THE LAND REPORT

Number 11 Fall 1980

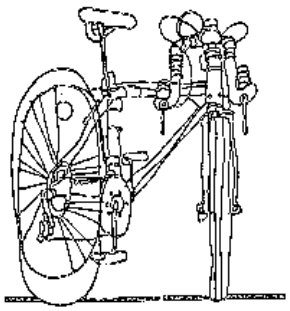
The Land Institute

Contents

On the Cover

The Flint Hills in Chase County, Kansas---taken on October 31, 1979 by Terry Evans, Arts Associate at The Land Institute.

The Fall 1980 Term



Every weekday morning at approximately 8:35, six to eight bicycle riders arrive at the corner of Ohio Street and Water Well Road and continue along the gravel road on their way to a day's work at The Land Institute.

Five new students began this routine on September 4: Paul Rasch from Grand Rapids, Michigan, and Tom Mulcrone from Chicago, Illinois, have been students at the Jordan College Energy Institute in Cedar Springs, Michigan; Ed Newman from South Euclid, Ohio, has been studying environmental biology at Ohio University in Athens, Ohio; Melisa Myers, Prairie Village, Kansas, has a B. A. in Public Affairs and Government from Mount Vernon College, Washington D.C., and was employed, until recently, by the Environmental Protection Agency in Washington; Annie Ronsse from Hoyt, Kansas, has a B.S. in biology and secondary teaching from Emporia State University in Emporia, Kansas, and will finish work on her M.S. degree this year.

Dennis Ronsse, from St. Marys, Kansas is a new research associate. Dennis, who has a B.S.

The Land Report

is published three times a year by

THE LAND INSTITUTE
RT. 3
SALINA, KANSAS 67401

Editor.....Dana Jackson
Printed by Arrow Printing Co., Inc.

Contributing to No. 11: Pam Ellinghausen, Laura Jackson, Jim Peterson, Aaron J. Sharp, Ivy Marsh, Kelly Kindscher, Michael Chapman, Mari Peterson, Wes Jackson, Ron Henricks, Dana Jackson

SUBSCRIPTION RATE: $3.00

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

and an M.S. from Emporia State, is the recipient of the Jessie Smith Noyes Foundation stipend for work in appropriate technology.

Returning as research associates in 1980 are Marty Bender and Mari Peterson. Marty is doing research on perennial polycultures and is Director of the Prairie Perennial Herbary. Mari Peterson is receiving a Noyes Foundation stipend for work on county energy planning. In addition, Mari is doing research in the areas of transportation and alcohol fuels. Marty and Mari share teaching responsibilities with Wes and Dana Jackson.

Terry Evans, arts associate, spends every Thursday at The Land.

Volume I of The Global 2000 Report to the President prepared by the Council on Environmental Quality and the Department of State was the first reading which was discussed in the morning classroom sessions. Readings and discussion for the next three weeks covered a broad spectrum of energy topics.

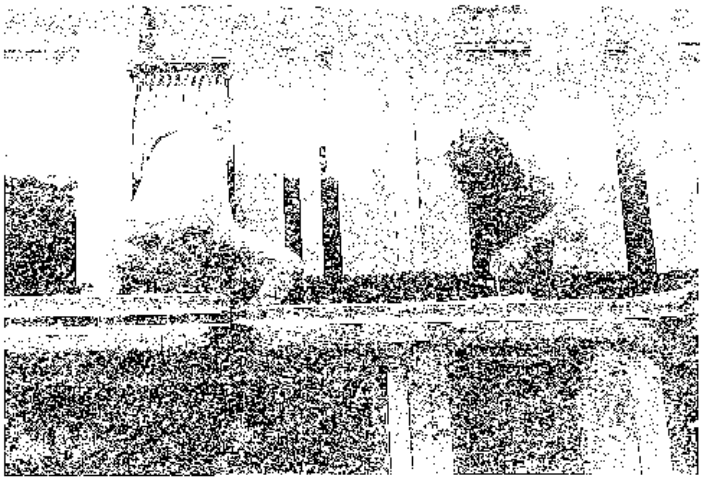
In the afternoon students work on physical projects. The Winter Land Report will contain articles about projects and activities undertaken during the fall semester.

Visitors and Tours

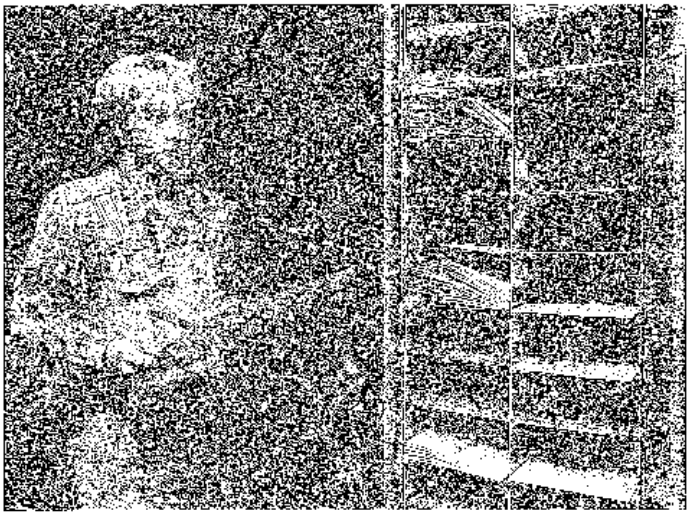
The annual Visitor's Day will be on Sunday, October 12, from 1:30 to 4:30 P.M. This is not an open house, but a special program for persons interested in learning about The Land Institute and discussing issues related to the search for sustainable alternatives in agriculture, energy, shelter and waste management. Participants will tour the grounds, then divide into small discussion groups, and finally meet together in the classroom for refreshments and a concluding question-answer session.

We prefer having interested people come on Visitors' Day, rather than making arrangements for many visits by small groups. However, organizations and classes will be accommodated for special visits as much as possible. In September the Saline County Historical Society, classes from Cloud County Jr. College and Minneapolis High School, and members of the Kansas Wild Flower Society were guests at The Land.

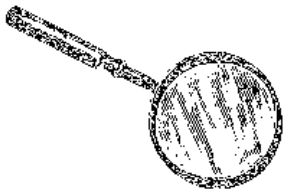
Former students living in or close to Salina joined fall semester students and research associates at a potluck picnic in Oakdale Park September 12. In the photo, Annie Ronsse and Tom Mulcrone talk to Pat Dreese as Russ Brehm fills his plate. Other "alums" attending the picnic were Pam and Jay Ellinghausen, Doug Peterson, Jeanne Green, Jim Peterson, Cindy Jones, Carol Maguire, Joy Hasker and Bill Craig.



"Hanging out at The Land." Look for Paul and Tom's explanation in Land Report Number 12.



Marty Bender sorts herbarium specimens prepared by Joy Hasker in the fall of 1979 to place in the new 80 inch herbarium cabinet. Specimens of all Herbary plants will be stored in the herbarium.



What is a Good Idea?

Ms. Dana Jackson, Editor
The Land Report
The Land Institute
Rt. 3
Salina, Kansas

Dear Ms. Jackson:

This is just a note to tell you that I am enjoying The Land Report and hope you will continue to send it to me. I enjoyed your account of the "Newspaper House," but I have to say that to call it a "good idea" when the whole article shows quite clearly that it was a lousy idea, that it failed to do the job it was supposed to do and that it had to be torn down strikes me as a bad idea. An idea is neither good nor bad until it has been tested and the most good would be done your readers if the account had really gone into more detail as to precisely why it failed. Was it because no student was interested in taking it on as a project? Was it because you used the wrong formula for cement? Was it because there was no plastic cover on the structure to keep the rain off?

I am a great believer in experiments and am saddened to see an experiment that might have succeeded if only the proper steps had been taken along the way to make it work in a particular manner. I think any reader of this account will have to conclude that this was a foolish venture. Perhaps I am wrong and am willing to be corrected by you.

I have just returned from a most exciting few days in and around Manhattan, as you will see from the enclosed clipping.

Yours with best wishes,

Grady Clay, Editor
Landscape Architecture
1190 East Broadway
Louisville, Kentucky 40204

Dear Mr. Clay:

If I could rewrite the article about the newspaper house, I would follow your advice and try to communicate more directly the reasons for tearing it down. It was largely a picture story rather than a word story, but I could have used one more column for further explanation.

Your letter has reminded me how important it is to clearly explain our goals, methods and limitations in the Land Report, because with the history and philosophy of The Land Institute in mind, the newspaper house was not "a lousy idea that failed to do the job it was supposed to do."

Eric Herminghausen began the newspaper house in the fall of 1976, our first semester of operation. He was interested in working towards personal self-sufficiency. All the students that semester had homestead goals and hoped to provide, eventually, their own shelter, food, and energy systems as much as possible. (Current students are more interested in sustainable systems for human needs at the societal level and the social changes necessary to operate such systems.) Our classroom building burned to the ground that semester, and we lost all our books and tools. The student projects were affected by this, to say the least! However, Eric was able to learn about alternate building materials and building shapes, and he had actual experience pouring concrete, making building blocks out of newspapers, and manipulating rebar and wire mesh.

Three students were interested in alternatives in shelter the second semester, the spring of 1977. They experimented with various types of adobe bricks and concrete mixtures. The student version of the Paulo Soleri concrete mixture was the one which crumbled on the newspaper house. They did cover the structure with concrete, but the semester was over before it was really "finished." Cindy Jones, Jim Rode , Kerry Peterson, and John Jankowski learned much about adobe and concrete by having their hands in it, and as a relatively inexpensive educational lab, the newspaper house was highly successful.

The Land Institute is primarily an educational institution for students interested in sustainable alternatives in agriculture, energy, shelter and waste management. We try to give students the opportunity for "hands on" experience in appropriate technology, to allow them to work on projects of their own choosing as much as possible.

