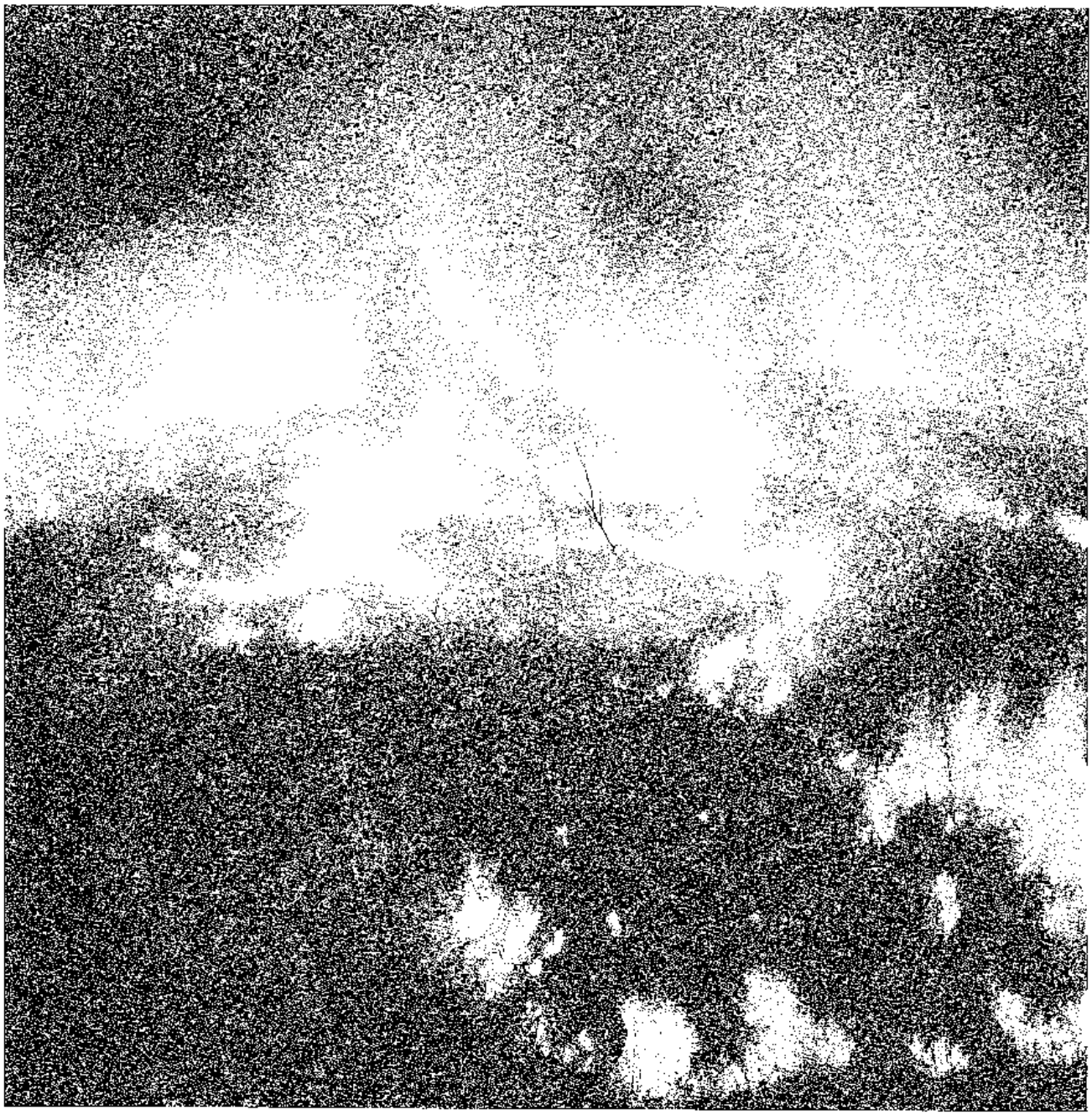
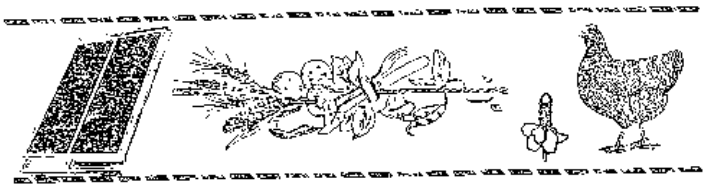


THE LAND REPORT

Number 18 Spring 1983

The Land Institute



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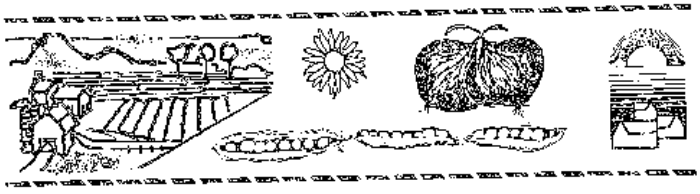

On the Cover

A Prairie Burn

Marty Bender

Terry Evans took this photograph of a fire we set on The Land Institute quarter section last spring for an experiment. Since the daytime was windy during the spring, various burns were conducted in the more calm evenings. Usually, Wes Jackson and three or four Land Institute students were controlling the burns by means of firebreaks, rakes, spades, and a tractor-powered spray rig filled with water.

Fire, whether natural or set by humans, is an important factor in the evolution of prairie ecosystems, because fire, along with grazing and drought, prevented the invasion of trees and shrubs into the prairie. We know that burning is used on rangelands today, not only to increase livestock gains, but also to control weeds, reduce patchy grazing, improve forage quality, improve growth and control insects and disease. It is also known that in tallgrass prairie, burning increases seed stalk production in the grasses. So, if we are to model perennial grain crop ecosystems after the prairie, we need to conduct many experiments to learn how to utilize these various effects as agronomic tools to maintain high grain yields.

More about fires on the prairie can be found on pages 18-21 in this Land Report.

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THE LAND INSTITUTE IS A NON-PROFIT EDUCATIONAL-RESEARCH ORGANIZATION DEVOTED TO A SEARCH FOR SUSTAINABLE ALTERNATIVES: AGRICULTURE, ENERGY, SHELTER, WASTE MANAGEMENT.

At The Land

New Student Program Begins

The new calendar began February 14 when ten students, six of them agricultural interns, started the Spring Growing Session of the new, forty-three week Land Term. They will continue through the Summer Session and the Fall Harvest Session, which ends December 17, 1983.

The expansion of the agricultural research program and the increasing interest of students in sustainable agriculture prompted the change of calendar and the longer term. Through grants from the Jessie Smith Noyes Foundation and the Joyce Foundation, The Land was able to award stipends of approximately $80 a week to six students. These first agricultural interns are graduates or undergraduate seniors with an academic background in science or agriculture who have expressed a desire to do graduate work after they leave The Land that could lead to faculty or research positions in agricultural institutions.

In addition to the interns, The Land has accepted four regular students. The program is the same for them, except they are not required to spend the summer at The Land.

Our students for the 1983 term and the colleges and universities they attended are as follows:

--Helen Atthowe, Cook College, Rutgers Univ.
--Mark Böhlke, Univ. of Michigan, Ann Arbor
--David Burris, Virginia Polytechnic Institute
--Ruskin Gould, Univ. of Colorado, Boulder
--Debra Israel, Oberlin College
--Kathleen Leenders (Willow), Manchester Community College, Connecticut
--Cary Nailling, Univ. of North Carolina, Chapel Hill
--Terri Nash, Univ. of Massachusetts and Auburn Univ.
--Juli Neander, Cornell Univ.
--Alexandra Stone, Dartmouth College

The daily schedule for this new program is much the same as it has been for all former students. We spend mornings in the classroom unless impending rain makes it prudent to work outside and finish certain projects. The "warm-up" session is from 9:00 until 10:00 A.M. After a short break, we discuss assigned readings until noon. Afternoons are for physical work associated with agricultural research, maintenance and repair of solar and wind energy equipment, construction projects, and upkeep of our buildings and tools.

The curriculum for the new program includes many of the books used before, such as Ecology and the Politics of Scarcity, Nature's Economy, and The Arrogance of Humanism. In addition, students will cover much more scientific and agriculturally-related material throughout the forty-three weeks. Students will read papers which relate to the basic biological questions which The Land's research will be trying to answer. Instead of daily classes in the summer, there will be weekly seminars presented by the students and, occasionally, guest speakers.

Marty Bender, Walter Pickett and Wes Jackson have written up approximately forty experiments relating to the development of perennial polycultures from which students may choose individual projects. Agricultural interns will be responsible for planting their own experiments,

Alex Juli David Debra Terri

caring for them all season, analyzing their results and writing papers about the experiments.

The students began helping with the on-going research in the very first week of the session. They started cleaning the rest of the seeds from the fall harvest, weighed each sack and entered the information in our records. They helped Marty Bender burn the Eastern Gama Grass and transplant clumps to other research plots. Several students helped Walter in the greenhouse and also constructed a temporary patio-door greenhouse out in the plots to expand the greenhouse area needed for wheat and wheat hybrids. They helped construct the seed storage room and organize the metal invoice files for seed storage. (See page 8 .)

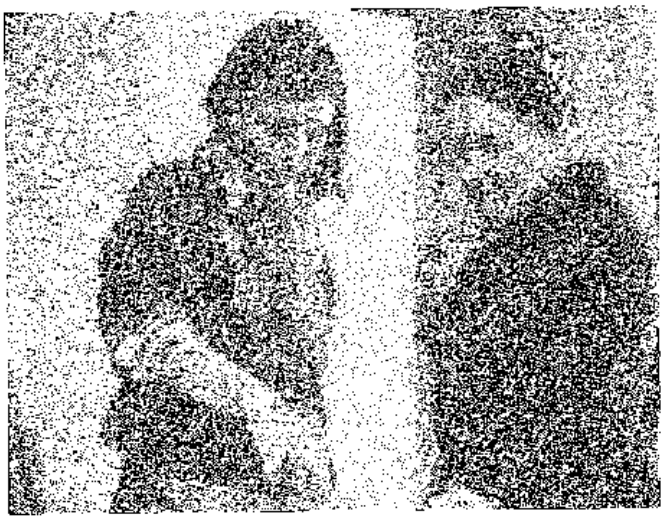
Although the agricultural work seems to dominate, there is still an opportunity for students to do projects in appropriate technology. Alex Stone and Juli Neander have been working with Margo Thompson, our appropriate technology intern, to install a small photovoltaic panel on the building. Helen Atthowe, Terri Nash, and others have helped Margo work on the Jacobs wind electric machine. Cary Nailling and several others have been discussing plans for the improvement of the compost toilet. Everyone will help plant the large vegetable garden and share the weeding and watering work this summer, as well as the produce.

Students do not live at The Land, but share houses in town and carpool or bicycle out each day. They bring sack lunches or prepare food in the kitchen on the first floor of the building. Once a week there is a potluck lunch in the Jackson house.

The Land admits students of any race, color, national or ethnic origin. Regular students should have completed at least two years of college, and agricultural interns should be upper level undergraduates or graduate students interested in sustainable agriculture.

PERSONS WISHING TO APPLY FOR THE 1984 TERM BEGINNING NEXT FEBRUARY SHOULD REQUEST INFORMATION BY MAIL OR PHONE THE LAND, (913) 823-8967.

Weighing seed and helping with germination studies are (above) David Burris and Willow, (on the left- clockwise) Ruskin Gould, Debra Israel, Helen Atthowe, and Cary Nailling.



Margo Thompson and Juli Neander

EDITOR'S NOTE: Regina Grabrovac was a student during the fall of 1982. To receive credit from Marlboro College in Vermont where she is a senior, Regina was required to keep a journal describing her studies and work at The Land Institute. The following is an excerpt from her journal, arranged here in verse form.

Journal
September 29, 1982

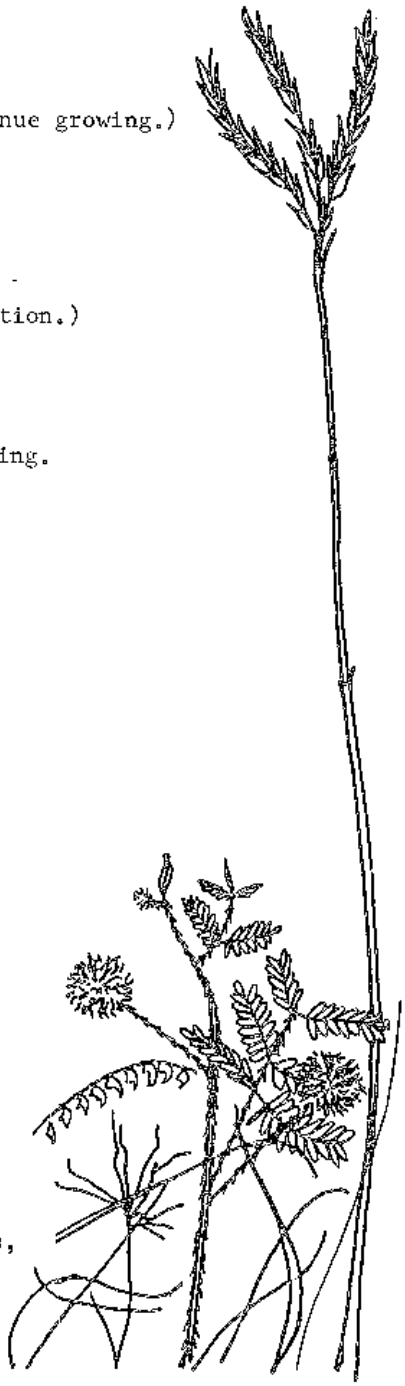
Regina Grabrovac

I feel that I have stumbled into the realm of big questions,
those frustrating but tantalizing ponderings.
...Do values dictate technology, or vice versa?
(We seem to be emerging from a history of
technology dictating our values.)
...Is the flexibility of humans to adapt
to any environment a positive or negative trait?
(We seem so capable of adjusting ourselves
to a polluted and degraded environment,
partially because we have been told
that sacrifices have to be made for our society to continue growing.)
...Can our adaptiveness be geared
towards a world based on sustainable values?
...Or are we only capable of accepting
the diseases of technology?
(When fewer and fewer people die natural deaths,
but instead are taken by cancers
induced by toxic wastes and by-products of human consumption.)
...How are we going to get to
a life based on respect for the natural world?

This is a real challenge:
to at least think about the questions that cover everything.
But I just wish someone would provide me with answers,
simple ones!
The computer in The Hitchhiker's Guide to the Galaxies
gave an answer: "42."
So simple an answer, and so inadequate,
exactly the point to the answer, "42."

So what we do with big questions is
take a small piece and say,
"This is where I am going to begin."
It may be with research projects at The Land,
or working in a food co-op,
or listening to those who seem to know something.
Not forgetting to look up once in a while
and be humbled,
because we really are doing so little.
It is easy to lose sight of the total picture,
and essential not to.

This afternoon we continued harvesting biculture grasses.
The quarter section, with its Wild Senna,
Illinois Bundleflower and Sunflowers
is anxiously awaiting harvest hands.
We move slowly through the tedious work,
and I think of what it was like
when it took many people to hand harvest wheat.
Did boredom give rise to songs?
It is a wondrous feeling to stand amidst the tall grasses,
and I am glad to experience the prairie.
But where are we going to put
all those sacks of seeds
when the two granaries are full?



Agroecology: Another Route to Sustainable Agriculture

Marty Bender

During the fall term of 1982, I attended classes in the Agroecology Program at UCSC (Santa Cruz, California) to initiate a link between them and The Land Institute. They may eventually send some students here to The Land Institute and maybe do collaborative agricultural experiments with us.

The discipline of agroecology arose out of a concern that many of the energy-intensive and chemical-intensive agricultural practices are not sustainable in the long run, because they rely on nonrenewable resources and have degraded agricultural soils and ecosystems. Agroecology research is based on the premise that an agricultural system is an ecosystem within which concepts and theories of ecology can be systematically tested through rigorous experiments. Through such experimentation, sustainable agroecosystems can be developed. Our research at The Land is based on this premise (see "Agricultural Research at The Land: A New Threshold" in Land Report No. 15), but there is a distinction between our research and agroecology research. Agroecology research designs agroecosystems based on the current domesticated crops; whereas, our research goes beyond design. Through wild and domesticated plants, we hope to breed new herbaceous perennial grain crops that are to be the basis of agroecosystems. If perennial grains are to be bred from domesticated annual grains, it is important that the breeding methods reconstitute the ecological genes that were left behind as the annual grain crops were domesticated.

Although principles of agroecology have been applied at the UCSC Farm and Garden since 1967, the Agroecology Program was formalized in 1980 under the direction of Steve Gliessman, Assistant Professor of Environmental Studies. Dr. Gliessman received his Ph.D. in Plant Ecology from UC Santa Barbara. He then spent ten years in Central America. Five were in Tabasco, Mexico, at the Colegio Superior de Agricultura Tropical, where he was Chairman of the Ecology Department and Director of their Agroecosystem Research Program.

