

and uncertainties add up to a picture of the Forest Service consistently allowing more timber to be cut than is being produced by current forest management practices. The technical details are, as usual, byzantine: sampling that indicates more timber in a forest than exists, use of pulpwood timber measures inappropriate to lumber production, assumptions that management practices that could (but aren't) be used are used, crediting "possible" future management to current cutting levels, assuming that replanting has or will occur more rapidly than actual practice. The USFS data, in reality, is merely a cover for political decisions made in D.C. in the Nixon era to increase wood exports to pay for our excessive imports and resultant trade deficit—in full knowledge that our forests can't support such practices. Time to turn the spotlight on bureaucratic timber thieves. —TB

Energy House Catalog, \$3 (refundable)
from:

Energy House
P.O. Box 5288
Salem, OR 97304

For our friends in the Northwest—a new mail order supply center for alternative energy and energy conservation. 280 pages of solar collectors, wood stoves, differential temperature thermostats, automatic ventilators, etc. It will be good when suppliers such as these get on their feet enough to offer experienced evaluation of advantages and disadvantages of various products and winnow the junk out from the good. That's the next and essential role of catalogs such as these—but for now, as a first step, they at least make various components more easily available. That's a big step. Thanks, folks. —TB

MORE ON MASONRY STOVES & FIREPLACES

Page six of the January issue of *Rain* lists plans for building your own Russian type masonry fireplace. It should be pointed out that the Timeless Products Inc. plan, though it is offered in ten variations, has only been built in one of the variations, and that actual performance has not been fully tested, either by time or by complete efficiency calculations. The Timeless design makes extensive use of steel for bypass dampers and for primary and secondary combustion passages. The lifetime of these parts, problems of differing rates of expansion between steel and the supporting masonry, and problems of fixing damage once the stove is built are sufficient reason to examine the design closely and proceed with caution.

The only person I know of trying to collate information regarding masonry stoves is Albie Barden of the Maine Wood Head Co., RFD 1, Box 38, Norridgewock, ME 04957. Five dollars will get you four newsletters covering collation efforts, names and addresses of people having on-going projects, and evaluations of plans and finished products currently in use. Two newsletters have been published and two will be published in approximately the coming year. Albie is currently writing a book on the subject which will appear sometime after the fourth newsletter. For more information see: Feb. 1978 issue of *Country Journal* and the Fall 1976 issue of *Woodburning Quarterly* (now *Home Energy Digest*), Vol. 1, No. 2, both containing articles by Albie Barden.

The only metal (and that was cast iron) in traditional European tile stoves, Kachelofen, and masonry stoves was the door and door frame.

—Jim Lux

Energy Theater

Some friends of *Rain* in Portland are exploring the possibilities of putting together an Energy Theater here. Interested? Enthusiastic? A.T. and/or theater people, contact Timothy Gero at 228-2018 days or evenings. —LS

Our friend and networker Jack Eyerly has shared some good things with us this month: Loren Sears (see review in this issue) and *New Age Rhythms*, an environmental/educational theater, music and dance group in Seattle. Put together by Klarisse Emöke Szabados (who worked with New Western Energy Show in 1976) with a grant from Washington Energy Extension Service, the group is in process of re-forming and would like people interested in participating in the group or in having them perform contact them at 1906 10th Ave. W., Seattle, WA 98119, 206/284-1761. (They'll consider doing benefits if food, housing and transportation are provided!)

Raindrops

Lots of you are perhaps wondering what's been going on with us here. Well, of course, lots of metamorphosis in our everchanging panorama of *Rain*, ice, hail, sun, snow, life, wind. . . . Tom and Lane, Rainmakers, have become Babymakers! Skye was born on the Oregon coast at around 5 a.m. right on time for our copy deadline for this issue, Tuesday, January 16! Blossoming into this life, he is welcomed by an utterly wonderful environment lovingly rebuilt out of ashes this year by Tom, Lane, Kip and lots of friends—the Phoenix House. Rebirth and joy!

Lee, our wonderful, frolicking dynamo, has recuperated from his trekking and conferencing all over the U.S. and his subsequent "you've-pushed-me-too-hard-too-long" winter-cold in time to give Western Sun his gust of energy and a grassroots A.T. reference point to start from. He's working there with Margie Harris and Fred Miller, both formerly with Oregon DOE. Western Sun, one of the nation's four regional solar energy centers, has the job of speeding up the commercial use of solar, wind and biomass energy in the 13 western states. Lee can be reached at their temporary office in BPA's building, 503/234-3361, ext. 4478. He's there from 9 to 5 and then returns to Rainhouse to torment us with wild bureaucratic tales and to attend to his lonely piles of mail. Western Sun, P.O. Box 3621, Portland, OR 97208.

Steven has just returned from four weeks in his old stomping grounds (Ann Arbor and Toledo) and has finished up a series of energy advocacy workshops for CAP people around the state. We're hoping that he'll do another with *Rain* as the umbrella so more folks can have access to their good workshop.