Subsequent students at The Land did not want to work on the newspaper house, but they developed

projects in wind energy, gardening, and the relationship of the prairie ecosystem to agriculture. Wes and I were reconstructing the classroom building, and we did not want to work on the newspaper house. The Land was also changing its emphasis somewhat as we developed an agricultural research program on perennial crops. You state that "the experiment might have succeeded if only the proper steps had been taken along the way to make it work in a particular manner." I agree, but "proper steps" often require capital, time and labor, none of which has ever been in abundance around here. As The Land Institute evolved, we set priorities, and the newspaper house was not high on our list.

Does all this mean that the newspaper house was "a bad idea"? There are many broken, neglected wind electric generators on towers around the country. Is wind electricity then a bad idea? If an idea cannot be judged until it is tested, what is the right test? You imply that if we could have made it "work in a particular manner," then it would have been a good idea. I can think of many really energy-wasteful, potentially-dangerous examples of technology which "work in a particular manner."

Consider, for example, the electric transformer. It is designed by experts and does the job it is supposed to do. Can we be confident that the PBB bath for dissipating heat in the transformer won't get spilled into the environment? What happens when lightning strikes a transformer? Is it an act of God when a spill occurs, or can we say it is an act of an over-specialized society that does not judge its technology wisely and is arrogantly content with narrow criteria for success?

Before we undertake projects at The Land, we ask two important questions: What are the chances of backing out of this project if things go wrong? What will it do to the environment eventually?

There was one way of correcting the problem of the crumbling concrete on the newspaper house which Wes seriously considered, then rejected. That was to have it sprayed with very durable, waterproof foam which has good insulation properties. He didn't reject the foam because it was expensive or because it was "high" tech. We do employ "high" tech in various projects at The Land. He rejected it because he suspected that the downstream effects of such foam are harmful. We have since observed this foam material on buildings and are fairly certain it would have worked on the newspaper house, but we are still satisfied with the decision not to use it. I doubt if planners and architects and engineers place much value on this consideration as I think of the examples of structures or other technology which accelerate entropy, pollute unnecessarily, and erode options for future generations.

The newspaper house satisfied our criteria of a good project based on the two questions given above. When it was torn down, all its parts were recycled. We salvaged the rebar and wire mesh for use in other projects, recycled nearly all the newspapers, dumped the broken concrete on our gravel road, and saved all parts of the solar collector, including the insulation. The footing remains intact, although we have dumped dirt over it, and Wes has given some thought as to how it might be used again. Contrast this structure with the thousands of others which meet the standard criteria for success. Which can nature most forgive? Which are the "foolish"ventures?

The classroom building still is not finished, and though it serves The Land Institute very well, it would be impossible to tell anyone "precisely why" it succeeds. Appropriate technology is associated with holistic thinking. For a complex variety of social, economic, ecological, educational and religious reasons, our "Doings Building," (our younger daughter named it) is a good working place. Proper planning had very little to do with it.

The key word for the future is "SUSTAINABILITY." If our ideas contribute to the development of systems for our livelihood that are sustainable, which won't gobble resources and energy or pollute the environment much, we are on the right track. At this point, we are still satisfied that the newspaper house was a good idea.

Thank you for expressing your interest in The Land Institute by taking time to write to us.

Sincerely yours,

Dana Jackson, Editor

Milo (evidently sprouted from seed in fill dirt) grows where newspaper house once stood.

Perspectives of the Food Cooperative Movement

Pam Ellinghausen

Last spring Kelly Kindscher, Jay Ellinghausen and I conducted workshops to introduce Kansas Wesleyan and Marymount students to the Prairieland Food Co-op. We began by presenting a brief history of cooperatives so our audience could better understand the social and political perspective of the food cooperative movement. The main source of this information was The Food Cooperative Handbook by the Co-op Handbook Collective (Houghton Mifflin Co., Boston, 1975).

History of Cooperative Movements

Cooperatives in the form of 'cooperations' have existed for thousands of years. Early societies hunted together and shared the food, early European villages had cooperative economics, and even now these types of organizations exist in the form of volunteer fire departments and other organizations. The Industrial (Agrarian) Revolution, 16th - 19th century, began to slow the 'cooperations.' In 1844, the first successful consumers' (food) cooperative was formed. Twenty-eight weavers in Rochdale, England, were fired and blacklisted after a strike. They organized in an attempt to relieve their poverty by getting their staple food items at a cheaper price. They sold flour, butter, sugar and oatmeal. Within 10 years, they had 1800 members, and although they made mistakes that almost forced them out of business, the store is still open. The U.S. has been slow to develop the cooperative movement as compared to other countries. We have experienced waves of co-operatives, many of which have failed for various reasons.

In 1844, a consumer (food) co-op was started in Boston, carrying soap and tea. Within thirteen years they had expanded into 1106 stores as far west as Illinois. By the end of the Civil War, 1865, poor management and unstable membership had destroyed most of them.

In the late 1800's, the farmers as a part of the Populist movement began to fight the corporate control of railroads and other transporters and marketers of food. The Grange and The Farmers Alliance organized non-consumer cooperatives in the Midwest. Many weren't able to compete, but some, with the help of the government have become large corporations. This movement also declined by the 1900's because of the lack of capital, credit, and political influence.

In the early 1900's, immigrants began arriving in the U.S., bringing with them their culture and customs. The Scandinavians often formed consumer (food) co-ops and the Finns, who settled in Minnesota and Michigan, also brought their temperance halls and socialist parties. It was in 1909 that the first Credit Union was established in Boston, and grew until thirty-one years later there were 9000 of them in the U.S.

At this time, the 1920's, many co-op members were Communists. The Communists also supported the co-ops with money and buildings. After alot of tension within the organizations, they were finally thrown out. The lack of a political party that had the cooperative movement's goal (thus the lack of political direction), the absence of educational attempts, and the lack of co-ordination again closed many of the food co-ops. It was in the 1920's when the government finally recognized that co-ops were legitimate organizations, not in contempt of the Sherman Anti-Trust Laws, and began to give them credit and technical help. This began the organization of co-ops in areas such as gas, oil, housing and insurance.

The 1930's were the years of the next large movement, as unemployment and poverty brought people together. The Farmer-Labor Party in Minnesota promoted cooperative commonwealth and consumer cooperations. Unions became strong during this time, and consumer co-ops sprang up across the country. However, continued conflict with the Communist Party, fear of nationalistic activity around WW II, 1950's McCarthyism, the 1950's-60's arrival of multi-national monopoly capitalism, bad management, no capital, and loss of spirit contributed to the decline.

Both agriculture and consumer (food) co-ops are considered cooperatives although they do not often follow the same purpose, philosophy, and politics. During the 1930's in particular, as farmers were being forced off their farms, they mainly wanted to find a way to decrease expenses and increase profits. It is for this reason that by the 1960's, the beginning of the cooperative era we are now in, several of the old farmer co-ops had become huge, and some had begun ignoring the policies of democracy and open membership. The smaller consumer (food) co-ops are often non-profit, educationally-oriented, and consumer-interest-based. On the whole they are more democratic and socially-concerned.

The 1960's produced young people in the midst of social rebellion in the form of anti-war and civil rights demonstrations. These same people also resented capitalism and the impersonal corporate businesses. Their ideologies led to the return of the small, non-profit, and personal consumer (food) co-ops. In this way, the young people were able to reject their parents' 'middle class' values, while also

finding nutritious quality in food at the co-ops. Because of this co-ops became health-conscious, and unprocessed, natural organic food filled the shelves.

Food Cooperatives Today

Almost 20 years later, the cooperative movement is still expanding, partly due to inflation and also due to the desire to eat high-quality food often not found in the chain grocery stores. The co-ops also stand for many other things: the small farmer, the organic farmer, the desire not to support the tremendously long chain of corporate businesses that supply products found in the supermarkets, and an environmental awareness which rejects overpackaging and extensive use of chemical food additives.

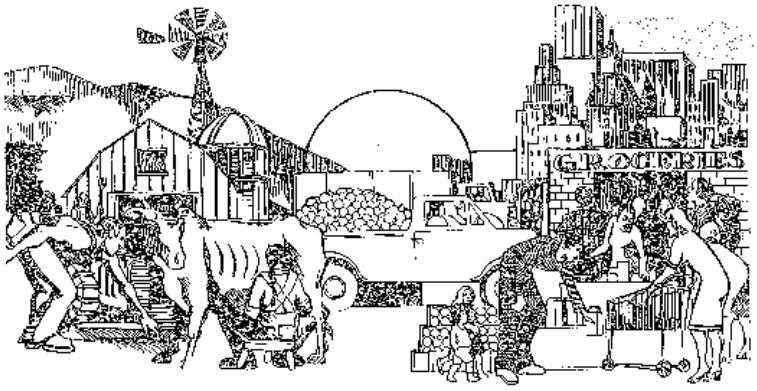
In order to support other co-ops across the country, regions have organized and started distribution warehouses, newspapers, and transporting services. The New Destiny Federation serves Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas, and is very supportive of equal rights for women and organic and small farmers. Their publication, The Swallow, 300 N. Waverly, Springfield, MO, always includes articles about issues plus nutrition-education, warehouse concerns, and recipes. The Federation of Ohio River Co-ops (FORC) operates a warehouse which is in Columbus, Ohio, and their motto is "Food For People, Not For Profit." Their publication, The Lovin' FORCful, 320 Outerbelt Street, Suite D, Columbus, OH, contains articles such as "Erosion of Consumer Control," and "Agribusiness in the Philippines" along with co-op meeting news, home birth letters, and anti-nuclear thoughts. Tilth, Rt. 2, Box 190-A, Arlington, WA, is another association that is a non-profit group trying to promote a "biologically and socially-sound agriculture for the Pacific Northwest." While not a co-op in itself, Tilth supports them in its articles. These are just three of the organizations across the country that either support or directly organize individual co-ops. There are co-op federations in many regions.

National Consumer Cooperative Bank

On March 21, 1980, the National Consumer Cooperative Bank (NCCB) opened. To the co-ops this meant that there was a federal institution now available to provide loans and technical assistance for those just starting to organize.

The Bank Fund offers loans at varying interest rates, but they attempt to provide the best possible interest rates normally charged by banks to their best customers. Those who borrow are immediately shareholders in the NCCB, and 1% of each approved loan goes towards buying voting stock. After the first stock purchase, fifteen percent of the Bank Fund will be loaned to producer co-ops. Thus, co-ops gain ownership of the Bank.