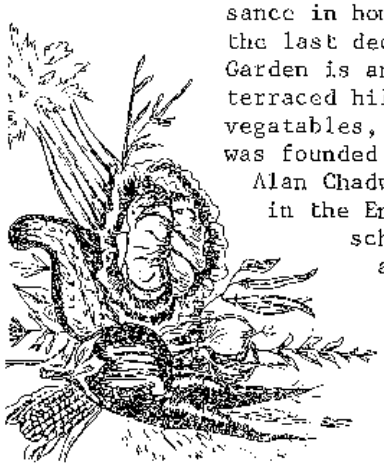
The UCSC Agroecology Program is engaged in coursework, research, and public outreach to increase the scientific credibility of sound ecological management of agricultural systems. Agroecology students take a core of three environmental studies classes: agroecology, small-scale agriculture, and ecodevelopment. I attended the agroecology class and the agroecology seminar. In both, ecological principles and theories are examined and then explored for their current and potential application to agriculture. Dr. Gliessman showed many slides of tropical agroecosystems he observed in Central America.

I also had the great fortune to attend a tropical forest ecology seminar taught by Dr. Jean Langenheim. The seminar was not limited to tropical forest ecology but exposed me to many topics, ranging from orchard management to the ecology of fire in forest ecosystems. Seminar lectures were also given by many respected university professors, such as Dr. F. A. Bazzaz from Illinois who talked about the ecology of secondary succession, and Dr. Don Dahlsten, a fellow researcher with the late Robert van den Bosch, who spoke on the solely political sprayings of the Douglas fir tussock moth in the West.

Academically, the term was quite productive for me. The agroecology course and my numerous trips to the libraries at UC Berkeley and UC Davis exposed me to the agroecology literature of which some papers are being used in the agricultural curriculum at The Land. Perhaps the best paper for those who want to learn more about agroecology is a recent review paper, "Developing Sustainable Agroecosystems" by Miguel Altieri, et al., on pages 45-49 in the January 1983 issue of Bioscience, Volume 33, No. 1, with 49 references cited. I also mined an unexpected wealth of ecological information from the literature on three wild perennial plants we are studying at The Land: Wild Senna, Curly Dock, and Illinois Bundleflower.

The agroecology course also exposed me to agroecology research at UCSC and UC Berkeley. Current experimental research at UCSC focuses on the ecological interactions between crops, weeds, and insects in polyculture cropping systems, and on the potential of polycultures as biological control strategies for managing weeds, pests, and soils. One major area of research concerns allelochemical interactions between common crops and weeds and the use of allelopathic potential in controlling weeds. Another major research emphasis concerns the effects of polycultural planting treatments on insect population dynamics and the potential use of weeds as biological control agents for managing insect pests. Karl Zimmerer, a former Land Institute student who is now a graduate student in geography at UC Berkeley, and I visited the UC Davis Farm (this is not part of the agribusiness-subservient research at UC Davis). There, we looked at the community gardens, the agricultural intern program, and the agroecology experiments being directed by Dr. Miguel Altieri in the Division of Biological Control at UC Berkeley.

The agroecology experiments at UCSC are done at the Farm and Garden, which have served as an important center for the transmission of knowledge, skills, and values in intensive horticulture and have contributed to a national renais-



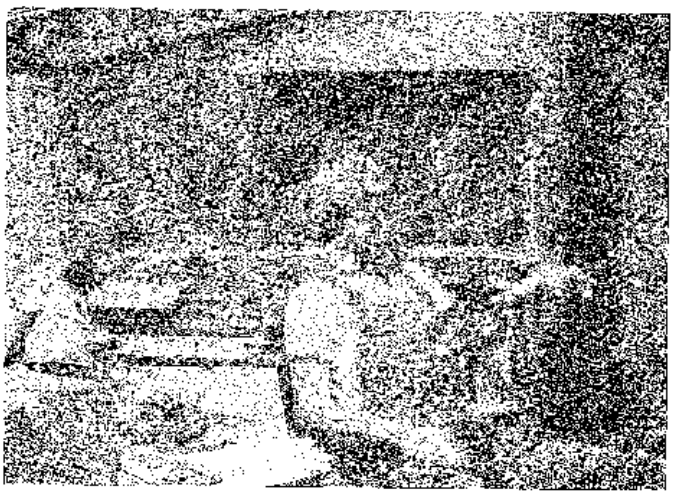
sance in home gardening during the last decade. The four-acre Garden is an intensively-managed terraced hillside of flowers, vegetables, and fruit trees. It was founded in 1967 by the late Alan Chadwick, who was trained in the English and Continental schools of horticulture and synthesized the principles of Biodynamic French Intensive horticulture, which is based on the raised bed technique familiar in many home gardens. The seventeen-acre Farm was founded in 1971 and, along with the Garden, has been used for an intensive year-long apprenticeship program in Biological Horticulture, leading to a certificate awarded by UCSC Extension. While I was looking for a place in town, I lived on the Farm for three weeks and shared meals with good people at the Farm Center, from which there was an expansive view of Monterey Bay and orange-hued moon rises. And every day, as I rode my bicycle through grassland on the campus where Herefords were grazing and Western Meadowlarks singing, I was reminded of Kansas.

In addition to the agroecology research here in the U. S., there is a lot of research being conducted in the tropics of Central America. U. S. agroecologists do research there because many farmers on small farms in the tropics have successfully minimized risk and maximized return by intercropping and using low levels of technology and resources. Agroecologists such as Jack Ewel, Steve Gliessman, and Robert Hart have also been using the natural vegetation of the tropics as an architectural and botanical model for designing and structuring an agroecosystem to replace it. They watch how succession occurs on a plant family level basis and then mimic it with domesticated crops in the respective families. For example, in the following list, the wild species are mimicked with the domesticated crops in parentheses: cucurbitaceous Heliconia spp. (squash), morning glory Ipomea spp. (yams and sweet potatoes), legume vines (local bean crops), grasses (corn, sorghum and rice), and small trees (papaya, cashew and Cassava spp.). Agroecologists hope to learn principles from agroecosystems in the tropics that can be applied not only in the tropics but also in the temperate region.

Two recent university disciplines, farming systems research and agroecology, have vociferously stated that sustainable agroecosystems must come from novel designs of cropping and/or livestock systems managed by technologies within the farmer's resources. Considering the current plight of U. S. agriculture that is arising with overcapitalization in farm equipment and consequent bankruptcy of farms, it is paradoxical that researchers in all agricultural disciplines have avoided studying Amish agriculture, a culture in which small farms have been able to avoid the major causes of small farm poverty and bankruptcy in the U. S. Only a few studies have been done on the agricultural methods of the Amish, such as the study, "Energy Conservation in Amish Agriculture" in the October 28, 1977, issue of Science, Volume 198, on pages 373-8. The authors, Johnson, Stoltzfus, and Craumer, represent the disciplines of geography, sociology, and geography, respectively. Even though the study was published in the well-read journal Science, agricultural researchers have not followed up on the study. Wes Jackson and I referred to Amish agriculture to determine the energetic requirements for draft horse traction in a paper we co-authored, "Horses or Horsepower?" in the July/August issue of Soft Energy Notes, Volume 5, No.3. If we are to begin dealing with the problems of U. S. agriculture, it would be prudent to examine Amish agriculture.

The agricultural methods espoused by agroecology conflict with those promoted by modern industrial agriculture because of different world views. From the industrialist or agribusiness point of view, present and future problems of malnutrition and starvation are due to agricultural limits or the type of technology used in food production. Industrialists believe that agriculture should strive to achieve maximum crop yields through intensive capitalization in equipment and chemicals. On the other hand, agroecologists and we at The Land perceive that the causes of the world's malnutrition and starvation problems are complex, and involve patterns of food distribution and political economics as well as farming techniques. Thus agroecologists believe that agriculture should be concerned with long-term stabilization of yields, not maximum yields.

Achieving long-term stabilization of yields will require the development of sustainable agroecosystems. Although The Land's research and agroecology research at UCSC are different, we operate with shared goals and common values. Cooperation should be fruitful.



Research Facilities Expanded

The ability to do agricultural research was enormously expanded by The Land's purchase of 160 acres across the road in 1982. Increasing the size and number of experiments, however, also created a need for space to store and dry the harvest, clean seed, and preserve the seed after weighing it.

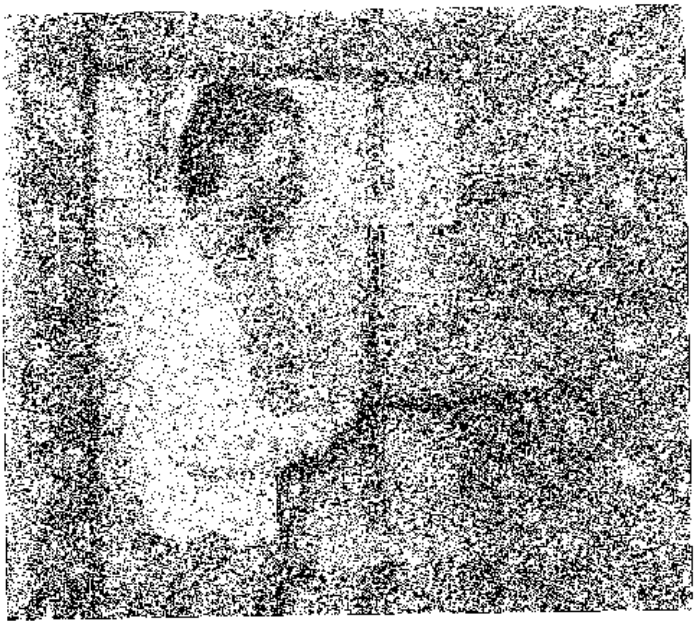
Two used, round, metal grain bins answered the need to store and dry the harvest. We purchased these last summer, and summer workers helped pour concrete floors inside them. Students during the fall semester painted the bins and filled them with cloth bags of seed they had harvested. The grain bins serve us well, but we may need more of them.

In December, students constructed a 12' by 50' addition to the south side of the barn. The extra space was quickly filled with equipment, including a seed cleaner donated by Delmar Martin, which we formerly had kept in a neighbor's barn.

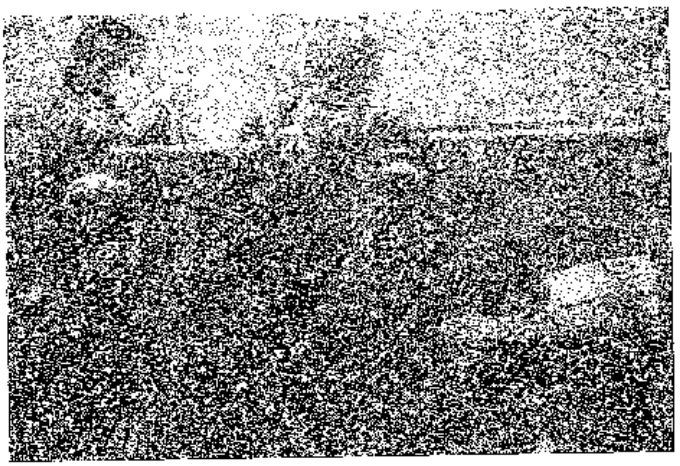
In January we bought 240 metal invoice files (6" X 9" X 24") at an auction as storage space for seeds. Paul Krumm, with the help of students after the new term began, constructed a room inside the barn to hold the 240 mouseproof metal drawers. The room should be mouseproof also, as it has aluminum siding walls and a concrete floor. Each drawer has a label on the front to identify the contents, so organizing and keeping our seed separated should be much easier now.

Taking care of the seed has been a major part of the afternoon work. Students have been putting the harvest through a hammermill, then cleaning it in the two Clipper seed cleaners. After cleaning, the seed is weighed and the data recorded. Then the seed goes into the drawers in the new seed storage room.

We learned last winter that our solar greenhouse could grow plants or provide heat for the downstairs, but not do both successfully. This winter we kept the door closed to the shop and let greenhouse mass absorb the extra heat. Although an electric heater was available for backup at night, we never used it. Walter needs more space, so we are discussing a second greenhouse as our next research facility construction.



David Burris in seed storage room.



Mark Bohlke and Terri Nash cleaning seed.

Becky Pickett is developing her skills as a technician so that we can call on her when we need to know the chromosome complement of various plants. During the fall of 1982, the first floor office was remodeled to accommodate a lab. The Land Institute purchased the Olympus microscope with funds granted by the Rodale Publishing Company.

The American Cropland Crisis

by W. Wendell Fletcher
& Charles E. Little

Bethesda, Maryland,
American Land Forum
1982, $7.95, 175 pages

Reviewed by *Dana Jackson*

Reprinted from
Not Man Apart, November 1982

The subtitle of The American Cropland Crisis is a summary of the book: Why U. S. Farmland Is Being Lost and How Citizens and Governments Are Trying To Save What Is Left. The book is divided into three parts. In the first part the authors tell how much farm land has been "developed," and review the beginnings of farm-saving strategies such as tax structures advantageous to farms, districting, zoning, and purchase of development rights.

In the second part, "Beyond Open Space: Farmland as a Strategic Resource," the authors describe the importance of farm exports to the U. S. economy and the world's food supply. Agricultural exports comprise nearly 20 percent of the total value of U. S. exports from all sectors of the economy, and the 1981 National Agricultural Lands Study done by the U. S. Department of Agriculture and the Council on Environmental Quality estimates that export demand will nearly triple over the next two decades, assuming constant real prices. The study concludes that this, plus increased domestic demand, could require a 60 to 85 percent increase in overall agricultural production by the year 2000. If we continue converting a million acres of cropland a year to other uses, U. S. agriculture cannot meet this demand.

In Part III, Fletcher and Little describe attempts to preserve farmland, with zoning and purchase of development rights. In the concluding chapter, they describe new approaches called "conservancy techniques," and discuss the role of federal programs to support the states and localities working on their own to protect farmland.

W. Wendell Fletcher and Charles Little explain that the word "crisis" in the title does not imply that we are in imminent danger of running out of food or land to grow food. It is a crisis, they say, of "sense." People must understand that "in a world that depends on our cropland base and for an economy as needful of overseas markets as ours," it is foolish for us to lose our cropland and someday reach a serious crisis of food and land.

But this book does not really come to grips with the cropland crisis. Even if cropland is saved from urbanization, we will lose it to soil erosion as long as we accept the authors' two basic assumptions: that the world depends on our cropland and always will (the authors do not suggest working to change this dependency), and that farmers are obligated to produce for the economy.

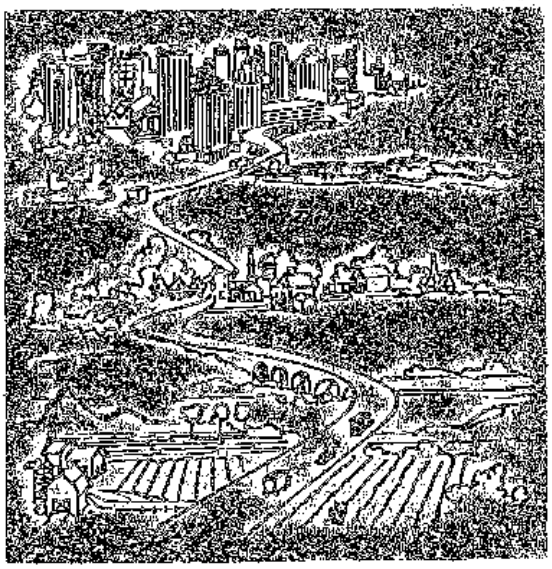
Whom does the U. S. export food to and why? Little and Fletcher admit that more than 70 percent of our exports are used to fatten livestock for red meat diets of the world's affluent. Fletcher and Little argue that we have a moral imperative to save U. S. land to grow food for the world, especially the poor and starving. Yet the authors admit that we are not feeding them now and do not propose any changes in the world agricultural economy to make it possible to feed them. They use the poor to stress the importance of preserving farmland, but accept the fact that Japan, the Soviet Union, West Germany, Britain, and the wealthy of all countries will continue to buy most of the food we export.

Not only does the rest of the world need our exports, the U. S. also needs to export food. We export to get rid of surplus food, and we export to offset what we spend for foreign oil imports. By worshipping and serving "our economy," we sacrifice our farmers and our soil. Only larger farmers and farm corporations can raise the capital for land, equipment, energy, and chemicals needed to produce wheat, soybeans, and corn for export. Small farmers can't compete today because they receive low prices for their crops, and they are selling out or going bankrupt.

The emphasis on high production of grains puts tremendous pressure on the land. Little and Fletcher explain how current farming systems contribute to soil loss. Export oriented farmers give up traditional conservation practices such as crop rotation, use of shelterbelts, and contour plowing. Continuous cropping of corn (with heavy chemical inputs) is more economical than rotating corn with legumes and other grains. Today's big tractors can't maneuver very well to establish optimum contours, so they don't. Shelterbelts have been removed to accommodate large equipment and make it easier to set up center pivot irrigation.

I think the real cropland crisis is not the loss of Connecticut dairy farms to urbanization, but the loss of rich soil in Iowa, Nebraska, Kansas, and Illinois to wind and water. One out of every three acres harvested, according to Fletcher and Little, is used to meet export demands. It doesn't make sense, to me anyway, to save farmland from urbanization because the world needs our food, then waste our soil and water to meet that demand.