RUNT's struggles with the city bureaucracy to help supply a house to retrofit a la Integral Urban House have been frustrating to Phil and the other good folks involved—lots of learning there . . .

Nandie and Yale, our interns, have been our salvation in keeping abreast of the mass of work that's involved in keeping things flowing around here. Besides that, they're excited and working on putting together a workshop series this spring on Where to Plug In! I just realized that Yale hasn't been introduced even though he feels like an old friend by now . . . he came in late November from having done lots of environmental work in Amherst, Mass.—coordinating Sun Day, occupying at Seabrook in '77 (one of the 1414), and working on the Toward Tomorrow Fair.

As for me, *Rain* sometimes feels like one BIG PERENNIAL DEADLINE, so I've vowed to slow down *after* the next . . . Here's a little promotion update, as that's been a big part of my focus lately: mailing lists have been steadily coming in and to all of you who've sent them, OUR THANKS! They're wonderful! (We've decided to start "small" and do some sample mailings—at the end of January—we've not had to buy any lists yet!) We've received very few requests from people not wanting their names traded; anyone who wants to be removed from that process can let us know at any time. The following trades have been made so far: *Alternative Sources of Energy*, *The Elements* and *Seriatim* (these and future trades will be one time use only).

Attention, people who ordered *Stepping Stones* posters in October and early November: Please let us send you a better copy, since our first printing was too light! Just send me your name and \$1 (if you can) for postage and mailing tube.

John Coffin, our folding bike friend, where are you? Your *Rains* are being returned with no forwarding address! All of you itinerants and transients—let us know where you are; keep those address changes coming!

Two things I'm real excited about and would like information, ideas, models of:

Landlord/Rental Insulation Legislation: Legislation requiring landlords to insulate rental units OR a way to get rental dwellings insulated *without* higher costs to tenants. Oregon Self-Reliance is looking for legislative models to aid in drafting legislation to implement this in Oregon. It's a much needed area of energy conservation, touching so many of us—that's real difficult to eventuate. Send your ideas to me.

Neighborhood Transportation Pools/Banks/Lending Library: Neighborhood transportation pools could be an incredible urban scenario that goes something like this: Members would donate any cars, bikes, trucks, vans, buses, that they have to a pool which would entitle that person to use of any vehicle in the pool at perhaps no cost for a length of time that's equitable. Others who have no vehicle to donate would pay minimal/affordable fees to use a vehicle for a specific need. For example, a truck would be available for a winter wood pick-up or a springtime manure run to folks who don't need access to that vehicle at any other time of the year, and a VW would be available to an urban dweller who wants an economical way to get to the country where mass transit doesn't exist. Bikes could be available as well. . . . Fees would cover maintenance, insurance, etc. Is anybody doing this? How about other ways of making the concept work—let us hear your ideas and/or realities! —LS

Even though our subscription form requests that all orders/subscriptions be paid for in U.S. money, we continue to receive foreign currency.

For prompt and speedy processing of your order/subscription, please help us out by sending U.S. currency. Thanks. —YL

Stepping Stones arrived today after all the cuckoo mixups were figured out! Whoopee! Apologies for the delay!