According to "Taproot," a newsletter published by the Cooperative Extensive Service of the University of Missouri, by June 30 the National Consumer Cooperative Bank had received 102 applications for loans. Twenty-one of these were approved, totaling $11,500,000, ranging from $10,000 to $2 million each. The Bank is authorized to commit up to $50 million in loans through September 30, 1980.



The Self-Help Fund is for co-ops that are just starting, have no credit, and not enough equity to qualify for a loan from the Bank Fund. The capital advance is repayable at a lower interest rate, but it will not provide ownership or stock in the Bank.

The technical assistance offered by NCCB includes organization, training, marketing services, management, accounting, and other aspects pertinent to co-ops. These funds are available with or without a loan application, and the staff is ready to help directly or through contractual services.

The Future of Cooperatives

The cooperative movement today is growing all over the country; buying clubs are springing up in small towns, warehouses are being forced to look at central drop points rather than at individual towns, and stores in large cities are facing the issue of whether to split into two store fronts or to find larger buildings. As shown throughout history, the co-op movement has grown most rapidly during times of economic hardship. Recession and unemployment in the '80's may cause increased participation in food co-ops. Ironically, however, many co-ops are in trouble because they do not have a large enough nucleus of members devoted to a whole, natural foods diet and/or the ideologies of food cooperatives. In many homes both women and men work full-time jobs. The entire family is much more mobile than ever before. Children and adults have individual activities in the evenings and at least one car to transport them wherever they want to go. This type of lifestyle is not one that easily can accomodate co-op responsibilities, and today the co-op becomes "just one more thing to get done," rather than a way of living. Middle class members have used the co-op as a specialty store where they could buy luxuries such as almonds, carob chips and organic juices, but as the cost of living increased, they are forced to stop buying even these items. Co-ops in the past have represented a social outlet where people meet their friends to package and buy their food, as well as a place where they know they are needed and that their time spent is important. I think that people in the previous movements had a much closer identification with the causes that were the basis for their co-op. Today, when time seems to be the element that is the scarcest, not money, decisions sometimes are made between speed and personal ideals.

I do not want to give the impression that the old co-ops were without any problems, however. They also suffered poor management, no capital, unstable membership, and loss of spirit. It will be interesting to see what path the cooperative movement takes in the next few decades. In order for it to flourish, people may have to slow down, or the co-ops themselves may have to look for a totally different way of serving the needs of people.

Prairieland
food cooperative, inc.

707 Bishop
Salina, Kansas

The store is open on Tuesday from 2-6 P.M.
Thursday from 6-8 P.M.
Saturday from 10-2

American Politics and the Populist Movement

Jim Peterson

In 1873 a group of farmers convened in Lampasas county, Texas and formed an organization which they called the Knights of Reliance. Later this became the Farmers' Alliance and finally the Populist Party. In 1892 the populists ran a National candidate for the Presidency and received over 10% of the popular vote. In Kansas they won the governorship and one house of the legislature. There was to be a Populist Chief Justice of the Kansas State Supreme Court and one more Populist Governor before the party ran aground in the politics of silver, prohibition, and fusionist controversy.

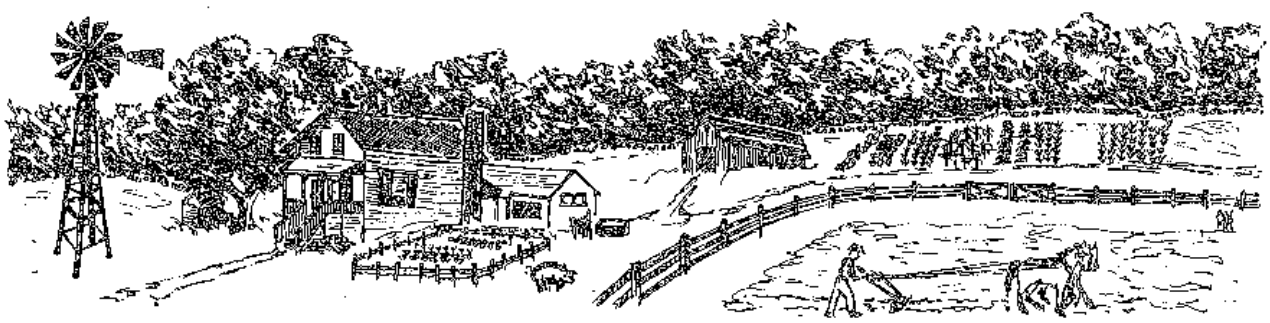
The farmers who formed the backbone of these organizations were reacting to conditions similar to those which exist now. The farm situation of the 1870's, '80's and '90's was characterized by high interest rates, tight credit, monopoly over the distribution and sale of agricultural products, a sharp increase in tenant farming (the indication of many foreclosures, thence concentration of land into a few hands), and overproduction, which meant low commodity prices. The farm problem has not changed much in the last one hundred years.

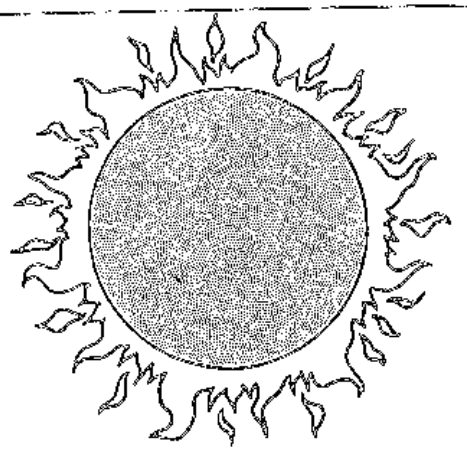
The Farmers' Alliance and later the Peoples' Party believed that the farmers' problems could be solved by legislative action, a reform of monetary policy, and the destruction of monopolies. In a series of demands that culminated in 1892 in the Omaha platform of the Peoples' Party, a plan for action was outlined which included a graduated income tax, popular election of Senators, laws which would limit the sale of land for speculative purposes, elimination of the futures market, nationalization of the railroads, postal savings banks, subtreasuries that would lend money at low interest rates, and the demand that the telegraph and telephone "should be owned and operated by the government in the interests of the people." These proposals were not well received by most of the newspapers and political poobahs throughout the nation. The Populists were denounced as calamity howlers, anarchists and communists. The Salina Republican of Salina, Kansas, labeled the Populist governor "a disgrace to AngloSaxon civilization" and a "cowardly, repulsive demagogue." But their clearly-stated program for reform foreshadowed some of the New Deal programs of later years. What would have happened had their program been enacted in 1892 instead of waiting for the Great Depression to force the change?

The bottom line for the Populists was the elimination of monopoly. Most Populist theorists believed that the great trusts, such as Standard Oil, Anaconda, the Union Pacific, and the Morgan banking interests had a stranglehold on the economy of the country. They were convinced that by transferring this power to the people through their governmental institutions, a livelihood for all would be secured.

This antimonopolism had respectable precedents in Elizabethan Common Law. The social critic Matthew Josephson, pointed out that the common law, since the time of Elizabeth, had condemned monopoly or conspiracy in trade, such as " tended to the impoverishment of divers artificers and others who before by the labor of their hands in their art or trade have maintained themselves and their families, who will now of necessity be constrained to live in idleness and beggary." Josephson went on to point out that this Tudorian social responsibility was completely ignored by the robber baron industrialists of the late nineteenth century.

The farmers' revolution of the late nineties eventually fizzled out. It was brought down by the old problems of the political inertia of the two party system. People were born Democrat or Republican. These political traditions were tied in with social and cultural constraints that had functioned for years and were the lifeblood of the party system. The two parties were still waging the civil war and the Populists had moved on to new issues. In the South it was white supremacy which triumphed over the less rascist, anti-monopolist farmers. In Kansas, they were defeated by their disregard for the political





SUMMER 1980

So hot
there is no dew in the morning.
Plants lie stranded
still sucking at the dry dirt.

So hot
the whole sky is one sun
that stays up
and burns
and stays up.

At a hundred and ten degrees
only grasshoppers will mate.
The wind blows heat into your pores
like a sandbur.
If you raise your head quickly
the earth sways and slides,
delirious in fever.

Night bathes us
in a warm mucous.
Sleep is slippery,
comes and goes,
flickers through fan blades,
feels like a drubbing;
we wake, aching.

It has been like this
for as long as I can remember:
Day over day
dust over dust over dust
small relief in the night
then day again.

So I escape to the department stores.
As the doors close
the cool slides through me like death.
Outside, the furnace is waiting
to cremate my remains.

by *Laura Jackson*

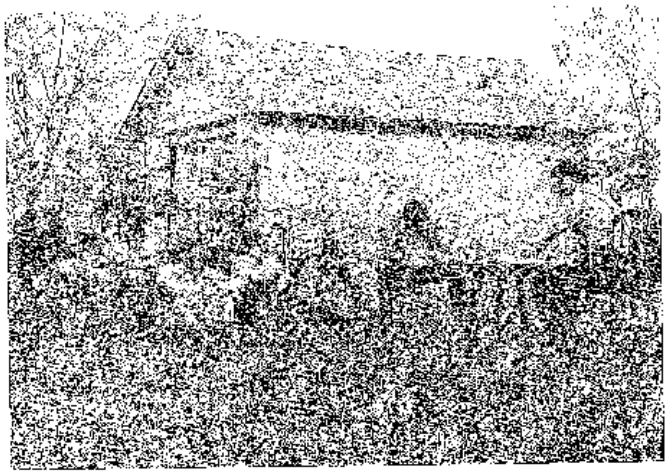
(continued from pg. 9)
significance of the prohibition advocates. The Populists also took a pro-suffragist position that was highly unpopular at the time.

In the years since, there have emerged other political movements which commentators have called Populist. Huey Long, Jimmy Carter, Harry Truman, and Ronald Reagan have all been touted as populist spokesmen. They are definitely not large "P" Populists. The Populist Movement was a distinct political party with a coherent philosophy and platform that has not been duplicated successfully since its demise in the 1890's.