It is time to challenge these basic assumptions. We could lessen the world's dependence upon us by helping other nations save their own soil. We could do this by preventing multinational companies from using the soil in third world countries to grow coffee, cocoa, and fruits for the affluent in the world, and by stopping the sale of toxic pesticides banned in the U. S. to those growers. We could quit expecting



American grain farmers to rescue the country's economy from the cost of gluttonous oil imports and teach them lower production costs through organic methods. Total U. S. production and exports might be less, but the farmer would be better off.

This book is disappointing because the authors take conventional agricultural economics as givens and suggest how to cope with our wasteful, unjust system rather than how to change it. The U. S. should, of course, pursue the schemes the authors suggest to preserve farmland from being covered up by shopping centers, houses, and roads. As they point out, it is prudent to listen to resource economists about "opportunity costs." If we spend a resource today, it won't be available to use in the future. Perhaps we might change our national agricultural export policy in the future, and then we could save the soil on the acreage we have saved.

Meeting the Kansas Organic Producers

Juli Neander

On Saturday, February 26, several of us from The Land Institute attended the Kansas Organic Producers' (KOP) annual meeting in Clay Center. I was interested in learning what issues are important to organic farmers in Kansas.

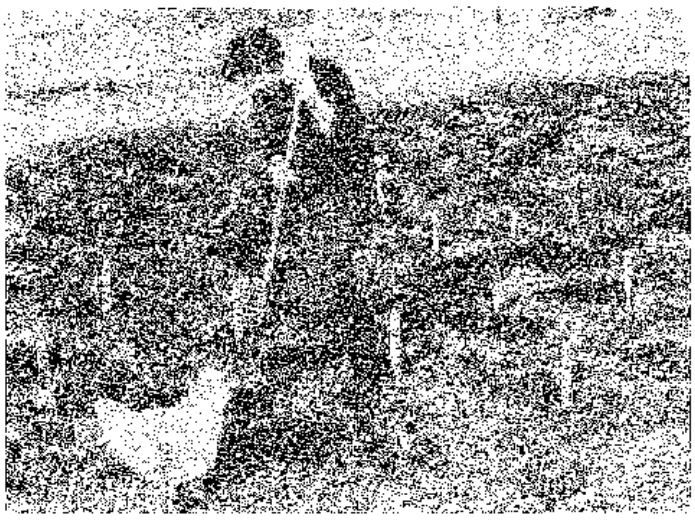
First on the morning agenda were brief presentations by representatives of different organizations. Before the meeting started, I collected free pamphlets and publications from some of these groups: the Kansas Rural Center, Kansans for Safe Pest Control, and the Edible Landscape Project of the University for Man. Because I've lived in New York State for most of my life, I had no idea that there would be this much activity related to ecological food production in Kansas.

Committee reports came next. I was impressed by the political committee and the committees on marketing, public education and member education. KOP's concerns go beyond specific organic growing techniques.

The membership of the KOP is diverse. The grower members, who must meet certain eligibility conditions and pay a larger membership fee, include those who have farmed organically for 20-30 years, as well as those with a few years' experience and those just beginning. A special category of supporter memberships allows those not farming to be involved. The Land Institute is a supporter member.

After the potluck lunch, two sets of five workshops were offered. I attended the Organic Farming Practices Workshop led by Steve Walker and Jim Lukens, and it was excellent. Sitting there listening to the farmers discuss cropping practices involving wheat, alfalfa, soybeans, corn, oats and sweet clover reminded me that Kansas is where the basics for American diets are produced. New York grows plenty of fruits and vegetables, but few staple grains and livestock. My introduction to Kansas agriculture continued in the Land and Water Ownership workshop led by Mary Fund, who talked about the depletion of groundwater due to center pivot irrigation. I had never realized that rainfall varied as much as it does across the state and had never heard of "dryland" farming.

Others from The Land attended workshops on Cleaning and Bagging Grain on the Farm, Fruit Tree Management, Federal Tax & Farm Credit Policy and Kansas Food Systems, and found them informative and interesting. We learned about organic farming concerns by listening to the farmers ask each other questions and share information. They educate themselves and the public about growing healthy food on a healthy land. When I think about all the problems of American agriculture, it is encouraging to know that there is an organization called the Kansas Organic Producers.



Juli digging Eastern Gama Grass for relocation.

Gardening — A Winter Perspective

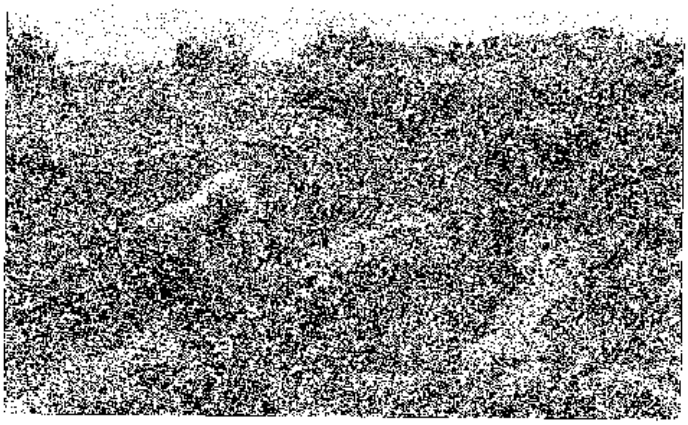
Dana Jackson

The seed catalogues arrived right after Christmas, first from Henry Field, then Gurney, Spring Hill, Park, Johnny's Selected Seeds and Burpee. Red and pink carnations, Red Honey strawberries, Lacy Lady peas, Kandy Korn, and the half Honeybush canteloupe were pictured on the covers. Many times I held back the Burpee cover with my thumb and let the pages flip out quickly to experience the flash of color. I checked to see if favorite, familiar varieties were still available, then lingered over the intriguing, unfamiliar varieties, such as Mr. Big Radish ("a real champ") and the Odorless Onion ("for close encounters."). Reading the description of the Tayberry ("new from Scotland") actually made my salivary glands hurt! The rich purple berries are long and cone-shaped...The plump berries have a firm core just like a blackberry. They are extra sweet and juicy and make the most marvelous sauce you can imagine. The berries also make jam--rich, seedy, flavorful jam that will make your tastebuds quiver with anticipation."

January isn't too early to begin thinking about the garden at The Land. I always check the seed left over from last year, review the old order sheet and any notes on germination or pest problems in the garden notebook, and then mentally picture the garden space available to make tentative planting diagrams. By that time, it's February and I order the seeds.

We usually plant standard hybrids sold by the well-known seed companies in the Midwest. When we first started gardening here in the summer of 1974 before The Land Institute existed, we weren't beginning a hobby. We <u>needed</u> to grow as much of our food as possible to support the family, and we were relatively inexperienced, so we chose varieties with disease and heat resistance. Someday, we may obtain some of the more specialized, older varieties and save our own seed, but up to this point we have not wanted to add another task to the work of gardening. However, I am bothered by the fact that I.T.T. owns Burpee Seed Company, and that Union Carbide owns Ferry Morse, and don't like supporting the corporate giants whose vertical integration in our food system works to the disadvantage of small farmers in this country.

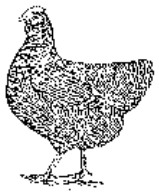
For nine years, the Jacksons have grown vegetables in a large organic garden, freezing, canning and drying them for the winter. Although in the beginning the garden was clearly a family project, it has also become part of The Land Institute. People expect to see an organic garden when they visit here. We have always shared abundant produce with summer employees and have,



Dana and Mark McCain harvesting salad greens.

of course, allowed them to do any weed pulling they wish! In the spring of 1982, Dana McCain, a student, helped every afternoon, and we grew enough lettuce, spinach, radishes, onions and snow peas for all the students to harvest as much as they wanted. With our new 43 week program, there will be students at The Land over the summer to share the garden, so we will expand it and involve all the students in planting and tending it.

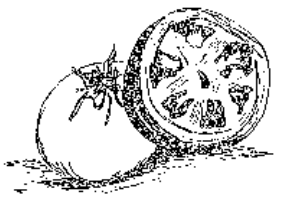
Over the years, we've established a planting schedule which seems to work well. The gardening officially begins on March 1 when I plant broccoli and cabbage in flats and set them on the deep sills of our living room windows. Around March 15, the living room really becomes a greenhouse when I move the rest of the houseplants to other windows and replace them with flats planted to tomatoes, green peppers, cayenes, eggplants, herbs and flowers.



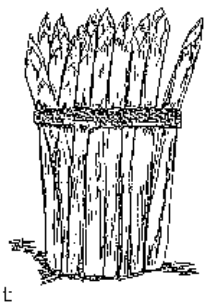
Wes starts roto-tilling the garden as soon as weather permits, and we try to plant potatoes on March 17, St. Patrick's Day. Then as the weather allows, we begin planting the salad beds: three or four kinds of lettuce, spinach, onions, garlic and radishes. The Chinese cabbage, lettuce and spinach in the solar growing frame were wonderful in December this year, but by March were aphid-infested and becoming bitter. How we long for fresh salad greens at the end of winter!

Snow peas, carrots, peas to shell, turnips, carrots, parsnips and beets are planted next. By the middle of April we can put green and yellow beans and lima beans in the ground. They are tender to frost, and this area has had frost

as late as May 10 since we've gardened here. But usually the frosts are finished by the time beans come up.



The first and second weeks of May, we plant the major part of the garden. Corn, squash, melons, cucumbers, okra, herbs, annual flowers, and a second set of salad greens. Then it is safe to set out tomatoes, eggplants and peppers. I've decided it isn't worth getting in a hurry to plant tomatoes, as they wait around for warm weather to begin growing anyway.



The perennials do require some attention. We prune the raspberries early in March before growth starts and add mulch. When the days get warmer, we take the mulch off the strawberries and throw it around the asparagus. As the rhubarb appears, I add some manure and straw mulch. The hens took dust baths under the large rhubarb leaves last summer and must have damaged the stems or roots, as they looked pretty ragged by fall. They will need a fence this year. Jerusalem artichokes always take care of themselves-- too well!

This year we are looking forward to a good strawberry crop. We set out 100 Senator Dunlap plants last spring, fertilized with bone meal, and kept them weeded all summer. The Dunlaps have wonderful flavor, but aren't large and showy and don't keep as well as commercial varieties. Early this spring we will need to rototill paths, destroying some of the runner plants to allow sunlight to reach into the roots. We should have limited the runners to the rows last summer.

Each year there is a garden plan sketched out in a notebook. We never grow a crop in the same area two years in a row and don't follow a vegetable like cabbage with relatives, such as turnips or broccoli. I've learned to group the beds and short rows together, and plant the long rows of corn, potatoes and beans in one area so we can make easy turns with the rototiller. The herb bed and all the perennials, except raspberries, are located in the south end of the garden now.

How the garden looks is important. We design the salad beds to enjoy the stripes of onions, radishes, red lettuce, dark green spinach, and various shades of lighter green lettuce. The snow peas have lovely pink blossoms, and the luxuriant beet leaves and lacy carrot leaves make appealing arrangements when planted in the beds.

We have always planted marigolds in the peppers and eggplants, and they are brilliant until frost. Last summer we also planted borage around the beets, carrots and onions, and this summer we'll put it with squash and cucumbers. Bees are attracted to the blue flowers, and this should help attract them to the cucurbits for better pollination.

The flowers at Green Gulch Farm near San Francisco impressed me when we visited in 1981. Peter and Wendy Rudnick, the gardeners, gave me seed for California poppies and wooly verbascum, plus flats of zinnias and other flowers which I carried home to Kansas on the plane. The poppies and zinnias were dazzling in our special "Zen garden" opposite the solar growing frame last summer, but I was very disappointed that the strange and beautiful wooly verbascum did not germinate. In April of this year we look forward to the effects of the 88 daffodil bulbs planted in the Zen Garden (a gift of Dr. and Mrs. Reggie Stowe of McPherson, Kansas.) Each year I hope to plant more flowers and herbs in with the vegetables.

Most of the garden is heavily mulched with straw and horse manure or old hay. However, it isn't necessary to mulch the cool weather greens or beets or peas, and we'd rather rototill the large corn patch. We like hay on all the paths between beds because it makes a walk through the garden possible even after heavy rains. In the fall, Wes disks the garden and stirs the mulch into the soil. In the spring, he rototills and by May, last year's mulch is nearly composted. Instead of double dug beds, we just rake the loose topsoil into beds and add composted manure. (There is usually a pile of cow manure composting somewhere on the place. We bought two truckloads last fall.) Our carrots, beets and onions do much better in these loose beds than in regular rows.

We have our share of garden pests at The Land, such as squash bugs, cucumber beetles, aphids, potato beetles, etc. The last two years, our cabbage family has been attacked by a destructive creature called the cabbage cucurlio.

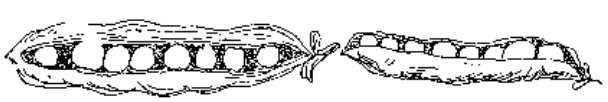
The cabbage cucurlio first showed up in

epidemic proportions in 1981. I thought it was an aphid at first since it was gray. However, the county horticulture extension agent helped me identify it as a cucurlio. The strange creature has possum habits. If you bump the plant or shake the leaves, it curls up into a ball, plays dead and drops onto the ground. Then when you go away, it crawls back up to the leaves and begins eating again. It destroyed our turnips and made the cabbage unsightly and unappetizing; however, I think I saved the broccoli from the ravishes of the cucurlio. The broccoli patch was close to the building so I used the following cure. I fashioned a cardboard collar to place around the base of the broccoli plant, then shook the cucurlios off. They fell on the collar and I vacuumed them up with a household vacuum cleaner on a long extension cord. This was energy-intensive pest control, but it sure worked! Although I did not eradicate the cucurlio, I reduced the population enough that the broccoli survived very well.

Each year there are new problems in the garden and new successes. Each year some crop fails and some crop succeeds beyond our expectations. We do learn from experience. This year we will harvest the onions earlier and dry them more thoroughly. We will plant more white clover, not yellow clover, to compete in gardenside spaces with the bindweed. We learned that bindweed climbs up the yellow clover and blooms profusely at the top of the plant. I'm going to make sure that okra gets full sun and is planted in east-west rows if possible. I'm going to devise a better staking system for the bushy Roma tomatoes. A list of good intentions could continue for an entire page!

One of the best things about the garden is how simple it makes meal planning. An hour before lunch or dinner, I walk through the garden, pick what is abundant or what is mature and must be harvested, and plan the meal around those vegetables. Often we eat as many as ten different vegetables at one meal. Generally there is variety because we don't always prepare the same combinations or the same recipes.

The third weekend in February, I went shopping for a cheap pair of running shoes to wear when working in the garden. What interesting conversations the salespeople and I had! We exchanged information about plant varieties, tools, pest control and food preservation. No one mentioned the first look at the strawberry bed after a hail storm, or the feeling at 9:00 P.M. when the bushel of cucumbers is delivered to the kitchen for canning, or the moment of formal surrender to the squash bugs in the zuchinni. From a winter perspective, gardening is pure golden--green warmth and joy!

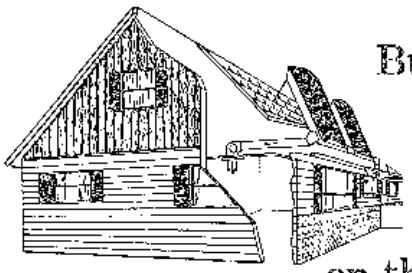


Native Seeds: SEARCH

America's agricultural heritage reaches back thousands of years, but struggles to persist in a few isolated fields today in the form of ancient seedstocks that are planted by fewer and fewer Indian farmers every year. Until recently, there has been no organization devoted to the conservation, promotion and distribution of these native crop varieties. Now, Native Seeds/SEARCH has been incorporated to do non-profit education and research to help conserve these indigenous crops and their wild relatives, with a focus on the Greater Southwest. Unlike most regions of the U.S., where native agriculture has all but disappeared, the desert Southwest contains much of the remaining diversity of corn, beans, squashes and minor food crop varieties that were found on the continent at the time of Columbus. Yet even on Indian Reservations in remote desert areas, as little as 4% of the fields cultivated at the turn of last century continue to be planted in native crops.

Agricultural ecologists now realize that such a diversity is valuable in itself, allowing us more food options for the future if properly conserved. But several of the desert crops have unique qualities that hold additional promise: high protein and mineral content; superior drought, heat, disease and insect tolerance; superb taste. Native Seeds/SEARCH will be researching and promoting these crops in innovative food production systems that may require less water, fossil fuel and pesticides than conventional agriculture. It will publish a seasonal newsletter and an annual listing of available seeds, as well as sponsor workshops and exhibits for the general public. To become an associate, send a check for $10.00; for a seed listing only, send $1.00 to Native Seeds/SEARCH, 3950 W. New York Drive, Tucson, Arizona 85745.