RAIN PUBLICATIONS

- NEW**
- Stepping Stones: Appropriate Technology and Beyond*, edited by Lane deMoll and Gigi Coe, 208 pp., Fall 1978, \$7.95. A valuable reader providing the philosophical glue and background of what appropriate technology is. Compilation of classic essays by Schumacher, Odum, Lovins, etc., as well as new visions of what may lie beyond by David Morris, Margaret Mead, Tom Bender, Gil Friend and Lee Johnson.
 - Stepping Stones Poster*, by Diane Schatz, approx. 22"x33", \$3. This incredible new vision landscapes a community combining rural and urban views of Ecotopia. It was designed for the cover of our new book, *Stepping Stones*, to illustrate some possibilities for beyond. The detail in the poster is great.
 - RAINBOOK: Resources for Appropriate Technology*, 256 pp., April 1977, \$7.95. Resources for changing our dreams and communities. Compilation of the best of RAIN through Spring 1977, with much new material on economics, communications, health, energy, community building and other areas. Fully indexed.
 - Urban Ecotopia Poster*, by Diane Schatz, 22"x33", \$3. A reprint of the "Visions of Ecotopia" line drawing that appeared in the April '76 poster issue. Great for coloring.
 - Suburban Ecotopia Poster*, by Diane Schatz, 22"x30", \$3. Available for the first time in full size, this finely executed drawing illustrates Small-Is-Beautiful and self-reliance principles applied in a happy suburb of the very near future. Also great for kids' (and grown-up kids'!) coloring. (See cover of April '76 poster issue)
 - Emerging Energy Policy Principles*, by Tom Bender, August 1974, \$1.
 - Cosmic Economics*, by Joel Schatz and Tom Bender, revised March 1974, \$1. Principles to be carefully remembered in wending our way through this transition, and outlines for the simplest and most effective economic mechanism we've seen for guiding that transition.
- NEW**
- RAININDEX*, by Lane deMoll and Linda Sawaya, 1979, 48 pp., \$4.00. A librarian's delight: a complete index to Volumes I through IV (October 1974 through Aug/Sept 1978) of *Rain*, *Journal of Appropriate Technology* and *Rainbook*, *Resources for Appropriate Technology*, all in one mammoth volume which includes a four-page issue-by-issue listing of what's inside. Bound and printed in *Rain* magazine format, *Rainindex* is a wonderful addition to your back issues of *Rain* or a great means to discover the magic that hides therein.
- Revised 1979**
- Consumer Guide to Woodstoves*, revised Jan. 1979, \$2.00. Compiled reprints of Bill Day's article on selection, installation, repair of woodstoves, wood cookstoves and wood furnaces of all kinds.
 - Sharing Smaller Pies*, by Tom Bender, January 1975, 38 pp., \$2. Discussion of the need for institutional change tied in with energy and economic realities. Begins to lay out new operating principles, including some criteria for appropriate technology.
 - Environmental Design Primer*, by Tom Bender, 206 pp., 1973, \$5.95. Meditations on an ecological consciousness. Essays about moving our heads and spaces into the right places.
 - Living Lightly: Energy Conservation in Housing*, by Tom Bender, 38 pp., 1973, \$2. Early ideas on the need for change in building and lifestyle, compost privies, Ouroboros Project (self-sufficient experimental house in Minnesota) and the "problem of bricks in your toilet."
 - Employment Impact Statement*, October 1976, 2 pp., 50¢. A simple, step-by-step way to figure the employment impacts of a new industry and consider the benefits of different options.
- Back Issues Available, \$1 each.** List those desired: Vol. I, Nos. 7, 8, 9; Vol. II, all 9 issues (Vol. II, No. 6 was a poster issue; Vol. II, No. 9 was a special issue on Northwest Habitat.); Vol. III, all 10 issues; Vol. IV, all 10 issues; (Vol. IV, No. 2 was a special issue guest edited by the California Office of Appropriate Technology.).

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GOLD MINES

Carcinogen File: With the December 1978 issue of *Environment Magazine*, Jim Kendall and David Kriebel of the Carcinogen Information Program at the Center for the Biology of Natural Systems, Washington University, St. Louis, begin a series of bulletins designed to give the consumer the facts and implications of cancer causing agents, and provide sources for further information. With the growing concern about carcinogens in our environment, these bulletins will prove to be a valuable tool. Subscriptions to *Environment* are \$12.75/yr., \$19.50/yr. for institutions, from 4000 Albemarle St., N.W., Washington, DC 20016. —YL

Dolphin Death Plot?

In keeping with the government's policy of using anything as a weapon, David Helvarg of *In These Times* (Dec. 20-26, 1978) has found information documenting the use of dolphins and other marine mammals as tools of warfare. The Navy, along with the CIA, has already spent \$200 million on this project, using the San Diego Point Loma Marine Sciences Lab as a front for these activities. Perhaps if this money had been spent on learning how these magnificent creatures communicate, rather than utilizing them as weapons, we could have learned from them how to live in harmony with nature and our fellow human beings, and the need for war would be eliminated. Subscriptions to *In These Times* are \$17.50/yr. from: P.O. Box 228, Westchester, IL 60153. —YL

Evict Your Landlord

Most of the solutions offered renters attempting to solve conflicts arising out of the landlord-tenant relationship are band-aids. The basic problem still remains—the landlord owns the house. American Co-op Trust is a plan for turning private rental housing into non-profit cooperatives. The key to the scheme is finding a friendly investor willing to make the initial down payment in exchange for high interest and financial benefits. Monthly mortgage payments, instead of rent, are made by the co-op residents purchasing the house. For details see *The New Harbinger*, Winter '79 (\$8/yr. from NASCO, Box 7293, Ann Arbor, MI 48107). —PC

Profits, Privilege and People's Health—
A special double issue of *WIN*, July 27 and August 3, 1978—80¢ from *WIN Magazine*, 503 Atlantic Ave., Fifth Floor, Brooklyn, NY 11217. An excellent series of articles and resource listing for improving our health and health care. Articles on occupational safety and health, alternative health care in a rural community, the National Health Service Corps and much more. —TB

Drawing by Jan Faust/LNS



Street entertainers—what a gutsy group of people. Why does an artist choose to perform on a neighborhood street corner? Ray Jason, a San Francisco juggler, talks about the joys of and the need for this alternative form of entertainment in *Co-Evolution Quarterly*, Winter '78 (\$12/yr. from P.O. Box 428, Sausalito, CA 94965). One of the rewards mentioned is *time*—“time for the slow pleasures: gentle friendships, home cooking or long walks to reflect on the quality of their lives.” —PC



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