The Populist party and its people are long dead. It has been said that it was the last serious challenge to the emerging corporate state. Tom Watson, one of Georgia's leading Populists and a fiery orator, once said of their efforts, "It is not a revolt, it is a revolution." The revolution they initiated is even now unfinished.

EDITOR'S NOTE:

Jim Peterson is a former research associate of The Land Institute. In March he represented The Land at an Iowa State University Conference called, "We Shall Not Be Moved: The Roots of Agrarian Protest." He is currently studying the history of agrarian political movements, and this paper is a summary of a talk he gave about this subject on May 5th. The main references for this summary are Kansas Populism, Leaders and Ideas by Eugene O. Clanton (University of Kansas Press, Lawrence, Kansas), and The Robber Barons, The Great American Capitalists, 1861-1901, (New York: Harcourt, Brace and Co., 1934).



Listening to Jim Peterson's lecture: (l. to r.) Pam Ellinghausen, Jeanne Green, Marty Bender, Terry Evans, Kelly Kindscher and Wes Jackson.

Deserts on the March

by Paul B. Sears
Univ. of Oklahoma Press, Norman, Okla., 1980
263 pages. Indexed. $12.50

REVIEWED BY *Aaron J. Sharp*

Stimulated by the dust storms of southwestern U.S., which were rampant and destructive in the late twenties and early thirties, the author wrote this lucid and literary volume which was first published in 1935. Subsequently he received an award from the Book-of-the-Month Club for the quality of his insight and writing. Now, forty-five years later, he has been able to evaluate his earlier analyses and warnings, and add new ones when they seem justified by intervening events. This has required the rewriting of much of the original text and the addition of an unnumbered "chapter" entitled "interlude" between chapters 15 and 16, plus a new final chapter.

One might be misled by the title and assume that the book deals only with migrating deserts and related phenomena. But as the author ably demonstrates, the same principles which apply to man's misuse of native soils with its subsequent disastrous results are equally valid when applied to his mismanagement of other natural resources.

For those unfamiliar with the previous editions, a list of chapters in the present volume should be of interest: 1. Man, Maker of Wilderness; 2. The Wisdom of the Ages; 3. Hungry Europe; 4. Poor Richard, Poor Lo; 5. The South-land; 6. The Great Pattern; 7. Only God Can Make a Tree; 8. Leaves of Grass; 9. From Longhorn to Combine; 10. Dust; 11. Mud; 12. Wet Deserts; 13. It Must Be the Weather; 14. Rivals; 15. Cold Figures; 16. Where is the Sun; 17. The Way Through. Chapter 18, Unfinished Business, has been added as noted above. These captions give an indication of the breadth of the topics discussed, with enough in the titles left to the imagination to make intriguing invitations to the reader. An index has also been provided.

The historical background is given for the philosophy which permitted the early settlers in America to decimate the native Indians and begin the misuse and waste of natural resources. Most of the early immigrants had little, if any, farming experience; moreover, there were "unlimited resources" (land, forest, wildlife) beyond, when an area became depleted.

Increasing populations and deteriorating resources in eastern U.S. stimulated a migration of "settlers" west into the prairies and plains. Sooner or later they broke the sod in order to temporarily increase their income, and the erosion of soil, particularly in the plains, began. The damage was augmented by subsequent mechanization of agriculture, again to further increase immediate profits. Then came the dry years and the beginning of a modern "desert on the march."

Solitary voices (Franklin, Marsh, Theodore Roosevelt, et al.) of caution were heard before this century, concerning the misuse and waste of natural resources. Only in the last forty years, as Sears emphasizes, have many of our citizens become slowly and dimly aware of the severe problems of rapidly diminishing residues of finite natural resources. The great expenditure and waste of resources during World War II, plus an awareness that our population would not stabilize by 1960, awakened more, but still too few, of our citizens to the seriousness of these problems.

The underlying philosophy of immediate gain or "profits today" regardless of the future has been our undoing. Much of our research, which is so necessary for long-term use, has been limited to seeking ways of rapidly exploiting natural resources. Long-term planning is of relatively recent origin, and often is fought by "developers" and politicians.

The fact that there is some planning today, and that the number of conservation organizations is increasing, as are their memberships, gives some hope for the future, but the pace is too slow. The best hope lies in the rapid dissemination of facts about our natural resources and a philosophy that they should be used in such a way that we do not disinherit future generations. We should be educating our citizens concerning these matters at all levels, from the national politician to the first grader.

This book is so important that it should be in all libraries that are accessible to the public and students of all ages. Actually it would be a valuable addition to any library. Moreover, a paperback edition should be printed for use in classes which promote conservation, environmental understanding, and a philosophy of wise resource-use which guarantees the welfare of future generations.

ABOUT THE REVIEWER:

We are pleased to have a Friend of The Land, Professor Aaron J. Sharp, review the new edition of Deserts on the March. Professor Sharp was a graduate student of the author, Professor Paul B. Sears, at the University of Oklahoma from 1927-29. He received his Ph.D. at Ohio State University in 1938 and taught at the University of Tennessee from 1929 to 1974 when he became Professor Emeritus. He is the author of Great Smoky Mountain Wildflowers, University of Tennessee Press, 3rd edition (with Carlos Clinton Campbell), 1970.

The Kansas Cherry

Kelly Kindscher

The Kansas State Horticultural Society published The Kansas Cherry in 1900. It is another of the series of books published by the state of Kansas (at the turn of the century) to encourage fruit production. (see "The Kansas Apple," The Land Report, Winter 1980). The Kansas Cherry lists cherry varieties, cultural practices, and features articles and testimonials by cherry growers. It also contains short essays by professors at state universities, including Liberty Hyde Bailey (Cornell Univ., Ithaca, N.Y.), and Charles E. Bessey, the University of Nebraska botanist who later helped establish a National Forest in the Sand Hills of Nebraska.

The Cherry, like other fruits grown in Kansas, has lost its former importance in providing fruit for Kansas citizens. In 1900, there were 1,666,456 cherry trees growing in our state. This means that there were 1.13 trees per person. Most of these surrounded farmsteads and homes, as cherries never were produced on a large commercial scale here. Jewell County, one of the northern tier of counties, had the highest cherry tree population with 68,066 trees or 3.5 trees per person. Saline County had 16,177 cherry trees. The county agent estimated that there are now a maximum of 2,200 cherry trees in Saline County, but I believe this figure is probably too high.

Three excerpts from The Kansas Cherry are reprinted below. In the first, the Secretary of the Kansas State Horticultural Society urges readers to plant cherries. In the last two excerpts, S.J. Baldwin describes his orchard and the Baldwin cherry that he developed. Does anyone know what the fate of this cherry has been?

by William H. Barnes, Secretary
Kansas State Horticultural Society

Our people have hardly come up to a full understanding of the value of this fruit. Our markets are never one-quarter supplied and the demand is increasing. Occasionally a horticulturist who for some unaccountable reason put out few or many cherry trees is greatly surprised when they come into bearing to find them a bonanza. Growers near our larger towns are enthusiastic over the nice returns. Several of our growers claim a profit of $250 per acre from their cherries. They are almost a sure crop year by year. Coming early, the first of the tree fruits, the trees have a long growing season in which to recuperate, and prepare material for a crop the following season. While the crop of cherries varies in quantity yet there is almost never a total failure. Heavy spring frosts are most to be feared. The curculio, the aphis and birds affect them some, but still we have cherries, and the young robins and other fledglings annually build up their systems upon such choice delicacies as Richmond, Montmorency, etc. For the aphis we should spray, for curculio jar, for the birds, bells, stuffed cats, hawks, etc., are used; but we should plant more; we can grow so many in our soil and climate that the birds cannot increase in proportion; besides, after cherries are gone, and healthy bird appetites remain, the insects are devoured next. Plant cherries! We have not yet found a sweet cherry that is sure here. Ostheim is good. Governor Wood is uncertain. As the sour cherry tree grows low and wide, we cannot do as the Europeans, plant cherry trees along the roadside; but our lands are cheap, and we might get a fine income from many a waste acre if planted to cherries. They are as early to market as berries, and sell as readily. No fruit is preferable for canning, and cherry pie is the choicest of pies.

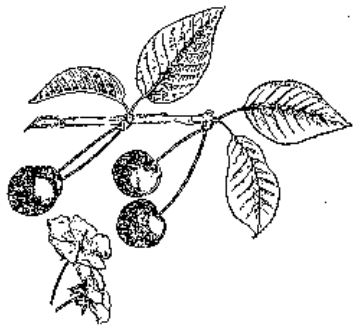
S.J. BALDWIN, SENECA, NEMAHA COUNTY: "I have lived in Nemaha county, Kansas, thirty-three years. I have planted a number of orchards and about twenty or more varieties of cherries. My experience in growing cherries for market began in 1884, when I planted 100 trees - 40 Early Richmond, 40 English Morello, 10 Empress Eugenia, 10 Louis Philippe. . . . In the spring of 1888 I planted 300 more cherry trees in an apple orchard; the apple trees were 32 x 32 feet, and cherry trees in center of square, all on south slope. . . . Since 1892 I have planted in orchard about 600 cherry trees, mostly Early Richmond, English Morello, and Montmorency, and 250

Baldwin cherry, a new seedling which I introduced in 1893 . . . I cultivate my trees thoroughly every year: do not prune after second year. Employ boys and girls to pick the fruit; use step-ladders; pick with stem on, in quart boxes, carried in baskets which, when filled, are placed in crates. I find a ready home market for all. I have had calls to ship, but never had but few to spare; there seems to be a growing demand for the fruit, yet scarcely any commercial cherry orchards being planted.

A KANSAS CHERRY - THE BALDWIN
By its Discoverer

The original was planted in the spring of 1888 in an orchard at Seneca, Kan., for an Early Richmond cherry, which had been budded on a common Morello seedling. The budded part was accidentally broken off and a sprout came from the root which seemed so vigorous that it was left to grow. It proved to be such a rank grower that it soon attracted attention, and when it fruited, which was the fourth year, it showed so much finer, larger and better fruit than any other, that the small boys always sought it out from among several hundred cherry trees of various sorts. The tree is an upright, vigorous grower, forming a round head; leaves large and broad; bloom pure white, changing to pink; fruit large, almost round, very dark, transparent wine color; flavor slightly acid, yet the sweetest and richest of the Morello type; stems rather large, of medium length, and generally in pairs. Unexcelled in earliness, vigor, hardiness, quality and productiveness. Out of 800 trees it readily attracts attention as being the most thrifty and beautiful.