The above news release was sent to us by Gary Nabhan, one of the founders of Native Seed/SEARCH. Gary is an ethnobotanist and the author of a fascinating book called The Desert Smells Like Rain (Northpoint Press, Berkeley, CA., 1982) about the culture and agriculture of the Papago Indians of the Southwest. He shows a durable agriculture, one adapted to the climate, taking advantage of excess rainfall by placing fields where runoff spreads. He describes the crops, varieties of corn, beans and peppers domesticated from wild plants of the region. In a search for a sustainable agriculture, there is much to be learned from these American Indians of the Southwest.



Buying Solar: What is Available on the Local Market

Julie Fischer

If you read Solar Age regularly, have technical knowledge and skills and plan to build your own active solar system someday, this article is not for you. It is, rather, intended for the solar laity who, if they want to invest in a solar system, must choose from ready-made systems on the market. And the process of making a satisfying choice may be equally as difficult as building one's own. The following paragraphs describe how one person went about making that choice.

When we moved into the Salina area recently and bought an older rural home with fuel oil furnace and electric water heater, we decided to look for an air solar system which would give us supplemental space heating during the winter and heat our water during the summer. With this concept in mind, our search began.

First we consulted with a Land student, Barry Moir, who had some background in active solar technology. He helped us establish a list of questions based on factors most important to a well-functioning solar system. We charted these questions and used them in interviewing the six current solar dealers in Salina. At the end of this article you will find a chart showing our questions and the answers we recorded.

A few technical pointers may be helpful in assessing the information in the chart.

Collector durability depends on various factors, two of the main ones being box construction and glazing. Extruded aluminum rates higher in strength than sheet aluminum. However, a box with fewer seams leaves fewer possibilities for leaks to develop. Watch both factors. Try for the strongest box with the least seams. Steel is very durable but weighs considerably more. Depending on where it would be installed, the added weight might be a disadvantage.

There is no perfect glazing. Low-iron glass rates higher on light transmittance, will not yellow with age, wrinkle nor expand as much as polyesters. Fiberglass reinforced polyesters (Filon and Kalwall) are lighter and rate only slightly below glass on transmittance. However, they wrinkle somewhat and yellow with age, decreasing gradually in transmittance. A good comparative study of glazings can be seen in the April 1982 issue of Solar Age, page 39.

Ductwork presents another variable. In general the shorter the ducts, the more heat will be delivered into your home. Flexible ducting, because of its tendency to have unsmooth surfaces within, may cause greater "static pressure" which inhibits air flow. This factor may be negligible if the air is pulled rather than pushed. Be sure to ask. Galvanized sheet metal seems to create less static pressure and is definitely preferable on exterior ducting.

SRCC stands for Solar Rating and Certification Corporation. Formed two years ago, SRCC certifies and rates collectors--just the heat gathering boxes--tested by accredited labs. It then labels each collector with the "expected amount of energy, in BTU's, the collector will produce under a variety of conditions." According to an article in New Shelter, Nov./Dec. 1982, entitled "Energy Products: Don't Get Ripped Off," if you divide that number--the SRCC rating--by the collector's cost, you get a BTU per dollar figure that you can compare with other SRCC rated collectors. A reputable dealer should be able to supply this information. Or you can get it directly from the SRCC, 1001 Connecticut Ave., N.W., Suite 800, Washington, D.C. 20036. Ask for the Directory of SRCC certified solar collector ratings.

Not represented on the chart are the efficiency ratings of the collector boxes. There is a standard test, the ASHRAE 93-77, conducted according to specifications of the American Society of Heating, Refrigeration, and Air Conditioning Engineers, which shows you how efficiently the collector functions at different temperatures. A reputable dealer should not hesitate to show the ASHRAE curve on his collector and help you to compare it with similar curves on competing collectors. Bear in mind, however, that not even the most efficient collector will deliver its maximum potential BTU's if it is poorly installed.

If you have done all your homework and still have questions or want to double check your reasoning, there is another objective resource you can consult. Kansas State University operates the Kansas Energy Extension Service to provide technical assistance directly to individuals, including valuable literature. I believe most states offer such services. The Energy Answer Line in Kansas is 1-800-332-0036.

Once you are sure of a quality product and of the ability of the supplier to install it and service it properly, the bottom line is cost.

If your federal tax is equal to or greater than 40% of the system's cost, you will get the entire credit returned the first year you file. If the state's 30% credit exceeds what you have to pay in state taxes, the credit is divided into thirds and return to you in three consecutive years. In July of this year, however, tax credits for solar may be changed or discontinued. Before buying, be sure to check the tax credit situation. In Kansas, you may call Kevin McDonald at 1-913-296-2728.

All dealers listed used trained installers, provide service, will do heat load studies on your home and give inclusive estimates. Prices quoted here may vary depending on circumstances of each installation. Only Alternate Energy Sources offers a computer program, estimating if and when a system will pay off in energy savings.

	ALTERNATE ENERGY SOURCES, INC. Jim Wesch	MID-AMERICA SOLAR SYSTEMS, INC. Rod Long	SALINA CONCRETE Herb Nash or Bob Riffel	SOLAR WORKS OF SALINA Chet Kent	SOLAR WORLD Kenneth Ellis	SUNRAY SOLAR, INC. Dave and Dennis Trimble
Type of system offered	liquid only	air only	air only	air and liquid	air and liquid	air only
Dealer's time in solar business	5-6 yrs.	14 mo.	2 yrs.	4 yrs.	4 mo.	2 yrs.
Solar expertise	grad. mechanic. engineer	engineer on staff	seminars by firm	mechanic. contractor	seminars by firm	seminars by firm
SRCC tested/ Other lab tests	no SRCC/ other yes	yes SRCC	yes SRCC	yes SRCC	Novan has SRCC	Calif. lab
Space heating system cost	2 panel $2,200	1 panel $2,295	1 panel $2,295	2 panel $2,000	1 panel $1,199	4 panel $3,995
Water heating system cost	2 panel $2,700	none as yet	1 panel $3,695	1 panel $2,900	none	2 panel $4,395
Combo Space-Water heating cost	advises separate systems	none as yet	1 panel $3,995	120 $ft.^2$ $6,500 - $7,200	2 panel $4,740	5 panel $7,395
Collector size	20 ft^2	40 ft^2	37 ft^2	40, 32, 20 ft^2	19½ ft^2	22 ft^2
Collector box	extruded aluminum	sheet aluminum	sheet aluminum	extr.alum. + sheet aluminum	extruded aluminum	steel
Glazing	low iron glass	reinforced plastic	Filon*	glass or Kalwall*	glass	Filon*
Installation: Open or Dormered	Open	Open	Open	Dormer/ Open	Dormer	Dormer
Ducting: Exterior/ Interior	Galvan-ized	Ext.-Gal. Int.-Flex.	Ext.-Gal. Int.-Flex.	Ext.-Gal. Int.-Flex.	Galvan-ized	Flexible

*Filon stands for fiberglass reinforced polyester; Kalwall is a similar product.




Alternatives in Waste Management

Our Dilemma

On the days when all employees and students are at The Land, we have a total of eighteen people. Human waste management has become a problem.

When we constructed the first classroom/shop building, we decided not to put in a septic tank and flush toilet. The first group of students in 1976 built a quaint "air conditioned" outhouse behind the barn as their initial project. It is still in use, but soon must be moved or replaced. After fire destroyed the first building, we rebuilt over the old concrete floor, but again did not make a provision for a flush toilet. In our third year, a student, Carol Maguire, installed a composting toilet system using a 55 gallon barrel in a small shed south of the building. This has been a good system, but with eighteen people, twice the original number at The Land, the barrel fills up rather quickly. We need expanded facilities.

In addition to facilities for Land people, we sometimes have outside groups meeting at The Land. Discussion evenings usually bring 15-25 people. Groups as large as forty have attended Saturday workshops. The Prairie Festival has attracted 300 people for the Saturday evening program, but we have a system of temporaries which has been satisfactory, almost. If people at the workshops all use the composting toilet, however, the composting will slow down because too much liquid may cause an oxygen deficiency, as well as upset the proper nitrogen-carbon ratio, and retard aerobic decomposition. We usually request that males stroll into the woods rather than visit the composting toilet.

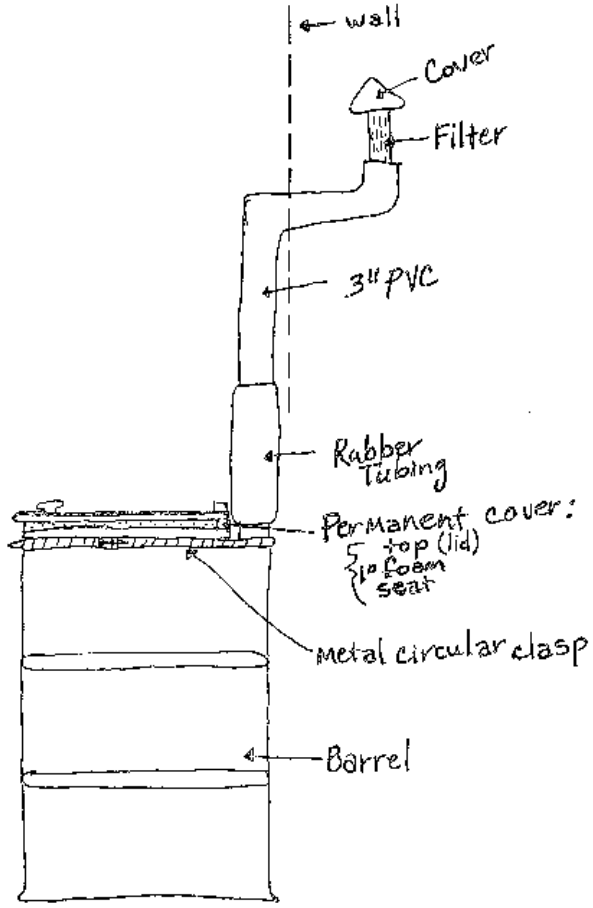
The Farallones Institute in California has experimented with composting toilets more than any other organization that we know. When we visited Farallones, we learned that they also have problems when the liquid load capacity of their composting toilets is stressed by visitors. This problem can be alleviated considerably by large additions of organic material (leaves, sawdust) after each use or by a solar collector and fan to help evaporate liquids.

The search for sustainable alternatives in waste management has become more active this session as we explore options for ecologically and efficiently processing human wastes at The Land. First we have to decide how many people a new system would serve, just the eighteen Land people, or additional visitors also. Second, we have to decide where to put another composting toilet if we build one. We could construct another small building, or we could add a room to the east side of the building with a large enough system to comfortably accommodate visitors. There are other questions to consider: What will these options cost and what can we afford? What designs have been tried and tested? What environmental impact and aesthetic impact would a new construction have on our surroundings.

We have considered installing a septic tank and lateral lines under the garden and building an entryway and conventional bathroom in an addition on the east side of the building where the porch is. Generally, no one likes this idea because it is the standard water flush method, contrary to our history and purpose of searching for alternatives. We have vigorous discussion about the options when this is mentioned.

Julie Leander, a student this session who has worked at a sewage treatment plant, believes we could build a composting toilet that would be adequate for people at The Land and also the visiting groups. A group of forty at a workshop could not start using the toilet right after the compost had been cleaned out and a new process begun, because a sudden large deposit of wastes would overwhelm the small population of decomposer organisims.

Cary Nailling, who has been studying various designs for composting toilets, agreed that we could construct a system to serve all students and employees with one waste deposit area. However, when large groups visit and there is danger of overload, she suggests that we ask everyone to separate liquids and solid waste by using two different areas, as is now done in male restrooms.



Paul Krumm has proposed that we investigate water-borne systems which move wastes into tanks where plants, such as water hyacinths, grow on the top.

The discussion of options continues. In the meantime, we have decided to speed up the composting process in the barrels and remodel the current compost toilet so it will be more acceptable to visitors. The original plans for our system called for each full barrel to be sealed (except for one vent), painted black, and placed in the sun. From time to time the vent is to be capped and the barrel rolled to stir the contents. The heat from the sun captured by the black barrels, plus the stirring, aid in decomposition of the contents. Finished compost can be used to fertilize non-food producing plants, such as in the Herbary, or on trees and shrubs.

In the past, we have been lax about painting the barrels black and rolling them, so decomposition takes several years. We have decided to be more diligent in maintaining the barrel system. •Terri Nash has painted the empty barrels black that are to be used in the toilet, and we are going to build an apparatus to help roll the barrels. This should expand the capacity if we can change barrels more often, yet not have too many full barrels composting at the same time.

The insides of composting toilet buildings can be pleasant and attractive, not at all like the smelly catalogue recyclers of earlier days. Because of the venting system, there is no odor now in our composting toilet. But students are considering adding a window and potted plants, sheetrocking the walls, painting, improving the floor, and making a sidewalk from the building to the composting toilet.

Our dilemma won't be completely solved by improving the existing composting toilet, but this is where we are going to begin.

Politics of Rain

Helen Atthowe

The raindrop slides along a Hemlock shoot,
collects at a flat needle tip then
falls to the forest litter;
part of the cycle
that softens seed coats of spring wheat,
creates nursery pools
for another frog generation,
evaporates from lakes to become
the mist-cloud over this Hemlock, and
as a shiny Hallmark card tells me,
"April Showers bring May Flowers."
We sit inside, let it happen,
open faucets and flush toilets.

The wrinkled hands of a woman on 6th Avenue,
clutching a shopping bag and
cardboard mat, move to swat a
cobweb from her doorway home;
so fragile, it scatters at her touch,
dry like edges of papyrus scroll.
She doesn't notice Rites of Spring,
but scowls at the damned rain
that comes from nowhere,
chills skin and runs away down
a cement stream.
She is not so different from the people
who hustle past her now
from 9:00 a.m. jobs to 5:00 p.m. apartments,
cursing the rain that spoils
the shine on their shoes from Paraguay.
Except she is placeless, and homeless too,
twice vulnerable to the rain
which further separates those who have
from those who don't.

And those who have, have made rain
a commodity; pressed it firmly
beneath the consumer thumb
as they press the woman
to the pavement in the street.
Above the street the whirr of a calculator
is heard even in the rain
that fills billion dollar irrigation schemes
that dole Rites of Spring to dryland farms
big enough to pay enough.
Innocent rain becomes an acid poison,
free market's mercenary,
in a coup d'etat that surprised us
while we were
opening faucets and flushing toilets.

Once when Spring rains fell,
rolled off swelling buds and
drenched the soil to a saturated sponge,
I sat inside and let God do the work
of keeping all things alive and growing.
Now with the first crystal bullets
that hit, I charge outside
to save my seedlings from
General Motor's sulfur dioxide.

Still, there is harvest in the spirit
of words from our southern brother
who urges struggle
"To give the earth to those who work it,"*
whenever rain is an economic victim
and its fall, a political act.

*Pablo Neruda
"I come from the South"
Song of Protest

Prairie Images

Terry Evans

Prairie Meadow Burning— Upper Missouri, 1830 *George Catlin* (1820-1879)

Collection, National Collection of Fine Arts, Smithsonian Institute, Washington D.C. From reproduction in A Sense of Place: The Artist and the American Land, ed. Alan Gussow, Friends of the Earth, 1971.

"Over the elevated lands and prairie bluffs, where the grass is thin and short, the fire slowly creeps with a feeble flame, which one can easily step over; where the wild animals often rest in their lairs until the flames almost burn their noses, when they will reluctantly rise and leap over it, and trot off amongst the cinders, where the fire has past and left the ground as black as jet. These scenes at night become indescribably beautiful, when their flames are seen at many miles distance, creeping over the sides and tops of the bluffs, appearing to be sparkling and brilliant chains of liquid fire (the hills being lost to the view), hanging suspended in graceful festoons from the skies."

George Catlin 1832

"But if there was wind, there was fire blizzard--one of the greatest horrors of prairie life.

It came with walls of flame thirty feet high and a deep devouring roar, and black smoke instead of white, and the sun darkened and animals went mad. The glow of these great prairie fires could be seen for forty miles, and showers of ash and flake would be carried far ahead by the wind. Single prairie fires were known to have burned more than two hundred square miles, and one fire traveled over twenty-two miles 'as fast as a horse could run.'"

John Madson, Where the Sky Began 1982

Something within me thrills at the sight of a prairie fire. The quote from John Catlin makes my heart dance in anticipation of this year's burning season, but the words of John Madson remind me that prairie fires must not be veiled by a romantic view. The November 11, 1982, fire, which swept approximately 45 square miles in Saline, County, Kansas, demonstrated the ravishing power of what some of the Plains Indians called "Red Buffalo."

The prairie images in this Land Report are about the Red Buffalo" as seen by George Catlin in 1830 and by Alfred Sully in 1855. The scene by Sully depicts a tradition which was apparently common to the Pawnee Indians, that of burning the prairie behind them as they headed west in the fall on annual hunting trips. When the Pawnees came back to hunt in the spring, they needed grass to feed their horses, but it was too early for normal growth. They burned to eliminate the previous year's growth and ground litter, which allowed the sun to warm the earth more quickly, resulting in spring growth that came weeks earlier. Quick nutrient availability and removal of shade caused significantly richer stands of grass from March to July-- exactly the period when the Pawnees needed the feed for their horses.