It fruited four years, and each year seemed to be so uniform in size, productiveness and earliness, that I decided to give it a name and propagate from it. It was first named the "Kansas Queen," but on account of it being against the rules of the American Pomological Society to give compound names to new fruits, and upon the suggestion of W.F. Hiekes, of Huntsville, Ala., who became interested in it, it was named "Baldwin." Since then I have gathered fruit from it every year.



Lessons in Organic Gardening

Dana Jackson

The yearly garden story in the Land Report always reads like a summary of central Kansas weather from the middle of March through the middle of October. This account of the 1980 organic garden at The Land is no exception!

The past summer wasn't only dry, it was exceedingly hot. Texas got most of the publicity about the number of days in succession when the temperature reached over 100 degrees F. But that stagnant hot air mass was stalled over Kansas too, and after seventeen days of 105, 108, 110 and 112 degrees in a row, I quit counting. Although we watered the garden thoroughly, the intense heat scorched and dried the sugar snap peas, caused blossoms to dry up and fall off the beans, tomatoes and green peppers, and generally weakened other vegetables, making them more susceptible to insect pests and disease.

The entire garden wasn't a summer garden though. Up through the third week of June, we enjoyed a large variety of vegetables. Everyone at The Land picked all the early spring greens they could eat, plus onions, radishes and rhubarb. Early in June we feasted on strawberries, snow peas, broccoli, beets, onions, kohlrabi and spinach; and when friends visited us on June 20-23, we were also able to serve swiss chard, cabbage, potatoes, raspberries, and zucchini. We lost the turnips to aphids, but the lady bugs had a population explosion in time to save the kohlrabi.

Kelly Kindscher and Michael Chapman helped plant the early spring vegetables in raised beds. They weren't really double-dug French intensive beds, because we did not have finished compost to build them right. Last fall Wes had dumped truck loads of cow manure in certain areas of the garden, and we knew theose areas would have rich soil. In those spots we raked the topsoil into beds four feet wide and eight inches deep. Since we weren't wasting topsoil on the paths, there was more for the beds. In this loose, fertile soil we planted the lettuce, chard, spinach, radishes, onions and carrots, and they thrived.

Moles love the loose, organic soil in raised beds, because it contains their favorite food, earthworms and insects. Though they don't eat roots, their burrowing disturbs roots and causes plants to wilt. Mole control seems to be limited to spade execution (when you see a mole moving, lift him out of the soil and club him with the spade) and trapping. We wanted to try trapping, but couldn't buy any mole traps in Salina. Now our fall spinach and lettuce, planted near last spring's mole-infested bed, has burrows in it. Summer heat ended the lettuce, but not the moles.

The heat intensified late in June, and during the first two weeks of July, the voracious hordes of grasshoppers absolutely denuded the rhubarb, potatoes and broccoli. On July 12 we harvested what remained of the sweet corn and were pleasantly surprised to put about thirteen pounds of cut corn (and a few ounces of finger skin) into the deep freeze. This is about half of what we usually store for the winter, however.

Mari Peterson cared for the garden during the week of July 14 while the Jacksons were at Ghost Ranch in New Mexico. The 100 degree plus days continued unmercifully, and Mari saw the cucurbits weaken and succomb to beetles and squash bugs in spite of her watering them.

Finally, on July 21, there was a break in the hot weather, and although we did have more very hot days over 100 degrees, we were mostly back to the normal mid 90's for the rest of the summer which our garden plants can survive.

A few good rains, Meadowlarks, Blackbirds, and our chickens caused a decrease in the grasshopper population by the end of August. We had penned the chickens in because they eat the vegetables and scratch mulch away from the plants. Scott Jackson quickly put up a fence around the tomatoes, peppers, eggplant and okra before we turned the chickens loose. Although there were wide holes which they could get through and into the garden, the chickens were so happy chasing grasshoppers that they weren't even interested. About the twelth of September they discovered the green peppers inside the fence and harvested them. When they started on the eggplant, we penned them up again.

Eggplant is a staple food at The Land from August through frost. Anyone who shares a meal at The Land during that time will probably taste eggplant cooked with tomatoes, onions, green peppers and cheese. It is surprising how many people really like that dish and ask for the recipe, so we are printing it in this issue of the Land Report.

WHAT DID WE LEARN ABOUT ORGANIC GARDENING IN 1980?

1. It is not a good idea to run around to conferences the last two weeks of March and the first week of April. Good weather windows in the middle of March should be used for gardening as heavy rains or snows the last of March can delay planting sometimes until the middle of April.

2. In lieu of real double dug French intensive beds, our substitute method of raking fertile soil into raised beds worked well.

3. Layered newspaper mulch under straw will not keep bindweed down. Bindweed carefully follows part of the first law of thermodynamics (it cannot be destroyed), but it is immune to the second. Entropy does not occur with bindweed, but it causes increased entropy in the brains of gardeners as it grows and grows and grows.

4. The chickens should roam the garden more to eat insects, especially grasshoppers, but fences are needed around particular vegetables as the grasshopper population diminishes and the chickens become vegetarians.

5. The Burpee Early Girl tomato is still the most dependable, prolific variety we have tried. But the Roma tomato, as advertised, has fewer seeds and less juice and is very good for tomato sauce.

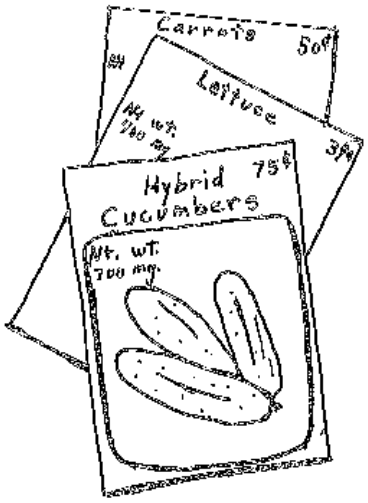
6. We really should plant a smaller garden!

EGGPLANT AT THE LAND

Slice unpeeled eggplant in 3/8 inch slices. Dip in salted beaten egg, then in whole wheat flour, and brown well on one side in oiled skillet. Turn slices. On each place 1 slice Velveeta** cheese, thin slices of tomato, and chopped onion and green pepper. While second side browns, put lid on skillet to slightly steam cook the tomatoes, onions and peppers and melt the cheese. Then serve.

To serve large groups, place eggplant slices which have been browned on both sides, in single layers on cookie sheets. Add topping and heat in oven for 10-15 minutes at 350 degrees.

**Yes, Velveeta cheese, processed and "unnatural." We have tried Monterey Jack, cheddar and mozarella, but the salty, sweet, creamy sauce from Velveeta is preferred by everyone. We are open to suggestions for variations in the recipe.



Seeds of Strife

Michael Chapman

The roots of agriculture extend deep into our past. As people began to settle and grow food instead of stalk it, the long process of genetic manipulation in crop selection commenced.

We have, in effect, become captive to the plants we first captivated. Much of the food we grow would very likely cease to exist without our agricultural "coaxing," and we without its harvest.

We have come, in modern agriculture, to think of our food as a commodity, something with direct economic value - not much different than cars or televisions. It is not surprising, then, to discover that plant varieties can be patented just as can the machines that process and the freezers that store them.

Plant patenting legislation has been with us since 1930. The Plant Patent Act first granted developers of varieties that could be reproduced both sexually and asexually the right to patent these varieties.

In 1970, The Plant Variety Protection Act extended this protection, through the issuance of certificates (similar to a patent) to developers of novel seed varieties. Covered by this legislation were all but six vegetables: tomatoes, celery, carrots, okra, peppers and cucumbers. These were excluded due to lobbying efforts of the major soup companies who feared an increased cost for patented varieties.[1]

On July 19, 1979, hearings began in the House Agriculture Subcommittee on Department Investigations, Oversight and Research on proposed amendments to the 1970 Plant Variety Protection Act. These amendments (HR 999 and S 23) would allow patenting of the six excluded varieties. They would also extend patenting coverage from 17 to 18 years and align our laws with those in Europe. This would permit the U.S. to join the International Union for the Protection of New Varieties of Plants (UPOV), the international organization that promotes and coordinates plant patenting laws.[2]

In testimony before the Subcommittee, Cary Fowler of the National Sharecroppers Fund contended:

> Patenting legislation is easier to pass than enforce. It is almost impossible to prove in court that "your tomato is identical to my patented variety." Unlike new mousetraps, plants do not naturally lend themselves to patenting. No two are ever alike. Who should know this better than UPOV, which openly admitted in one of its official publications that "in reality one single plant is not exactly like any other." Moreover, according to UPOV, there is "no commonly accepted precise definition" of the term "plant variety." Little wonder that enforcement of patents on new plant varieties has become a legal nightmare in the European nations that first instituted the laws.[3]

The European laws, first passed in the 1960's, led to a system of legal and illegal varieties called the Common Catalog. It is illegal to sell seeds of varieties not listed in the catalog. Laws are even more restricting for unlisted varieties grown near commercial plots, if they can cross-pollinate.