Alfred Sully's rather romantic expression of this Pawnee prairie burning practice might lead the viewer to think that Sully lovingly admired the Pawnees. But Sully, a West Point graduate, did his painting as a hobby while he was stationed at a military outpost in the West. He was the son of a noted Philadelphia portrait artist, Thomas Sully, and studied art at West Point as part of map making training required in the Artillery. So, Sully participated both in the killing of Indians and in the recording of their culture. How did he reconcile these extremes within himself?

In contrast to Sully, twenty-five years earlier, George Catlin was devoted solely to recording Indian life in paintings, sketches, and journals. He began his adult life as a New York lawyer, but became an itinerant miniaturist painter. In St. Louis, he saw a delegation of

Prairie Fire, c. 1855 *Alfred Sully* (1796-1892)

Christlieb Collection, Center for Great Plains Studies, University of Nebraska.

six Indians on their way to Washington and painted their portraits. That experience motivated him to travel in the West to explore and record Indian life, and there Catlin found great inspiration. In his journal in 1832, at the mouth of the Yellowstone on the Upper Missouri, Catlin wrote:

> "I have not here the benefit of that feeling of emulation which is the life and spur to the arts; where artists are associates together; yet I am surrounded by living models of such elegance and beauty that I feel an unceasing excitement of a much higher order--the certainty that I am drawing knowledge from a much higher source."

Thus, Catlin responded to both the Indians and the landscape with fervor, as this expression of fire moving across the prairie shows.

The unchanging power of fire on the prairie, which found expression through these two nineteenth century painters, continues to attract artistic interpretation today.

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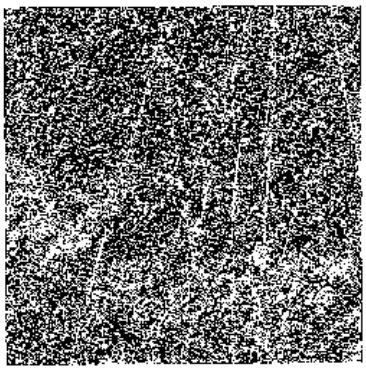
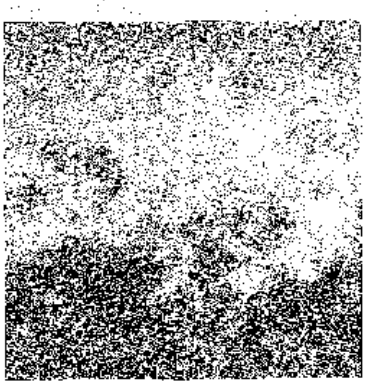
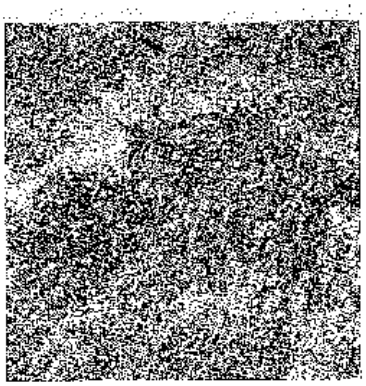






Under the Line of Fire

Wes Jackson

A few years ago, Dana and I attended a conference in Oakland, California, organized around the theme "Technology: Over the Invisible Line." Those who attended had many interesting ideas about the good and bad sides of different kinds of technology, but as the discussions went on, often times late into the night, I kept bringing up the subject of grass fires set by Native Americans to drive or lure game in the Great Plains and Midwest. I thought this was a most important beginning point for those of us looking for that invisible line, for here were some people using grass fire technology to good use with no apparent damage to the long-term ability of the land to support a variety of life and Indian culture.

Indians of the grasslands, the stories go, set fire to insure a succulent growth of grass in the spring, which in turn lured the American Bison in close enough to make slaughter easier. Another version holds that Indians did not start burning the grasslands until the arrival of the horse. They would burn near their encampment and use the tender growth to keep their horses close at hand on this fenceless landscape. I think it needs underscored and said again that here was a high energy technology which did no apparent damage to the life support system. After all, if the Indians did not set the fire, lightning without rain would accomplish the same end. Grass ecosystems were here before the first discoverers of America arrived, and hundreds of thousands of acres must have burned each year. Averaged out, a lightning-started fire would likely have burned a given area at least once every decade or so.

The inventors of the Greek myth about Prometheus, the young Titan who stole fire from the gods, would have to think twice were they to observe these Native Americans putting the torch to their prairies. Their torches probably differed but little from the fennel stalk with which Prometheus carried his new found flame. To an outsider, even a wise myth maker, the landscape looked pretty black and bleak and even wasted after one of their major prairie roasts. But all things considered, this technology was still comfortably on the correct side of the invisible line.

The settlers who were to follow put the plow to the same prairie, and with no flames in sight, "burned" more options for future generations with one turn of the sod than the first discoverers of America had "burned" during the 15,000 years or so that they had inhabited the land. Shortly after this initial plowing, a full third of the energy-rich carbon molecules present in the soil of the old prairie disappeared. Some molecules sponsored the high yields in the first few years of plantings, some quickly oxidized and burned, and billions of tons blew and washed away.

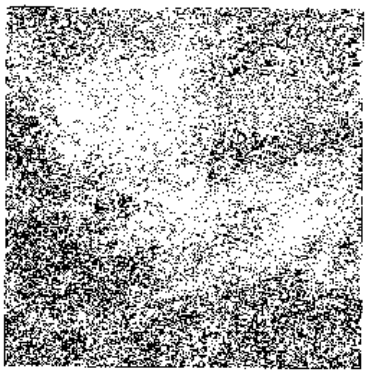
Energy-rich carbon molecules above ground are young. They represent contemporary energy, for most of them are probably less than a decade old. Below ground energy-rich carbon molecules are older, averaging in the decades or maybe even the hundreds of years. Much of our agriculture has been built on mining them. When the settler arrived, his plowing amounted to a Promethian theft of this "older fire" (still packaged as chemical energy). Though most of it was wasted, it was the theft of this "fire" which made civilization possible in a place in which the cultural level of human organization had been good enough for millenia. If the inventors of the Promethian myth would have entered the American scene at this point, they would have seen clones of their young Titan in the sweating settlers who followed two, three, and even four yokes of straining oxen around their cabins, which, by the way, had been made of this plowed-out material. At this early stage in our history, technology had already moved over the invisible line.

The use of the draft animal to plow and thereby mine and waste "non-contemporary" solar energy from below the surface was a faint foreshadow of the fossil fuel epoch which was to come. The Promethian urge, which had sparked the imaginations of these settlers, burst into a roaring flame to meet the demands of their children, demands which caused them to reach farther into the past for energy-rich carbon, the dead plant material whose age is measured in the hundreds of millions of years.

And now we eye an even older energy package with no assurance that we will use it any more wisely than we have used the packages of fire we have already stolen. These are the fires of ultimate destruction, the fires which were put there during the origin of the universe itself, fires whose age is measured in the billions of years. We have been given no more authority to split the atom - to have access to these ancient fires - than we were given to destroy the American wilderness. Both arise out of the Promethian impulse, the impulse which causes us to steal non-contemporary energy which results in what we call civilization.

The Promethian urge was given its first foothold with till agriculture. Non-contemporary energy in the carbon molecules of the soil fueled this impulse, and the face of the earth was changed - in geologic time - over night.

Philosophers and thinkers on the origin and nature of the human condition ultimately talk about the split between the human and nature, and we have come to accept it as an inevitability. I don't think we have to, even though the globe is now too populated and the times too dangerous to immediately live in a non-Promethian world powered by contemporary energy. But, there is no reason why we should not begin now to make this our goal and begin to employ the knowledge which has accumulated since we started the binge of living off non-contemporary fuels. This is the best way I know to redeem the destroyed landscapes which made a large part of this knowledge possible. Whether it is knowledge which had its origin in the region of the Mediterranean or the Western prairies, its redemptive power is there for us to use. It is a way we can begin to



atone for the destruction we have already wrought with the plow and with fossil fuels, before it is too late to stop the inevitable destruction with the most ancient of all - the nuclear fuels.

We can begin anywhere, but at The Land we have chosen to begin with agriculture where the split began. We are utilizing the knowledge which has accumulated in the last 20-30 years in population biology, ecology, evolution and other related disciplines. This knowledge was accumulated for its own sake. Most of those responsible for the research which made it possible gave little or no consideration to its implications for agriculture. But it is exactly the knowledge we need if we are to feature ecosystems rather than populations, domestic prairies rather than domestic wheats. We want to see if we can breed a vegetative structure which has its ancestry in the old prairie, an agriculture which runs on "contemporary energy" again, in which our harvest is mostly from above the surface rather than from a soil mine or a fossil wellhead, or out of a reactor core. I imagine that one of our main management tools will be fire, visible lines of fire, controlled domestic prairie fires. Contemporary energy equals non-Promethian energy equals a technology on the correct side of the invisible line.

Tillage or Pillage?

Donna Spohn

On the Plains of Eastern Colorado, a major land-use controversy is emerging. The "plow-out issue" concerns not just farmers and ranchers, but soil conservationists, environmentalists, county commissioners and other government officials, investors and speculators and, ultimately, everyone interested in the state's survival.

When land is torn up, giant tractors plow under the natural perennial plant community and soil-building ecosystem of the native short-grass prairie, uprooting a complex plant mix which is replaced with a one-plant crop, such as wheat.

In the last few years, nearly 500,000 acres of Colorado grassland have been plowed. Much of this land is classified by the Soil Conservation Service as unsuitable for cultivation. But cultivated land is more highly valued than rangeland by the Federal Land Bank, and when speculators replace grassland with cultivated land, its value increases two or three times. Many ranchers have sold to speculators because a depressed cattle market has left them deeply in debt, and some land has been plowed out by local people trying to increase the paper value of their property.

The early months of 1982 were very dry, and when the winds began to blow, especially in Weld County, ranchers near the plowed-out land found their grass and fences covered by blowing dirt and sand, eliminating extensive wildlife habitat and ruining grazing land for livestock. Some north county landowners likened the prairie conditions to those of the dust bowl days of the 1930's.

On May 6, Governor Richard Lamm, acting on a recommendation from the state Land Use Commission, signed a 15-day moratorium on some grassland plowing in Weld County. Thirteen days later, Weld County commissioners approved an ordinance requiring landowners to have a soil conservation plan approved by a regional soil conservation district board before plowing land which had not been cultivated for five years.

One of the people behind the Weld County ordinance is Keota rancher Edith Phillips, 70, whose father homesteaded 160 acres southwest of Keota in 1900. Divorced from her General Motors executive husband and retired from her teaching position at Eastern Michigan University, Phillips returned to the family ranch in 1979, only to discover that a Fort Morgan speculator, Robert Thomas, had bought 25,000 acres to the north and west of her and was plowing them up.

Phillips called Thomas and said, "You must be out of your mind to plow up that grassland. The government has, after 15 years, just gotten grass to grow up there on that hill." According to Phillips, Thomas plowed the two sections north and west of her in two days and two nights.

"The day Thomas plowed up that land," Phillips recalls, "I looked out over the hillside and all I could see were red pools of blossoms and yellow and it was a beautiful morning. I was so angry, I hit the hood of my pickup hard enough to put a dent in it. I started to cry and I thought I couldn't stop."

Phillips has filed suit against Thomas. "Until Bob Thomas came along...I never hated anyone," she says. "But I admit, I have learned to hate that man because I believe he has destroyed the land." She says Thomas is responsible for more than half of the 500,000 acres of grassland plowed out in recent years.

Phillips held four hearings on the problem with the Weld County Commissioners. "I had Hank Brown and (Walt) Younglund, our representatives, come to the meetings. I had all these people from Denver," she says. "Ron Miller came from the Soil Conservation Service with a plan he'd been working on for two years, and they never even looked at what he had prepared. It wasn't until one of the commissioners had his pig farm covered up with dirt that he decided he would change his mind."

Miller, Greeley district conservationist, said he was pleased and surprised when the commissioners passed the ordinance. "I didn't think they'd do it, but circumstances came together with the dry year, the wind and the complaints they received," he says.

The White People plow up the ground, pull down the trees, kill everything...How can the spirit of the earth like the White man?...Everywhere the White man has touched it, it is sore.

—Old Holy Wintu Indian Woman

The day Thomas plowed that land up...I started to cry and I thought I couldn't stop.

—Edith Phillips, Weld County Rancher

Reprinted from Westword, September 23, 1982, a Denver bi-weekly newspaper. Donna Spohn is a freelance writer and former Kansas teacher living and working in Windsor, Colorado.

The U.S. Forest Service photographs with this article are by E. H. Mason, April 13, 1955.

Harold Felte, who raises livestock and grain on three farms near Windsor, says he has mixed feelings about the commissioners' action. "Individual freedom is important, but your rights end where the other fellow's nose begins. Stewardship of the land is also important. There are some things I would have done differently, but I realize I wasn't sitting there full-time like the commissioners, trying to do something in an emergency.

Stow Witwer, who has lived in Weld County for nearly 80 years and whose family operates a registered hereford business in 3500 acres ten miles east of Greeley, believes no land rebuilt or re-established by the Soil Conservation Service should ever be plowed out. "Thousands of dollars were spent reseeding and rebuilding that land, and it should never be allowed to be broken," he says. "Like darning your socks, it had to be redarned before you could use it."

David Carter, director of communications for the Rocky Mountain Farmers' Union, says the commissioners have taken a very constructive approach. "Nothing is perfect, and they have perhaps intruded on individuals' rights to use the land as they want," he says. "We have to be continually concerned about that. But in this particular problem, they have really enacted an option so that if somebody does want to farm, they have the ability to do that if they can get a soil-conservation plan with the local district. We're hoping other counties can take a look at this type of thing," he adds.

Other counties are taking a look. Verlin Hopkins, Cheyenne Wells district conservationist, is working with county commissioners and Land Use Commission representatives there. "We're supposed to have a meeting the fourth week in September to consider an ordinance," he says. "I hate to see another set of rules, but with these speculators coming in...we've had 45,000 to 50,000 acres plowed out in the last couple of years."

Last year, the JOD ranch west of Wild Horse, for years one of the brightest brands in the High Plains cattle country, bowed beneath giant machinery that tore out more than 8,000 acres of the ranch's grasslands. The owners, Denver investors Charles and Melvin Layne, expect a tidy return even though their wheat crop was disappointing. They have put the JOD back on the market for twice what they paid for it.

According to Hopkins, "The better land on the JOD had been plowed at one time and seeded back and they plowed it out again." Hopkins believes two of the three county commissioners favor an ordinance.

According to Martin Jimenez, Springfield district conservationist, Baca County commissioners "are not really concerned about it yet. They'll probably be like everyone else...wait till it gets to be a big problem before they do anything. That's usually the way it works," he says.

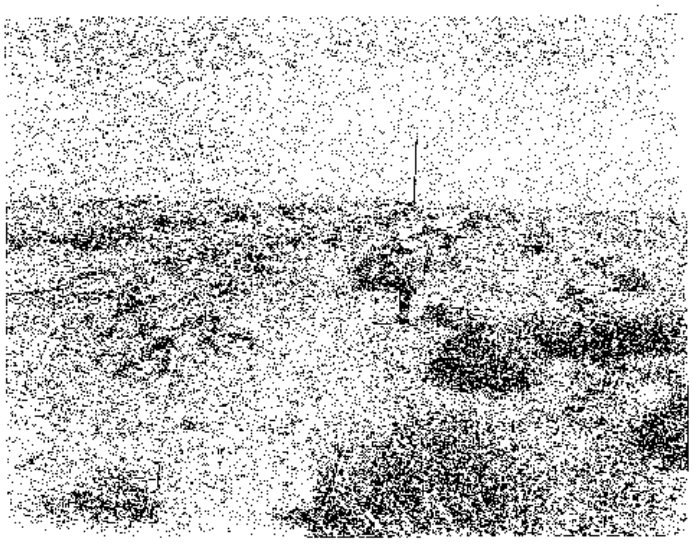
The recent plow-out problem in Baca County is not as serious as it is in other counties. "It's nothing compared with Kiowa County or up around Cheyenne Wells," says Jimenez. "In the last seven years, we've probably had 70,000 to 80,000 acres plowed up, mostly by a group of brothers from Nebraska."

In Kit Carson County, according to David Miller, who was district conservationist in Flagler until five months ago, the commissioners fear a lawsuit if they pass a plowing ordinance. "I met with them last year to try to enact legislation along the lines of Weld County because our problems are worse than theirs," he says. "The county is a totally rural environment, no more than 12,000 people, and the commissioners can't afford to go to court." According to Miller, the plow-out trend in Kit Carson County started when a rancher sold his acreage for more than he dreamed possible. The person who bought it for $125 an acre broke it out and sold it for $300 an acre within a year.

"After that," says Miller, "all the range prices went up a couple hundred dollars. Locals can't pay that much for it, but speculators can. The average wheat yield out there is 27 bushels to the acre, and that's only every other year because it lies fallow for a year if you do it right."