In an effort to reduce the confusion of ownership challenges, genetic islands are being created around the patented varieties as hundreds of other varieties are outlawed. Furthermore, according to Fowler, varieties that are inherently too variable to effectively patent are dropped from the list or never allowed on even though this variability may be ecologically desirable.[4]

In August 1978, 126 varieties were removed. Two months earlier, 32 varieties of broad beans alone were deleted. The survival of these varieties becomes dependent on individual commitment to grow and save the seeds each year.[5]

It is estimated by Dr. Erna Bennett of the Crop Ecology and Genetic Resources Unit of the United Nations Food and Agriculture Organization in Rome that three-quarters of all the vegetable varieties now grown in Europe will be extinct by 1991 due to the attempt to enforce patenting laws.[6]

According to Secretary of Agriculture Bergland: "The prediction that by 1991 three-fourths of all vegetable varieties grown now will be extinct may prove to be correct. Obsolete varieties are being replaced by improved varieties adapted to extended areas of agriculture."[7]

Can we assume plant protection laws will follow the same course in the U.S.? Rob Johnston of Johnny's Selected Seeds in Albion, Maine, doesn't think so. While concerned about methods of enforcement, he says individuals growing the patented varieties and saving seed for personal use have nothing to fear. There is no common catalog system here, so he is not concerned about genetic erosion. Johnston sees the patenting laws as encouragement for novel seed plant development and says it's about time something in agriculture can be more profitable.[8]

Fowler counters that the European situation should be looked at very closely. Considering that our laws would be standardized to theirs and that Europe's laws are older than ours, how can we be sure we're not headed down the path to illegal vegetables, decreasing genetic diversity in our agriculture and extinct varieties?[9]

The express purpose of the Plant Variety Protection Act of 1970 is:

> To encourage the development of novel varieties of sexually reproduced plants and to make them available to the public, providing protection available to those who breed, develop, or discover them and thereby promoting progress in agriculture in the public interest. [10]

According to Gary Nabhan, an agricultural botanist, the number of new varieties peaked in 1968. The decrease in new varieties since 1970, he says, is due to the consolidation of small seed companies as they are bought out by multinational corporations that are not interested in diversity. The result of the 1970 Act has been the end of a free exchange of data and crop materials between public and private breeding programs. Nabhan points out that no private agribusiness breeders have published descriptions of breeding schemes or techniques for the their new varieties in Hortscience's 'Cultivar and Germplasm Releases' section, since 1972 though it was once a common practice.[11]

What about the seed companies? With patenting laws, they do become attractive investments. In fact, one corporation bought 84 seed companies within the first week after patent laws were passed in England. It now owns more than a hundred.[12] Cary Fowler continues in his testimony:

> And we are quite concerned over the implications of seed company takeovers by the petrochemical industry -- the manufacturers of pesticides and fertilizers. Dr. Richard Lewontin of Harvard University, states "there is legitimate reason to suspect that chemical companies will link chemical research to plant varieties they are developing." According to the U.N.'s Food and Agriculture Organization, the marketing of seeds and agricultural chemicals are often handled through the same channels. And the seed industry is probably "the best catalyst" for expanding these markets in developing countries. To the enterprising chemical company, the development and marketing of seeds and agricultural chemicals could have intriguing possibilities. [13]

It is important to understand that with the acquisition of seed companies, the vertical integration of multinational chemical corporations is complete. These are the companies that can afford the expensive breeding programs and thereby acquire patents to many of the new varieties, not to mention buying patent rights from other breeders as they've bought out small seed companies. This tendency towards centralization serves to concentrate more power in fewer hands.

In a statement prepared by Timothy Weiskel of Harvard University, for further Subcommittee hearings on April 22, 1980, he warns:

NEW OWNER	SEED COMPANY
Anderson Clayton	Paymaster Farms Tomco-Genetic Giant
Cargill	Dorman Seeds Krocker Seeds PAG
Celanese	Cepril Inc. Joseph Harris Moran Seeds
Central Soya	O's Gold Seed Co.
Ciba-Geigy	Funk Seeds Int'l. Louisiana Seed Co. Steward Seeds
FMC Corp.	Seed Research Assoc.
Garden Products	Gurney Seeds
Hilleshoeg/Cardo	Int'l. Forest Seeds Co.
Int'l. Multifoods	Baird Inc. Lynk Bros.
I.T.T.	Burpee O.M. Scott & Sons
Kent Food Co.	L. Teweles Seed Co.
Kleinwanzieberer Swatzucht AG	Coker's Pedigreed Seed Co.
NAPB (Olin & Royal Dutch Shell)	Agripro, Inc. Tekseed Hybrid
Occidental Petroleum	Ring Around Products
Pioneer Hi-bred	Lankhart Lockett Arnold Thomas Seed Co.
Pfizer	Clemens Seed Farms Jordan Wholesale Co. Trojan Seed Co. Warwick Seeds
Purex	Advanced Seeds Hulting Hybrids
Rorer-Amchem	Jacques Seed Co.
Sandoz	National-NK Northrup-King Rogers Brothers
Southwide, Inc.	Delta & Pine Land Greenfield Seed
Tate & Lyle	Berger & Plate
Tejon Ranch Co.	Waterman-Loomis Co.
Union Carbide	Ferry-Morse Keystone Seed Co.
Upjohn	Asgrow Seeds Associated Seeds

> Clearly, the legislation does not explicitly call for the extinction of crops; but equally clearly, it establishes conditions that make world-wide crop genetic erosion profitable for private companies. It is in the vested interest of such companies to control a larger and larger share of the market. This can and will be done both by edging out smaller seed companies and by massively displacing a wide variety of genetically varied seed materials currently grown throughout the words. If the Agricultural Subcommittee were to pass this legislation it would be acting to place the increasingly scarce plant genetic resources into the exclusive hands of private firms, and this in turn would create conditions where world-wide crop genetic collapse would become extremely profitable. It is unrealistic to expect that companies will voluntarily and collectively refrain from exploiting such profitable possibilities. [14]

In the 1920's the Russian geneticist and plant breeder, N.I. Vavilov discovered nine major and three minor areas on the planet that are centers of origin for all of our basic food plants. In these centers, primitive land races of wide genetic variation are still grown (wheat in Turkey, for example). Breeders still turn to these areas when looking for particular traits such as resistance or durability. They are, in essence, living gene banks.[15]

These traditional crop centers are being threatened as new varieties are introduced in all areas of the world - a few new genetically uniform varieties displacing thousands of local varieties.[16]

In the words of Garrison Wilkes, a biologist at the University of Massachusetts:

> The reason for alarm and concern about the loss of native strains is the irreplaceable nature of the genetic wealth. The only place genes can be stored is in living systems, either living branches such as the budwood of apple trees, or the living embryo in a kernel of corn or wheat. The native varieties can become extinct once they are dropped in favor of introduced seed. The extinction can take place in a single year if the seeds are cooked and eaten instead of saved as seed stock. Quite literally, the genetic heritage of a millenium in a particular valley can disappear in a single bowl of porridge. [17]

It is obvious there is no single issue here. We go from breeders' and consumers' rights to vertical integration of multinational corporations, to the wider issue of genetic erosion.

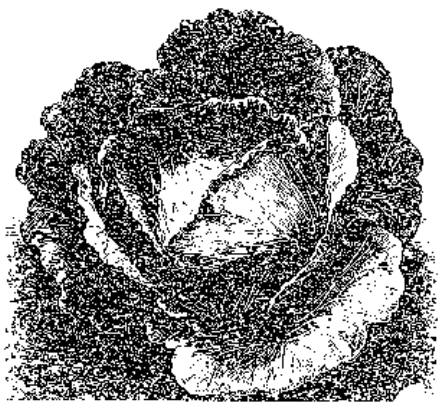
This is not Europe. We will probably never have the horrendous system that now burdens Europe. The law does not limit the sale of the old varieties. But how will such a law be equitably enforced? And should our crop genetic resources be increasingly entrusted to research and marketing programs of large multinationals?

Each issue highlights new problems and generates new questions. Should cultivars that are only slightly altered from traditional varieties be protected? Does the Plant Variety Protection Act itself encourage further loss of genetic variation or actually stimulate an increase?

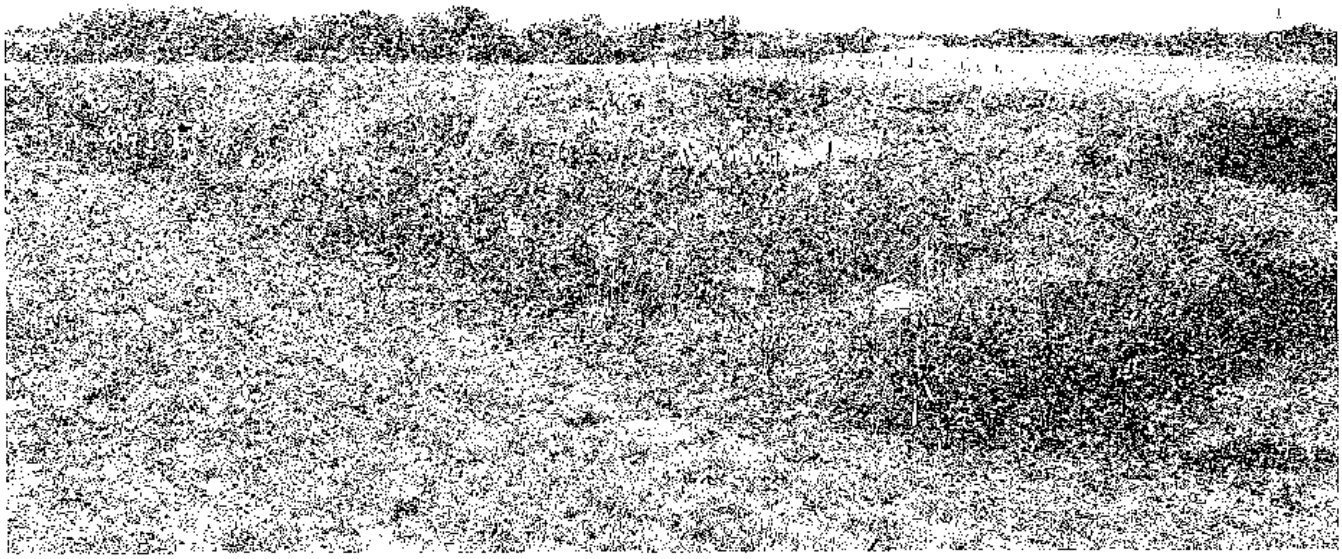
At the very least, each of these questions deserves careful consideration as we ponder the implications of plant patenting and the impact of genetic loss.

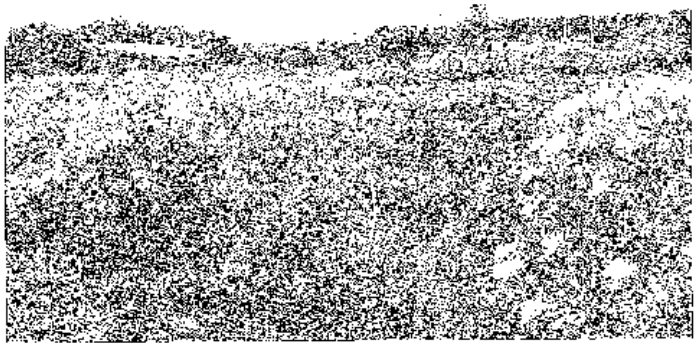
REFERENCES AND NOTES

1. Cary Fowler, Testimony on HR 999, July 19, 1979. p. 4.
2. Fowler, p. 4.
3. Fowler, p. 4.
4. Fowler, p. 5.
5. Fowler, p. 5.
6. Fowler, p. 6.
7. Kent Whealy, "The Controversy Over Plant Patenting Legislation," The 1980 Seed Savers' Exchange. p. 53.
   This is an important organization doing its best to preserve heirloom vegetable varieties. Seed Savers Exchange, Kent Whealy, Rural Route 2, Princeton, Missouri 64673.
   - The U.S.D.A. is for passage of the amendments.
8. Personal communication.
9. Fowler, p. 7.
10. Plant Variety Protection Act, 1970. (84 Stat. 1542) (7U.S.C. 2321 Et. Seq.) This and HR 999 are available from your local congressman.
11. Whealy, p. 51. This is from Testimony Gary Nabhan presented on HR 999.
12. Cary Fowler, "Reaping What We Sow," in The Graham Center Seed Directory. (1979), p. 14.
13. Fowler, Testimony, p. 9.
14. Timothy C. Weiskel, Statement on HR 999 for Subcommittee hearings on April 22, 1980. p. 7.
15. Garrison Wilkes, "The World's Crop Plant Germplasm - An Endangered Resource," Bulletin of the Atomic Scientists. (February, 1977), p.9.
16. Wilkes, p. 10.
17. Wilkes, p. 16.
18. Fowler Testimony, p. 13. This is from a study done by Hope Shand of the Graham Center in North Carolina. She and Cary Fowler have been working on this issue for a long time. Further inquiry can be made to Cary Fowler at the Graham Center, Rt. 3 Box 95, Wadesboro, N.C. 28170. Send a SASE.
19. Fowler, Testimony, p. 8.



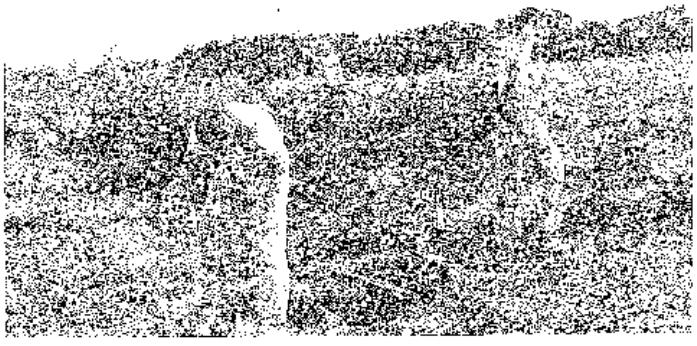
The Herbary Blossoms





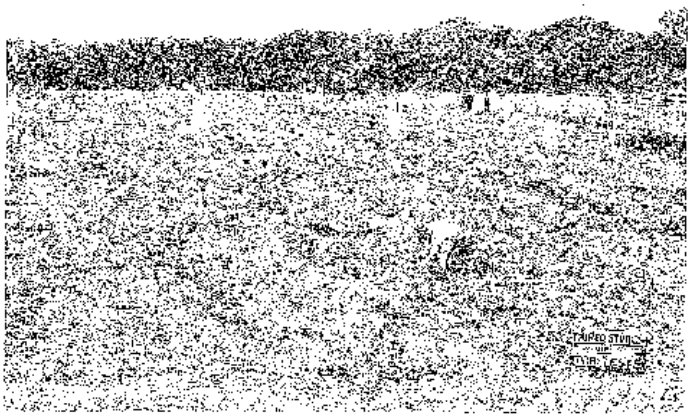
Especially showy in the Herbary this fall were Liatrus aspera (Rough Gayfeather), Helianthus grosseservatus (Sawtooth Sunflower), Salvia pitcheri, Mentzelia nuda (see photo on left), and Eragrostis curvula (Weeping Lovegrass). Species established in 1979 grew much larger and more vigorous this season and required less maintenance. In the north section of the prairie garden, planted this past spring, 100 species germinated and took root. Marty Bender, the Director of the Herbary, and summer employees, Laura Jackson and Jim Campbell, labored during the intense summer heat, weeding and watering the new rows. New students, Annie Ronsse and Melisa Myers (photo, lower right), helped rid the area of sandburs in September.

Each of the established, five-meter-long rows is marked with a sign containing the scientific name and common names of the species and a map showing its range.



Research Plots Survive Hot Summer

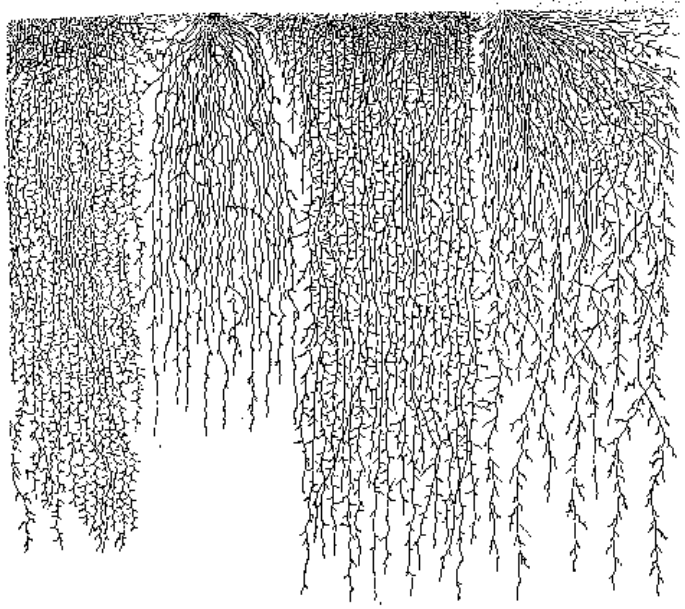
"Small is beautiful," Wes Jackson and Marty Bender concluded when irrigation water was finally soaking the parched ground in the Herbary and the research plots at the end of July. The saga of the irrigation system began when Wes purchased a used pump and a five horsepower electric motor to run it. Priming such a pump from twenty feet above the water is time-consuming and inefficient, so Wes built a special ramp to lower the motor and pump next to the edge of the Smoky Hill River. When he flipped the switch, the breaker snapped. Assuming the pump was too large for the motor, he installed a ten horse motor, flipped the switch and snapped the breaker again. An electrician checked the wiring all the way to the transformer and discovered low voltage. By this time Wes was reassessing the need for a system which delivered 250-300 gallons of water per minute. He then returned the large motor to the company he bought it from and purchased a 1.5 horsepower motor and submersible pump. This lays in the river and reliably pumps 23.5 gallons a minute, enough to run three Rainbirds at a time in sixty feet diameters.



Last spring Marty Bender, with the help of other students, planted 160 experimental plots, each 24 by 4 feet, south of the Indian House. He and Laura Jackson hand weeded the entire area at least five times over the season. They used the roto-tiller on the paths between plots.

In the lower right photo Laura Jackson and Marty Bender are recording observations about specific Eastern Gamagrass plants before making decisions about crosses. Strong winds blowing off the sacks and grasshoppers eating their way through made successful plant breeding very difficult this summer.

One of the most interesting results of establishing such a diversity of plants in the Herbary and research area is the accompanying diversity of insects we now have.



Living Nets in a New Prairie Sea

Wes Jackson

The difference between a wheat field and the prairie is clear to scientist and artist alike. For the scientist, the first considerations are biological and involve the most rock-bottom basics of ecology. The artist picks up the reflections of these differences in ensemble, emphasizing the aesthetic level. But is isn't just the scientist or the artist, or for that matter the conservationist, who has exclusive rights for judgment, for anyone who goes beyond the superficial to sense the profoundness inherent in these differences between farm fields and the ancient grassland knows two things. The first is that the prairie builds and protects soil, while agriculture erodes and wears it out. The second is that the future of the human experiment depends not only on our collective understanding of these basics, but on our caring enough to make the necessary choices to develop a truly sustainable agriculture.

What are these differences from an ecological point of view? Most obvious, perhaps, is the fact that the prairie emphasizes a mixture of plants or, as the ecologist would say, polyculture. The human, over most of the landscape, struggles to maintain monocultures. The next most obvious fact is that the prairie features perennial plants while agriculture features annuals. For the prairie, at least, the key to this last condition resides in the roots. Though the above-ground parts of the prairie's perennials may die back each year, the roots are immortal. For whether those sun-cured leaves, passed over by the buffalo in the fall migration, go quickly in a lightning-started prairie fire or, as more often the case, burn through the "slow, smokeless fires of decay," the roots hold fast what they have earned from rock and subsoil. Whichever way these top parts burn, with smoke or without, the perennial roots will soon catch and save most of the briefly-free nutrients for a living future. And so an alliance of soil and perennial root, well-adapted to the task of blotting up a drenching rain, reincarnates last year's growth.

Soil still runs to the sea in nature's system, as in the beginning before land plants appeared, but gravity's influence can't compete with the holding power of the living net and the nutrient recharge managed by nosing roots of Dalea, Pasqueflower and Bluestem.

Species diversity breeds dependable chemistry. This above-ground diversity has a multiplier effect on the kinds of seldom-seen teeming diversity below. Bacteria, fungi, and invertebrates live out their lives reproducing by the power of sun-sponsored photons captured in the green molecular traps set above. If we could adjust our eyes to a power beyond that of the electron microscope, our minds would reel in a seemingly surrealistic universe of exchanging ions where water molecules dominate and where colloidal clay plates are held in position by organic thread molecules important in a larger purpose, but regarded as just another meal by innumerable microscopic invertebrates. The action begins when roots decay and above-ground residues break down and the released nutrients begin their downward tumble through soil catacombs to start all over again. And we who stand above in thoughtful examination, all the while smelling and rolling fresh dirt between our fingers and thumbs, distill these myriads of action into one concept - soil health or balance - and leave it at that.