Doris Williams, who farms and ranches near Buckingham and New Raymer, is a member of the Weld County Agricultural Council and the Governor's Front Range Commission. "It's essential to terrace and leave green areas to hold water and minimize wind erosion," she says. "But even the local people aren't doing these things when they plow." Williams has had to "grit her teeth" on those occasions when financial considerations have forced her to ignore good conservation practices. She supported the Weld County ordinance.

Dan Keefe of Fort Collins grew up in Cheyenne Wells and remembers the ravages of major dust storms, which began in the early '50s when he was five years old. He believes history is on the verge of repeating itself. "It is appalling to me how such blatant misuse of the land can



Weld County, Colorado, fence line which was covered by blowing soil, then uncovered by later winds.

be allowed to occur," he says. "The importance and worth of the grassland to the region's overall ecology cannot be overstressed."

Felte and others believe the government encourages the plowing out of fragile land by making crop-raising more profitable than cattle-raising. "I don't want to see government involved in the cattle business but I would like to see an end to government encouragement for plowing out fragile land," says Felte.

Hopkins compares the ranchers' situation to a run on the banks. "The ranchers are quite concerned," he says. "It creates a kind of panic situation because the ranch next door to the north or west will sell and plow out, and they know they're going to get covered up, so they hurry to sell out, too. That has happened here, and the trend is scary."

At the federal level, Senator William Armstrong and Rep. Hank Brown have introduced soil-erosion bills. Secretary of Agriculture John Block has been reluctant to endorse the Armstrong bill, which now applies to land nationwide that is rated Class IV or worse.

Williams, who objects to the Armstrong bill, says he does not like the idea of the federal government telling people what they can and cannot do. "I can understand why people objected to the Weld County ordinance. It's just another layer of bureaucracy," she says. "But when people don't behave conscientiously, something has to be done," she adds.

Who is finally responsible for deciding what constitutes wise use of the land? Who are the real owners, the stewards? Says Phillips of Weld County landowners who were not willing to help in her struggle, "They only own the land for their lifetime; it belongs to the next generation. It's too late for Keota. Keota's ruined, just ruined. I don't think the grass is going to come back."

Distribution of Land & Water Ownership in Southwest Kansas

Growing concern over ownership and control of rural resources led to the Kansas Rural Center's study of land and water ownership in Kansas. Although historically, the predominant form of U. S. agriculture has been the family farm, the KRC study shows that as agriculture becomes more industrialized, this is rapidly changing. The trend is toward larger farms and fewer farmers, with the depopulation of rural areas and declining health and vitality of rural communities marking the transition.

Because ownership of resources is crucial to the future of agriculture, the KRC examined land and water ownership in six southwest Kansas counties to determine how industrial farming has affected ownership, use, and development of resources, as well as the impact on local communities.

The study focused on Clark, Edwards, Finney, Grant, Scott, and Seward counties, known for the value of their agricultural production and the predominance of (or transition to) large scale, industrial agriculture, with its attendant high rate of corporate farms and intensive irrigation. Closely related to the agricultural and economic success of the area is the development and use of water from the Ogallala Aquifer. Since the 1960's, heavy irrigation development has resulted in serious declines in the water level, raising questions about the continued use of the remaining water and the future of agriculture and community life.

THE FINDINGS

Three major trends were identified:

1) Separation of ownership and use of resources. This indicates more non-operating owners, which includes substantial numbers of absentee owners and large amounts of rented land. It also represents outward migration from farming.

2) Increased concentration of ownership of farmland and water resources.
While irrigation which is vital to agriculture production in southwest Kansas is decreasing (largely due to increased energy costs), substantial amounts of land are irrigated and are controlled by a minority of owners. Changes to dryland farming will contribute to further concentration. Desertification of parts of western Kansas are possible as the declining water supply affects plant and soil life.

3) Rise of alternative forms to individual ownership. Eight special categories of farm business organization, including corporations, estates, partnerships, trusts, banks, farm management companies, investment companies, and

agents, own and/or control an average of 35% of the farmland over the six counties. The availability of tax advantages, credit options, and ease of estate transferral have provided the incentives for their adoption.

IMPLICATIONS

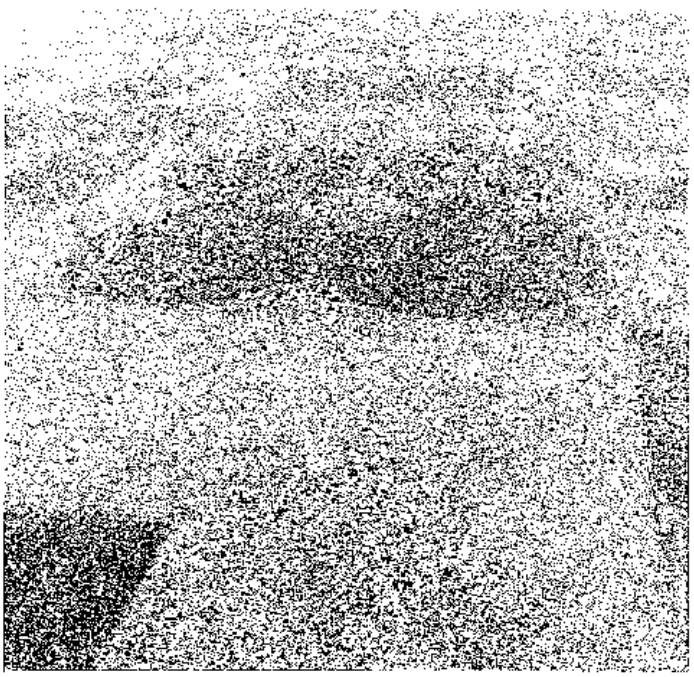
The findings and issues outlined in the study show that ownership of land and water in southwest Kansas is highly concentrated, with the gap between owners and operators becoming wider, resulting in further depopulation of rural areas. Ownership forms are moving away from the traditional sole proprietor of the family farm as agriculture adopts alternatives more akin to industrial management.

Although the study focuses on southwest Kansas, the issues raised are not isolated. The implications for farmers in the rest of the state are clear: fewer farmers and less access to land and further concentration of ownership.

The continued dependence of industrial, capital intensive agriculture upon vast supplies of water, cheap energy, and expensive technology raises grave economic, environmental, and social questions about agriculture's future. The current record crop yields and world surpluses attributed to this type of agriculture have been achieved at the cost of exhaustion of our greatest resources--our soil, water, and our farmers.

While ownership may not be the only problem facing farmers, it is fundamental to the future of the family farm and a sustainable system of agriculture. The current direction of agriculture exacts too great a price--with no guarantee for the future.

As current economic conditions reach the crisis stage for many farms, it will affect all of us--whether as taxpayers, or as consumers of agricultural products, or as farmers trying to survive. Ultimately someone pays the price for the planning, use, and management of our resources. The sustainability of agriculture and community life is at stake in the solutions we choose for the problems of agriculture today.



Mary Fund and Elise Watkins did the research and wrote this report for the Kansas Rural Center. To order a complete copy of the study, send $4.00 to: Distribution of Land and Water Ownership in Southwest Kansas
Kansas Rural Center
Box 133
Whiting, KS 66552

Soft Water Paths

What's good for energy might be equally good for water, Amory and Hunter Lovins have decided. So now they are working on "Soft Water Paths."

In Amory's 1976 book, he coined the phrase "soft" energy, to apply to conservation and renewable energy as opposed to "hard" energy, costly nuclear power plants. He introduced the principle that the quality of energy supplied should match the end use of the energy. For example, using electricity (a high quality energy source) to run appliances or motors is appropriate, but using it to heat houses is not. Now Amory and Hunter are applying the principle to water. High quality drinking water that has been treated is not matched to an appropriate end use if used to water lawns or flush toilets.

Since the biggest use of water in the nation is for agriculture, the Lovinses will be examining irrigation systems and water sources and conservation potential. They will make the connections among soil loss, use of chemicals in agriculture, water pollution in city water supplies, and further development plans for water.

The Lovinses, with research associates they have hired, will study alternative supply and delivery systems for water, emphasizing conservation and smallscale technology. One of their new associates is Russell Derickson, a civil engineer with a knowledge of fluid mechanics, atmospheric science, hydrology and thermodynamics, who will coordinate their water programs.

Amory and Hunter Lovins are at work near Snowmass, Colorado, in a rented house while their new headquarters is under construction. Their earth-sheltered, passive solar home will also be the location of a newly incorporated, nonprofit, research organization called the Rocky Mountain Institute, which the Lovinses direct.

The water focus does not mean that the well-known energy scholars have abandoned their work on energy issues. They continue to travel widely, advocating the soft energy path and showing how much more "national security" we would have with decentralized energy systems, the subject of their book, Brittle Power.

Perspectives

How David Ehrenfeld and Frances Moore Lappe' perceive the world becomes important to us as we read and discuss their books in our classroom. They have agreed to be our Prairie Festival speakers, and we look forward to having conversations with them May 28-29. Because friends planning to attend the festival may wish to become more familiar with our speakers, we are introducing them through their books, Diet for a Small Planet by Frances Moore Lappe' and The Arrogance of Humanism by David Ehrenfeld.

The Arrogance of Humanism by David Ehrenfeld was first published by Oxford University Press in hardback in 1978. In 1981 the same press published a Galaxy softcover edition. In the preface to the paperback, David discussed some of the controversy surrounding the first edition and explained what he intended as the aim of the book. We hope the long quotation from the preface which follows here will be a glimpse into the complex and fascinating ideas found in David's book, and will impel people to read it in its entirety.

Preface to *The Arrogance of Humanism*

David Ehrenfeld

As I expected, many people who read the book were distressed by my use of the word humanism. "We agree with your message," they said, "but you have picked the wrong word as the focal point of your attack. Humanism asserts human dignity and the freedom of the human spirit; it is a kindly philosophy."

Perhaps so, but this is not to the point. When one chooses a guiding philosophy of life--and the modern world has chosen humanism--one becomes responsible for all the consequences that flow from that choice. We have chosen to transform our original faith in a higher authority to faith in the power of reason and human capabilities. It has proven a misplaced trust. This is the other side of humanism, as I point out in the first chapter, and no amount of denial will make it go away. The economist, E. F. Schumacher, wrote in A Guide for the Perplexed:

> Faith in modern man's omnipotence is wearing thin...More and More people are beginning to realize that "the modern experiment" has failed... Man closed the gates of Heaven against himself and tried, with immense energy and ingenuity, to confine himself to the Earth. He is now discovering that... a refusal to reach for Heaven means an involuntary descent into Hell.

This book is a documentation and explanation of the failure that Schumacher described--the failure of humanism. So the word stands.

A more serious criticism of this book has come from the opposite direction. It is that for a book that rejects humanism, there is surprisingly little mention of a divine alternative. In the last chapter, for example, I state that my "best hope" for a way of bringing to a close this terrible spate of humanistic destruction and chaos is a global economic depression which would end or bring under control the arms race, multi-national exploitative industry, international agribusiness, and other deadly manifestations of bigness.

A number of religious critics were bothered by this earthly and imperfect mechanism for ending humanistic arrogance. Evidently these readers did not notice that I qualified the description of my best hope with the phrase "short of supernatural or divine intervention." Obviously the dawn of a messianic age would be better than an economic depression, but I scarcely thought that this needed mentioning. Not knowing how and when God will usher in such an age, or what it will be like, I have confined myself to the immediate future and to processes that already exist. This is what I would call "intermediate or appropriate prophecy," with apologies to the late E. F. Schumacher. Having no faith in the humanistic pseudoscience of futurology on the one hand, and not wanting to try to second-guess the Creator on the other, I have been very very careful to resist the temptation to predict the future in this book.

In the first chapter I am especially hard on the Judeo-Christian tradition, and this also requires explanation. I do not believe that the scriptural sources of the Jewish or Christian religions sanction human arrogance toward Nature, and I agree with Wendell Berry that Adam and Eve's instructions to "subdue" the earth (Genesis 1:28) have been terribly misinterpreted. In an essay entitled "The Gift of Good Land" (Sierra Club Bulletin, Nov.-Dec., 1979), Berry notes that both the Old and New Testaments make plain that:

> The Creator's love for the Creation is mysterious precisely because it does not conform to human purposes. The wild ass and the wild lilies are loved by God for their own sake; and yet they are part of a pattern that we must love because of our dependence on it. This is a pattern that humans can understand well enough to respect and preserve, though they cannot "control" it or even hope to understand it completely. ...

> The divine mandate to use the world justly and charitably, then, defines every person's moral predicament as that of a steward.

The predicament of stewardship is:

> To live we must daily break the body and shed the blood of Creation. When we do this lovingly, knowingly, skillfully, reverently, it is a sacrament. When we do it greedily, clumsily, ignorantly, destructively, it is a desecration.

The snare of stewardship is that the steward may forget that he is not a king. As J. R. R. Tolkien pointed out in The Two Towers, there is a vast and ineradicable difference between them. Boromir, elder son of the Steward of Gondor, asks his father: " 'How many hundreds of years needs it to make a steward a king, if the king returns not?' "

His father answers, " 'Few years, maybe, in other places of less royalty.... In Gondor ten thousand years would not suffice.' "

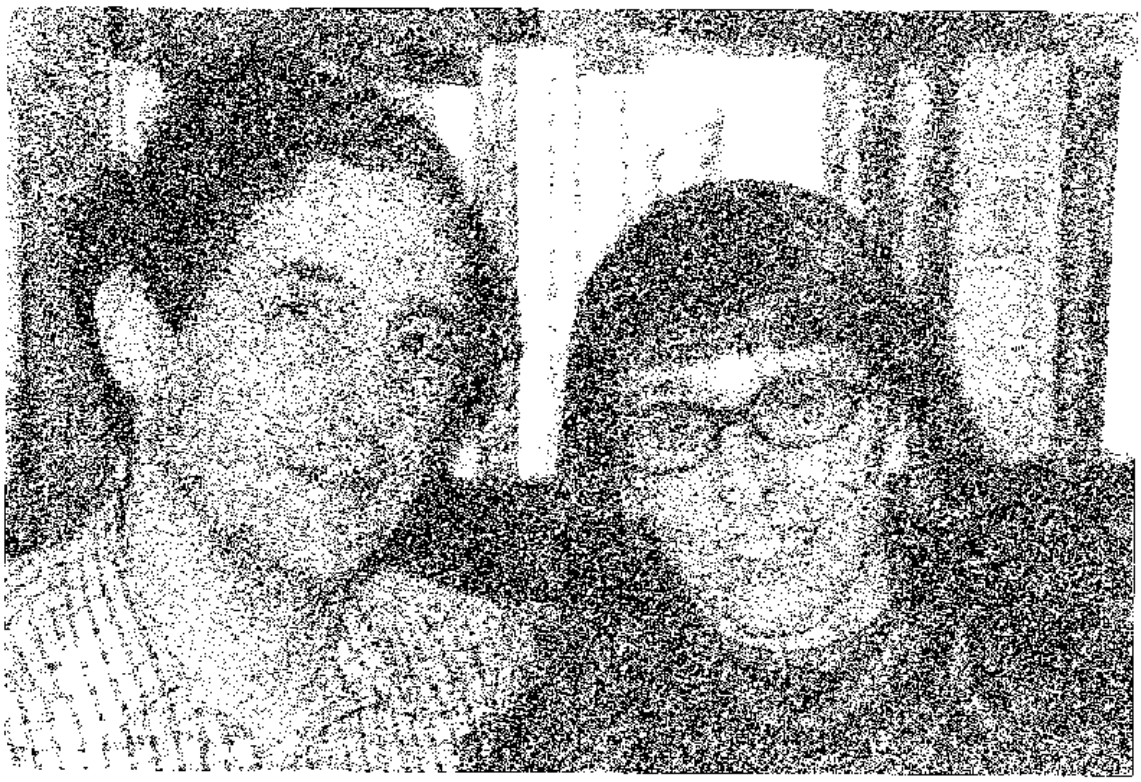
So it is with us. I deal harshly with the Judeo-Christian tradition, but it is not the authority of that tradition that I question, rather its practitioners, who have too often forgotten the difference between a steward and a king.

I have been encouraged by the many people who have written to me to say that this book speaks to their condition and is therefore a source of comfort. This is especially encouraging because a comparatively small part of the book is devoted to the customary compilation of rosy alternatives and happy endings. I had no intention of becoming a humanist at the end of my book by telling everyone how to escape from humanism, even if I thought I knew the way. Fortunately, my readers understood the need for this effort at self-discipline.

My first concern, and the primary aim of this book, has been to identify the consequences of humanism and to explain how they are brought about. Although I have tried to indicate the self-destructive elements of modern humanism that will eventually destroy it from within, and although I have also called attention to the sources of human strength that have remained independent of the humanist tradition, I have given no master plan for individual survival. Again, Wendell Berry (in The Unsettling of America) says it very well: "The use of the world is finally a personal matter, and the world can be preserved in health only by the forebearance and care of a multitude of persons."

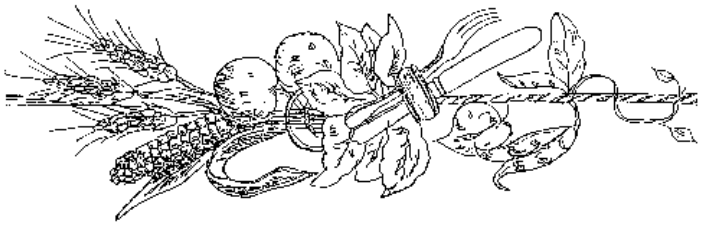
These are exceptional times. A fresh wind is blowing from a new quarter; change is in the air again, as it last was in Marlowe's day. Many things are possible. To prepare for the change, we first must understand what has happened to us and what we have done to others and to our surroundings during the age that is passing: only then can we be ready to meet the hazards and opportunities that will arise in the days to come.

Middlesex, New Jersey — D.E.
July 1980



Joan Ehrenfeld is an Assistant Research Professor at the Center for Coastal and Environmental Studies, Rutgers Univ. She has been studying the effects of changes in land use on the swamps of the New Jersey Pine Barrens.

David Ehrenfeld is an Associate Professor of Biological Science at Rutgers Univ. He is the author of a widely-used textbook, Biological Conservation, and a novel about the abuse of genetic engineering, The Chameleon Variant, as well as The Arrogance of Humanism. Currently, David is interested in the environmental parts of traditional Jewish teachings.



Frances Moore Lappe' has given us permission to reprint Chapter 1 in Book I of the completely revised and updated Diet for a Small Planet. Those who thought this was a cookbook may be surprised by Frances' introduction to the book and herself. Book II is a cookbook, but Book I is an analysis of our agricultural production system, our food processing and marketing system, our food export and import policies, and our attitudes and actions regarding the world's hungry.

The first two editions of Diet for a Small Planet changed the way many Americans thought about food and nutrition and how they ate. In this updated version, Frances Moore Lappe' takes a sharper look at the political and economic causes of hunger and presents an even more convincing argument against grain-fed meat as the basis of our nation's diet. Her conviction is that once individuals have taken greater control over their own lives by making conscious decisions about the food they buy and eat, they have taken the first step towards helping alleviate hunger and injustice in the world. She firmly believes that individuals doing what they can in their own communities can help bring about change.

If you haven't read Diet for a Small Planet as published in 1971 or 1975, be sure to read the 10th anniversary edition. And even if you did read an earlier edition, the revised and updated version is a must for the 80's.

An Entry Point from *Diet for a Small Planet*

Frances Moore Lappe'

No one has been more astonished than I at the impact of Diet for a Small Planet. It was born as a one-page handout in the late 1960s, and became a book in 1971. Since then it has sold close to two million copies in a half dozen languages. What I've discovered is that many more people than I could ever have imagined are looking for the same thing I was--a first step.

Mammoth social problems, especially global ones like world hunger and ecological destruction, paralyze us. Their roots seem so deep, their ramifications endless. So we feel powerless. How can we do anything? Don't we just have to leave these problems to the "experts?" We try to block out the bad news and hope against hope that somewhere someone who knows more than we do has some answers.

The tragedy is that this totally understandable feeling--that we must leave the big problems to the "experts"--lies at the very root of our predicament, because the experts are those with the greatest stake in the status quo. Schooled in the institutions of power, they take as given many patterns that must change if we are to find answers. Thus, the solutions can come only from people who are less "locked-in"--ordinary people like you and me. Only when we discover that we have both the capacity and the right to participate in making society's important decisions will solutions emerge. Of this I am certain.

But how do we make this discovery?

The world's problems appear so closely interwoven that there is no point of entry. Where do we begin when everything seems to touch everything else? Food, I discovered, was just the tool I needed to crack the seemingly impenetrable facade. With food as my grounding point I could begin to see meaning in what before was a jumble of frightening facts--and over the last ten years I've learned that my experience has been

shared by thousands of others. Learning about the politics of food "not only changed my view of the world, but spurred me on to act upon my new vision," Sally Bachman wrote me from New York.

To ask the biggest questions, we can start with the most personal--what do we eat? What we eat is within our control, yet the act ties us to the economic, political, and ecological order of our whole planet. Even an apparently small change--consciously choosing a diet that is good both for our bodies and for the earth--can lead to a series of choices that transform our whole lives. "Food has been a major teacher in my life," Tina Kimmel of Alamosa, California, wrote me.

The process of change is more profound, I'm convinced, than just letting one thing lead to the next. In the first edition of this book I wrote,

> Previously when I went to a supermarket, I felt at the mercy of our advertising culture. My tastes were manipulated. And food, instead of being my most direct link with the nurturing earth, had become more merchandise by which I fulfilled my role as a "good" consumer.

Feeling victimized, I felt powerless. But gradually I learned that every choice I made that aligned my daily life with an understanding of how I wanted things to be made me feel more powerful. As I became more convincing to myself, I was more convincing to other people. I was more powerful.

So while many books about food and hunger appeal to guilt and fear, this book does not. Instead, I want to offer you power. Power, you know, is not a dirty word!

Here's how it began for me...

In 1969 I discovered that half of our harvested acreage went to feed livestock. At the same time, I learned that for every 7 pounds of grain and soybeans fed to livestock we get on the average only 1 pound back in meat on our plates. Of all the animals we eat, cattle are the poorest converters of grain to meat: it takes 16 pounds of grain and soybeans to produce just 1 pound of beef in the United States today.

The final blow was discovering that much of what I had grown up believing about a healthy diet was false. Lots of protein is essential to a good diet, I thought, and the only way to get enough is to eat meat at virtually every meal. But I learned that, on the average, Americans eat twice the protein their bodies can even use. Since our bodies don't store protein, what's not used is wasted. Moreover, I learned that the "quality" of meat protein, better termed its "usability," could be matched simply by combining certain plant foods. Thus, the final myth was exploded for me.

I was shocked. While the world's experts talked only of scarcity, I had just discovered the incredible waste built into the American meat-centered diet. And nutritionally it was all unnecessary! My world view flipped upside down. Along with many others in the late 1960s, I had started out asking: "How close are we to the limit of the earth's capacity to provide food for everyone?" Then it began to dawn on me that I was part of a system actively reducing that capacity.

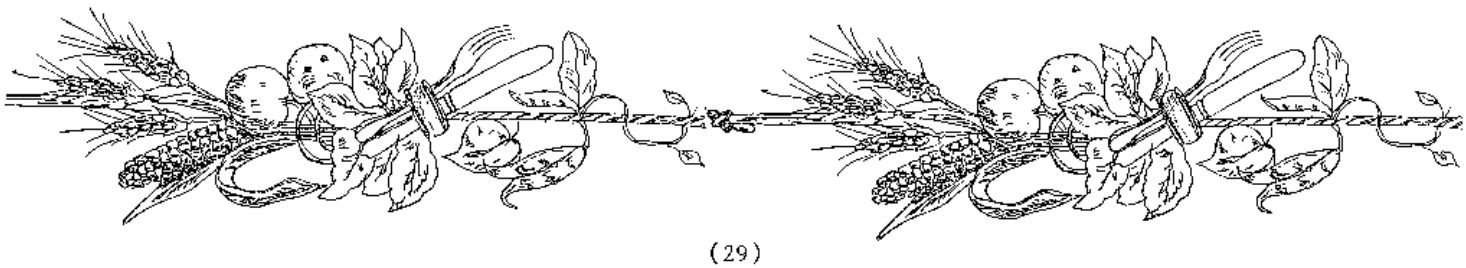
What I failed to appreciate fully ten years ago was that the production system that generates our grain-fed-meat diet not only wastes our resources but helps destroy them, too. Most people think of our food-producing resources, soil and water, as renewable, so how can they be destroyed? The answer is that because our production system encourages farmers to continually increase their output, the natural cycle of renewal is undermined. The evidence for this is presented in Part II, but here are a few facts to give you some sense of the threats to our long-term food security:

. Water costs. Producing just one pound of steak uses 2,500 gallons of water--as much water as my family uses in a month! Livestock production, including water for U. S. crops fed to livestock abroad, accounts for about half of all water consumed in the United States, and increasingly that water is drawn from underground lakes, some of which are not significantly renewed by rainfall. Already irrigation sources in north Texas are running dry, and within decades the underground sources will be drawn down so far that scientists estimate a third of our current irrigation will be economically unfeasible.

. Soil erosion. Corn and soybeans, the country's major animal feed crops, are linked to greater topsoil erosion than any other crops. In some areas topsoil losses are greater now than during the Dust Bowl era. At current rates, the loss of topsoil threatens the productivity of vital farmland within our lifetime.

. Energy costs. To produce a pound of steak, which provides us with 500 calories of food energy, takes 20,000 calories of fossil fuel, expended mainly in producing the crops fed to livestock.

. Import dependency. Corn alone uses about 40 percent of our major fertilizers. U. S. agriculture has become increasingly dependent on imported fertilizer, which now accounts for 20 percent of our ammonia fertilizer and 65 percent



of our potash fertilizer. And even though the United States is the world's leading producer of phosphates for fertilizer, at current rates of use we will be importing phosphates, too, in just 20 years.

A SYMBOL AND A SYMPTOM

The more I learned, the more I realized that a grain-fed-meat diet is not the cause of this resource waste, destruction, and dependency. The "Great American Steak Religion" is both a symbol and a symptom of the underlying logic of our production system--a logic that makes it self-destructive.

Our farm economy is fueled by a blind production imperative. Because farmers are squeezed between rising production costs and falling prices for their crops, their profits per acre fall steadily--by 1979 hitting one-half of what they had been in 1945 (figures adjusted for inflation). So just to maintain the same income farmers must constantly increase production--planting more acres and reaping higher yields, regardless of the ecological consequences. And they must constantly seek new markets to absorb their increasing production. But since hungry people in both the United States and the third world have no money to buy this grain, what can be done with it?

One answer has been to feed about 200 million tons of grain, soybean products, and other feeds to domestic livestock every year. Another, especially in the last ten years, has been to sell it abroad. While most Americans believe our grain exports "feed a hungry world," two-thirds of our agricultural exports actually go to livestock--and the hungry abroad cannot afford meat. The trouble is that, given the system we take for granted, this all appears logical. So perhaps to begin we must stop taking so much for granted and ask, who really benefits from our production system? Who is hurt, now and in the future?

In this book I seek to begin to answer such questions.

DIET FOR AN ABUNDANT PLANET

The worst and best thing about my book is its title. It is catchy and easy to remember. (Although one irate customer stomped into my parents' bookstore to complain that she'd thought she was buying a gardening book, Diet for a Small Plant. Others in search of my book have told me that bookstore clerks pointed them towards the science-fiction department!) But the title is also misleading. To some it connotes scarcity: because the planet is so "small," we must cut back our consumption. So when my next book, Food First, (coauthor Joseph Collins, with Cary Fowler) came out, with the subtitle Beyond the Myth of Scarcity, many people thought I had done an about-face. Yes, my thinking evolved, but for me the message of Diet for a Small Planet is abundance, not scarcity. The issue is how we use that abundance. Do we expand the kind of production which degrades the soil and water resources on which all our future food security rests? Do we then dispose of this production by feeding more and more to livestock? The answers lie in the political and economic order we create. The "small planet" image should simply remind us that what we eat helps determine whether our planet is too small or whether its abundance can be sustained and enjoyed by everyone. My book might better be called Diet for an Abundant Planet--now and in the future.

THE BODY-WISE DIET

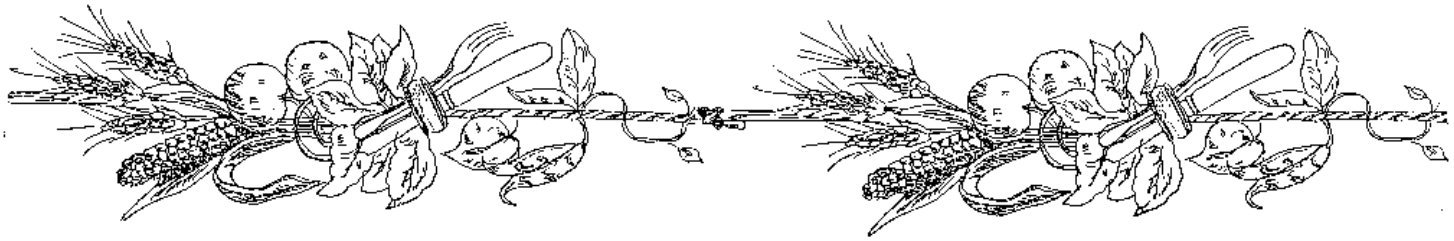
Another part of the good news in this book is that what's good for the earth turns out to be good for us, too. Increasingly, health scientists throughout the world recommend a plant-centered diet. They report that six of the ten leading causes of death in America are linked to the high fat/high sugar/low fiber diet embodied in the Great American Steak Religion. (See Part III, Chapter 1.)

For me, living a diet for a small planet has meant increased physical vitality. And the hundreds of letters I have received testify that my experience is not unique.

THE TRADITIONAL DIET

Over the years many people have been surprised when meeting the author of Diet for a Small Planet. I am not the gray-haired matron they expect. Nor am I a back-to-nature purist. (Sometimes I even wear lipstick!) But mouths really drop open when I explain that I am not a vegetarian. Over the last ten years I've hardly ever served or eaten meat, but I try hard to distinguish what I advocate from what people think of as "vegetarianism."

Most people think of vegetarianism as an ethical stance against the killing of animals, unconventional, and certainly untraditional. But what I advocate is the return to the traditional diet on which our bodies evolved. Traditionally the human diet has centered on plant foods, with animal foods playing a supplementary role. Our



digestive and metabolic system evolved over millions of years on such a diet. Only very recently have Americans, and people in some other industrial countries, begun to center their diets on meat. So it is the meat-centered diet--and certainly the grain-fed-meat-centered diet--that is the fad.

I hope that my book will be of value to the growing numbers of people who refuse to eat meat in order to discourage the needless suffering of animals. But I believe that its themes can make sense to just about anyone, whether or not they are prepared to take an ethical stance against the killing of animals for human food.

Many counter the vegetarian's position against killing animals for human food by pointing out that in many parts of the world livestock play a critical role in sustaining human life: only livestock can convert grasses and waste products into meat. Where good cropland is scarce, this unique ability of grazing animals may be crucial to human survival. Intellectually, I agree. But I say "intellectually" because, although using livestock to convert inedible substances to protein for human beings makes sense to me, I found that once I stopped cooking meat, it no longer appealed to me. If all our lives we handle flesh and blood, maybe we become inured to it. Once I stopped, I never wanted to start again. But this view is a strictly personal one, and it is not the subject of this book.

AN ESCAPE OR A CHALLENGE?

For many who have come to appreciate the profound political and economic roots of our problems, a change in diet seems like a pretty absurd way to start to change things. Such personal decisions are seen simply as a handy way to diminish guilt feelings, while leaving untouched the structural roots of our problems. Yes, I agree--such steps could be exactly this and nothing more.

But taking ever greater responsibility for our individual life choices could be one way to change us--heightening our power and deepening our insight, which is exactly what we need most if we are ever to get to the roots of our society's problems. Changing the way we eat will not change the world, but it may begin to change us, and then we can be part of changing the world.

Examining any of our consumption habits has value only to the degree that the effort is both liberating and motivating. Learning why our grain-fed-meat diet developed and learning what does constitute a healthy and satisfying diet have been both for me. In one area of my life I began to feel that I could make real choices--choices based on knowledge of their consequences. Second, the more I learned about why the American diet developed to include not only more grain-fed meat but more processed food, the more I began to grasp the basic flaws in the economic ground rules on which our entire production system is based. I learned, for example, that the prices guiding our resource use are make-believe--they in no way tell us the real resource costs of production. Moreover, I came to see how our production system inevitably treats even an essential ingredient of life itself--food--as just another commodity, totally divorcing it from human need. Slowly it became clear that until the production of our basic survival goods is consciously tied to the fulfillment of human need there can be no solution to the tragedy of needless hunger that characterizes our time--even here in the United States.

THE INSTITUTE FOR FOOD AND DEVELOPMENT POLICY, also known as FOOD FIRST (1885 Mission St., San Francisco, CA 94103), is an independent, not-for-profit research, documentation and education center focusing on food and agriculture. Founded by Frances Moore Lappe and Joseph Collins in 1975, it investigates the root causes of hunger in a world of plenty. Looking at the policies of both governments and corporations, the Institute asks: What can we do to create social, economic and political structures that ensure food security for all, now and in the future?

The Institute also examines and reports how people are struggling for food security around the world, pointing to lessons to be learned from their difficulties and successes.

Some of the publications of the Institute are listed below.

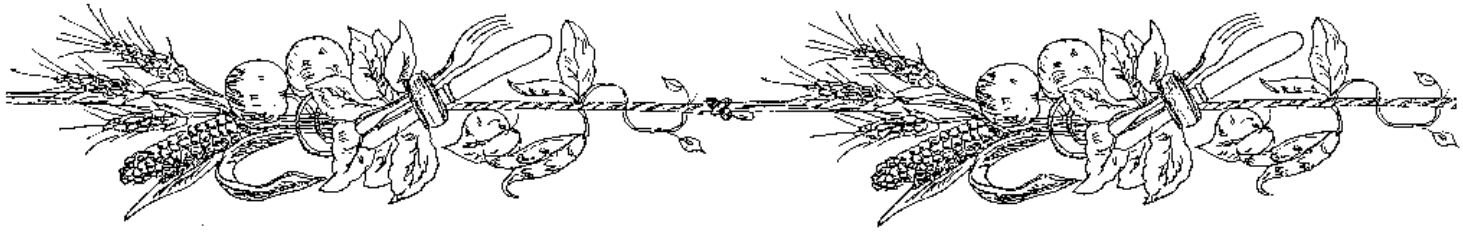
Food First: Beyond the Myth of Scarcity, Lappe', Collins (with Cary Fowler) $3.95

Food First Comic Book, script and artwork by Leonard Rifas. 24 pages, $3.00

Circle of Poison: Pesticides and People in a Hungry World by David Weir and Mark Schapiro, $3.95.

Aid as Obstacle, Lappe', Collins and David Kinley. Twenty Questions about our foreign aid and the hungry, $4.95.

What Difference Could a Revolution Make? Food and Farming in the New Nicaragua (Part I) and Now We Can Speak (Part II), Lappe & Collins. $4.95 and $2.95 (est.) NEW BOOKS.



Jobs, the Environment, and National Security

Dana Jackson

The CBS evening news in recent weeks has taken viewers into the kitchens and living rooms of unemployed workers to hear them tell about their hardships. Many can't keep up mortgage payments and face the prospect of losing their homes. Others see unemployment benefits running out and wonder how they will even be able to put groceries on the table. TV has also shown us the tent cities in Texas, people living in automobiles in Denver, and soup lines in New York City.

A recent newspaper story featured the "new poor" in cities such as Flint, Michigan. Many of these people went to work at a young age for a good hourly wage in the automobile industry. They received regular raises over the years, and bought their own homes in the community. These workers were accustomed to buying on credit, counting on future wages to pay for that new sofa or washing machine. After being laid off, some have exhausted their unemployment benefits and are applying for general assistance. Counselors at the welfare office much teach these former workers how to be poor. They are being told that they cannot own two cars and receive assistance, that cable TV is not a necessity and must be cut out of their budgets, and they are trying to understand why their lives have changed so much.

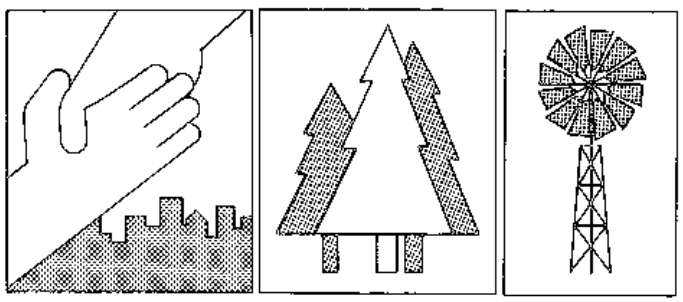
Unemployment has become such a serious national problem that the U. S. Congress is working on legislation to create federal jobs in public works construction, extend jobless benefits, and fund relief projects such as soup kitchens. With nineteen GOP senators facing reelection in 1984, the Reagan administration has been forced to come up with a Republican program to reduce unemployment. This does not include appropriations for low-income weatherization or summer youth employment supported by the Democrats.

The push to create jobs could be a boon for the environment, or it could be a destructive force. The environmental movement has decided to play an active and constructive role as Congress considers emergency and long-range measures to contend with the employment crisis. In its 1983 legislative agenda, Friends of the Earth will support job measures to "help preserve and improve the natural infrastructure of our cities and countryside." Chief among these proposals are the American Conservation Corps and the Urban Parks and Recreation Program. The Conservation Corps, already passed by the House, would provide jobs among a segment of the population most in need of them, our youth. Due to cuts in funding for the maintenance and improvement of the federal and state parks, forests, wildlife refuges and Bureau of Land Management lands, there is a great need for the Corps; and past Corps work has proved to be extremely cost effective. On the other hand, environmentalists are concerned that "jobs and infrastructure" not become the motivating factor for the enactment of environmentally destructive pork barrel projects, such as large water projects.

Both Congress and the Administration have given jobs as the excuse for environmentally destructive policies in the past. Appropriations for the Garrison Diversion Project, and the Clinch River Breeder Reactor were almost defeated by Congress several times, but eventually passed as a result of jobs pressure arguments. In the Interior Department, James Watt has tried to open up environmentally-sensitive offshore lands for oil and gas leasing because, as he says, "I like jobs." The Environmental Protection Agency has justified lack of action in enforcing environmental legislation by claiming that strict controls would force businesses to close and eliminate jobs.

Job blackmail by industry to escape pollution control expenses has been well documented in a book called Fear at Work: Job Blackmail, Labor and the Environment (Pilgrim Press, N.Y.). The authors, Richard Kazis and Richard Grossman of Environmentalists for Full Employment, show how employers and politicians use the promise of jobs and the threat of unemployment to blackmail workers and communities. They present many specific examples of industries overestimating costs of regulatory compliance to justify environmental pollution and hazardous working conditions. Often, when plants do shut down giving the regulatory costs as the reason, careful analyses show that they closed because of declining sales, increased energy costs, obsolescence or other factors.

Environmentalists have countered industry complaints by pointing out that environmental protection not only protects health but creates jobs and saves jobs. According to Audubon President Russell Peterson, former chairman of the Council on Environmental Quality under Nixon and Ford, hundreds of new businesses with thousands of new jobs were created as a result of environmental legislation in the Sixties. An EPA study (sponsored prior to the Reagan administration) concluded that by 1987 there would be a net increase of 534,000 jobs as a result of pollution



controls. However, the Reagan-Burford EPA policy of non-enforcement creates less of a market for pollution control devices manufactured by private businesses, and thousands of potential jobs are sacrificed. (Audubon editorial, November 1982.)

While environmental jobs in the federal government have been scuttled to reduce the budget, more money is spent on the nuclear weapons build-up. The greatest threat to the environment possible, a nuclear holocaust, becomes more likely each day as the Reagan administration strives to develop U. S. capacity to "fight and win" a nuclear war, and incidentally, provide jobs. An article by Brad Knickerbocker in the February 18 Christian Science Monitor called "Defense Cuts--Why the Ax is Dull," points out that the Pentagon is already spending money for such controversial big-ticket weapons as the B-1 bomber and new aircraft carriers, and this influences Congress. Secretary of Defense Weinberger used the jobs argument at hearings on the military budget. He reminded critic Senator Donald Reigle of Michigan that military outlays meant 154,000 jobs in Reigle's state, and informed Rep. John Kasich of Ohio that defense-related jobs in Ohio would be increasing from 232,000 to 255,000 between 1982 and 1984 under the proposed military budget. Knickerbocker also stated in his article that many congressmen like the B-1 bomber because thousands of sub-contractors are spread over 48 states and almost everyone gets a piece of the pie.

The actual jobs benefit from military spending has been challenged by Employment Research Associates of Lansing, Michigan, according to Knickerbocker. This company reported that every one billion spent on weaponry results in a net loss of 18,000 jobs, since "military industries are considerably more capital-intensive than civilian industries."

The Reagan administration job program is based on speeding up construction and maintenance work already included in the President's budget for fiscal 1984, instead of creating new jobs programs. Some 32 billion is set aside in that budget for military and civilian construction, and additional funds provide for research and development.

Building military infrastructure seems to be much easier than spending money on jobs programs which conserve natural resources and improve communities. In Jewell County, Kansas, the work of the Civilian Conservation Corps in the Thirties started the tradition of good soil conservation practices, and the county still benefits from that work. Jobs through the Soil Conservation Service have been included in some of the current jobs legislation proposals. Rural areas would also be helped by jobs to improve the railroads. The reduction of rail service and subsequent demise of small grain elevators have forced farmers to truck grain to larger towns to be put on unit trains. The increased truck traffic is stressing county roads and bridges not constructed for heavy hauling. In both rural areas and in cities, there has been a

dramatic decline in school construction and repairs as a result of dwindling enrollments and tax limitation measures in 29 states. "Schools should be considered prime candidates for some of the billions Congress is considering spending on the infrastructure," says Bruce Hunter of the American Association of School Administrators. ("Why Nation's School Buildings are in Disrepair," Christian Science Monitor, February 8, 1983.) "Repairing a roof, painting, replacing a window are all the kind of skills any local community can provide. There's a schoolhouse down the block from everyone." Communities could also benefit by jobs programs in recycling and resource recovery projects. The problem isn't thinking of useful things to be done. The problem is releasing the gargantuan grip of the military industrial complex on Congress and the Administration so money can be reallocated from missiles to jobs programs that strengthen communities and provide real national security.

Conventional thinking generally associates national security with military strength. We are sorry to see Solar Lobby also doing this in their legislative program called SENSE, the Solar Energy National Security and Employment Act. The purpose is "to amend, extend, and enhance U. S. renewable energy and conservation programs in order to increase employment, promote renewable energy small business, enhance our national security, and displace imported energy sources." Title I, III and IV conform to this purpose under the broad understanding of national security; but Title II, which actually amends a bill already passed in the 97th Congress, ties solar directly to the military. The summary of Title II as sent to members of Solar Lobby states:

> This section will improve our national security by instructing the U. S. Department of Defense to purchase cost-effective renewable energy systems and fuels for military applications, establish a national strategic alcohol fuels reserve, assess the feasibility of developing mobile renewable energy systems for civil defense purposes, and establish a national strategic renewable energy network which could locate all stockpiles and production facilities of

renewable energy supplies in the event of national emergency.

Although we at The Land Institute have always supported Solar Lobby, we cannot support SENSE with Title II in it. We agree with Diane Tegtmeier and Mari Peterson (Energy for Rural Self Reliance) in their critique: "The use of decentralized renewable energy resources and reduced energy consumption throughout the nation contributes more to the strength and security of our country than military use of renewable energy. It's the former we should be devoting policy to. It is as much of a mistake to purposely link renewable energy with the military as it is to talk about food as a weapon."

It is understandable that Solar Lobby, tired of fighting the Reagan administration efforts to dismantle the programs they helped enact during the 1970's, would go on the offensive with energy legislation. Putting conservation and renewable energy development in the context of the important issues of employment and national security seems like a clever strategy. On the other hand, their bill only amends current laws. Congress has already passed the Department of Defense Renewable Energy Utilization Act of 1982 "to promote the use of solar and other renewable forms of energy in military facilities and equipment." Decentralized renewable energy in all facets of society is the national security solar advocates have understood, and promoting the military strength definition is inappropriate and unnecessary.

It is also inappropriate for soft energy activists to become involved in civil defense planning, since the U.S. defense posture has changed under the Reagan administration to include the ability to fight and win a "limited" nuclear war. The biggest threat to national security now is the government leadership who would prepare us for surviving a nuclear war, thus making it thinkable. Cooperating with the military in civil defense planning through a "national strategic renewable energy network which could locate all stockpiles and production facilities of renewable energy supplies in the event of national emergency," is as ridiculous as cooperating with Civil Defense plans to evacuate cities to small towns in the event of a nuclear war.

In a telephone conversation, Scott Sklar, the political director of Solar Lobby, assured me that Solar Lobby did not mean nuclear war when using the expression "national emergency." But nuclear war was not specifically excluded in the summary of the act sent to members, nor in the longer version sent to members of the board of directors of Solar Lobby. Solar Lobby has not sent me a copy of the act as introduced, with the exact wording, as I requested. So I suspect the definition of national emergency is deliberately vague to gain support for SENSE by both hawks and doves in Congress.

Peace is an ecological necessity for this planet in the nuclear age. Amory Lovins' book, Soft Energy Paths: Toward a Durable Peace, which set the stage for the upswell of interest in renewable energy that created Solar Lobby, also linked renewable energy to peace. Solar activists should remember Tom Bender's statement: "Appropriate technology reminds us that before we choose our tools and techniques, we must choose our dreams and values, for some technologies serve them while others make them unobtainable." I think Solar Lobby is attaching appropriate technology to the wrong values when it ties renewable energy to the military. The purpose of promoting solar energy is not for the sake of jobs in solar energy alone, but for the opportunities solar technology can open up for more just and peaceful human communities which are not destroying the long-term ability of the earth to support life. Title II of the SENSE Act dims this vision.

"Solar employs and nuclear destroys," is still a good slogan. We should continue to lobby for funds to do energy audits, weatherization and renewable energy research. At the same time, the environmental movement should explore other ways to help people find jobs. As Richard Grossman and Richard Kazis point out in "An Open Letter on Jobs" (Not Man Apart, Jan. 1983), "If the environmental movement does not bring its creativity and resources into the political struggle over jobs and economic recovery, we will be vulnerable to charges of elitism and callousness toward working Americans. And we will make it easier for those who would ravage public lands and reverse a decade of workplace and environmental improvements to do so in the name of progress and jobs."

It is as much of a mistake to purposely link renewable energy with the military as it is to talk about food as a weapon.

Prairie Photos on Exhibit

Many Friends of The Land should have the opportunity to view prairie photographs by Arts Associate Terry Evans.

March 22 is the formal opening of a dual exhibit with Earl Iverson at the Spencer Museum on the Kansas University campus in Lawrence. At the close of the exhibit April 24, the photographs will be shown in art centers and colleges throughout the region.

The Chicago Art Institute will include Terry's photographs in their exhibit called "Photo Images of the Prairie," opening June 10. This show, organized by the Open Lands Project, features both historical and contemporary photographers. After it closes in Chicago, the exhibit will travel widely across the U.S. for two years.

A forthcoming issue of Prairie People, a Siouxland Heritage Museums publication in Sioux Falls, S.D., will also feature Terry's work.

Fifth Annual Prairie Festival

"Food and Peace" is the theme for the fifth annual Prairie Festival at The Land Institute May 28-29, 1983. Featured speakers will be David and Joan Ehrenfeld, ecologists from Rutgers University, and Frances Moore Lappe' of the Institute for Food and Development Policy. (See PERSPECTIVES, page 26). An outstanding folk trio from Newton, Kansas, "The Road Less Travelled," will perform.

The annual Prairie Festival is a celebration of the prairie ecosystem and prairie folk. This year's program will include traditional activities such as a prairie wildflower walk, nature walk for children, an update on sustainable agriculture research with a tour of experimental plots, and "Bluestem" music on Saturday night.

Details of the program will be found on the invitation and registration form to be mailed in April to Friends of The Land. Preliminary plans for activities related to the "Food and Peace" theme on Saturday are to have a food fair on Saturday afternoon with demonstrations and displays on whole food preparation, such as making yogurt and cheese, drying foods, and growing sprouts. Frances Moore Lappe' will speak that evening. On Sunday morning, presentations and discussions will connect the politics of food to international relations and the threat to peace caused by the nuclear arms build-up. David Ehrenfeld will give the concluding talk Sunday afternoon after the potluck lunch.

Pre-registration really helps The Land to make arrangements for this event, and we ask Friends of The Land to please send in the registration form printed on the invitation. Persons not already on The Land's mailing list who are interested in attending the Prairie Festival can receive invitations by requesting them from The Land Institute. Prairie Festival registrations, subscriptions and contributions are handled by The Land's administrative assistant/office manager/circulation manager/financial officer, Linda Okeson. (below).

The Friends of The Land have been extremely important. Many helped collect materials to build the first classroom/office/shop; many donated their time and labor to begin reconstruction after the building burned in October 1976. Friends donated books and money to help develop another library and began contributing to the general support of The Land through yearly gifts. The Land needs these friends, and new friends too.

The Land Institute is a private, educational-research organization. In recent years, several private foundations have awarded grants for special programs. These would not have been made if The Land had not shown a record of broad-based support from individuals who make annual contributions. Continued financial support from Friends of The Land is vital.

Contributors receive THE LAND REPORT and other occasional publications, plus notices of events sponsored by The Land Institute. The Land Institute is a non-profit organization, and all gifts are tax deductible.

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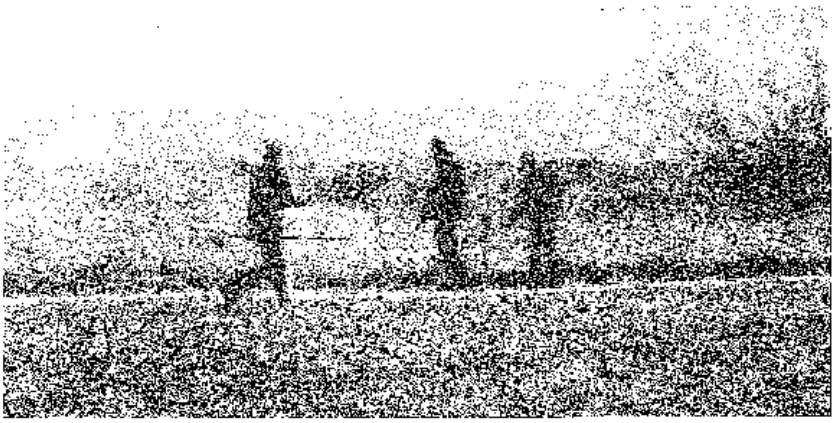

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