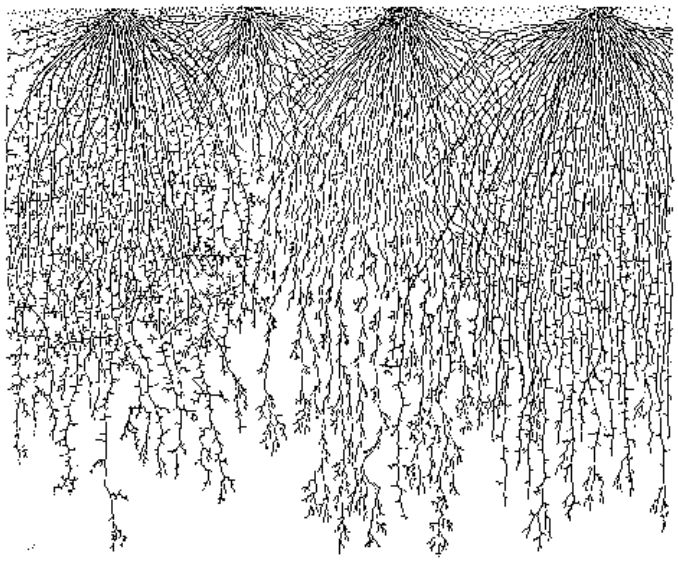
Agriculture coasts on the accumulated principle and interest hard-earned by nature's life forms over those millions of years of adjustment to dryness, fire and grinding ice. Lately agriculture has been coasting on the sunlight trapped by floras long extinct. We pump it, process it, and transport it over the countryside as chemicals, and inject it into our wasting fields as chemotherapy. Then we watch the fields respond with an unsurpassed vigor, and we feel informed on the subject of agronomics. That we can feed billions is less a sign of nature's renewable bounty and our knowledge and more a sign of her forgiveness and our discount of the future. For how opposite could the annual condition in monoculture

be from what nature prefers? Roots and above-ground parts alike die every year, so through much of the calendar the mechanical grip on the soil must rely on death rather than life. Mechanical disturbance, powered by an ancient flora, imposed by a mined metal, may make weed control effective, but the farm far from weather-proof. In the course of it all, soil compacts, crumb structure declines, soil porosity decreases and the loss of a wick effect for pulling moisture down diminishes. Monoculture means a decline in the range of invertebrate and microbial forms. Microbial specialists with narrow enzyme systems make such specific demands that just any old crop won't do. We do manage some diversity through crop rotation, but from the point of view of various microbes, it is probably a poor substitute for the greater diversity which was always there on the prairie. Monoculture means that botanical and hence chemical diversity above ground is also absent, which invites epidemics of pathogens or epidemic grazing by insect populations which can spend most of their respiratory energy reproducing, eating and growing. Insects are better controlled if they are forced to spend a good portion of their energy budget buzzing around hunting, among many species in a polyculture, for the plants they evolved to eat.

Some of the activity found in the pre-turned sod can be found in the human-managed fields, but the plowing sharply reduced many of these soil qualities. Had too much been destroyed, of course, we would not have food today. But then who can say our great grandchildren will have it in 2080? It is hard to quantify exactly what happened when the heart of America was ripped open, but when the shear made its zipper-sound, the wisdom the prairie had accumulated over the millions of years was forgotten in favor of the simplier more human-directed system.

So where does all this leave us? Is there any possible return to a system that is at once self-renewing like the prairie or forest and yet capable of supporting the current and expanding human population? I think there is.

Much scientific knowledge and narrow technical application has contributed to the modern agricultural problem. Nevertheless, because of advances in biology over the last half-century, I think we have the opportunity to develop a truly sustainable agriculture based on the polyculture of perennials. This would be an agriculture in which soil erosion is so small that it is detectable only by the most sophisticated equipment, an agriculture that is chemical-free or nearly so, and certainly an agriculture that is scarcely demanding of fossil fuel. We are fortunate in this country to have a large and sophisticated biological research establishment



and the know-how to develop high-yielding, seed-producing polycultures out of some of our wild species. It <u>is</u> a bio-technical fix proposed here, and of course is not the entire answer to the total agricultural problem, much of which involves not only a different socio-economic and political posture, but a religious dimension as well. Breeding new crops from native plants selected from nature's abundance and simulating the pre-settlement botanical complexity of a region should make it easier for us to solve many agricultural problems.

As civilizations have flourished, many upland landscapes which supported them have died, and desert and mudflat wastelands have developed. But as it happened, civilizations passed on accumulated knowledge, and we can say without exaggeration that these wastelands are the price paid for the accumulated knowledge. In our century this knowledge has grown enormously, and on the balance it seems arrogant to ignore it, for this knowledge has restorative potential. The goal to develop a truly sustainable food supply could start a trend exactly opposite that which we have followed on the globe since we stepped onto the agricultural treadmill some ten milienia ago.

Aldo Leopold lamented that "no living man will see the long-grass prairie, where a sea of prairie flowers lapped at the stirrups of the pioneer." Many share his lament, for what is left are prairie islands, far too small to be counted as a "sea." Essentially all this vast region, a million square miles, was turned under to make our corn belt and bread basket. But now the grandchildren of pioneers have the opportunity to establish a new sea of perennial prairie flowers, the product of accumulated scientific knowledge, their own cleverness, and the wisdom of the prairie.

"Man is Just a Little Bigger Pest"

Dana Jackson

If everyone who intended to use a chemical pesticide first read the label carefully and then tried to observe all the warnings and limitations given in the directions, no one would spray. Terry Shafer, Rt. 3, Lawrence, Kansas believes this. But she also knows from personal experience that there are aerial spray applicators in Kansas who do not follow all the directions. On June 11, 1979, Terry and her family and friends, their garden and bees, were sprayed with an organophosphate insecticide called "Supracide" by an airplane applying spray along the edge of an alfalfa field just 79 feet west of their house. The entire force field of their beehive was killed, significent residues of Supracide were measured in their garden, and the adults present experienced headaches, burning eyes and lips and sore throats.

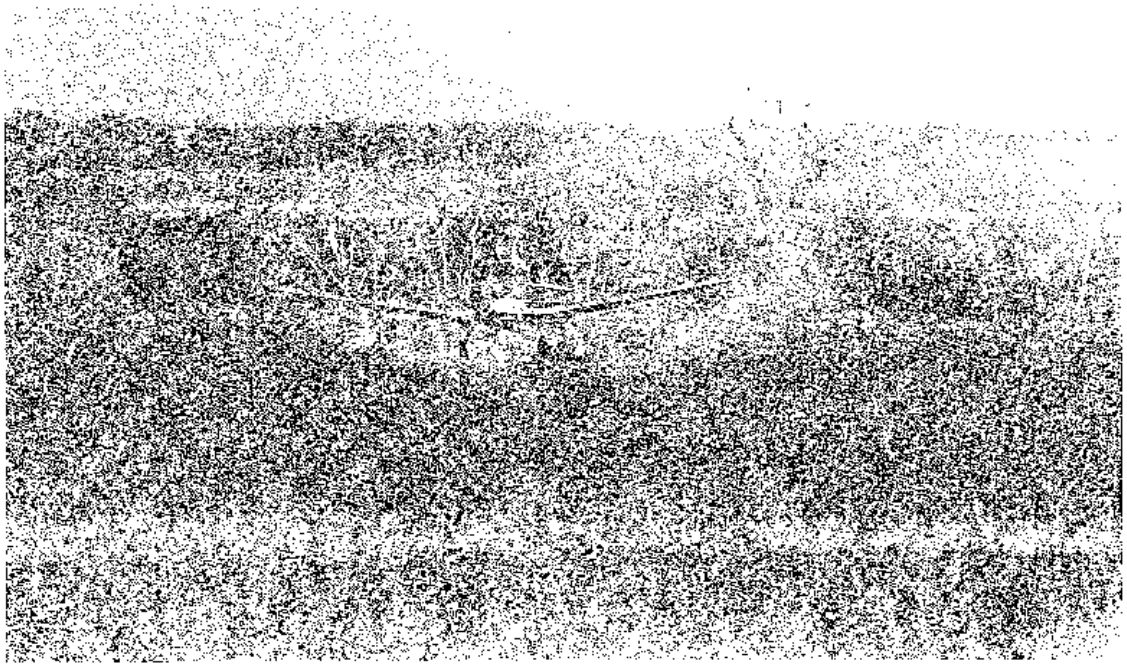
On November 29, in Oslakoosa, Kansas, Merrill Johnson of Johnson Air Ag. was found guilty of criminal negligence and assessed a $300 fine plus court costs for spraying the property of Glenn and Terry Shafer. The Jefferson County Attorney brought the charges upon recommendation of the State Board of Agriculture's investigators. The Shafers settled out of court in the civil case, receiving damages from the owner of the company and an agreement to keep 250 feet away from their land and give them prior warning within two miles of their place.

This was a landmark case. It was the first time the Weed and Pesticide Division of the Kansas State Board of Agriculture has recommended prosecution of a sprayer under the Kansas Pesticide Law, which makes it illegal to "operate any equipment in a negligent manner," and to "use any method or material without regard to public health, safety, or welfare." This case has encouraged the Board of Agriculture to enforce the law more stringently in the future.

Since this happened, Terry Shafer has become somewhat of an expert on the Kansas Pesticide Law and its regulations and the problems associated with enforcing them. She has worked with the Kansas Organic Producers' task force on spray drift, has sent questionaires to persons who filed damage claims from spray drift in 1979, corresponded with spray drift victims, and worked to educate the general public about what to do if their property is adversely affected by herbicide or insecticide drift. Now she is helping to organize a group called "Kansans for Safe Pest Control." This group is not working to eliminate the use of all pesticides, but they hope to help educate the public, encourage and assist the state agencies in their work to enforce the law, and lobby to improve the Kansas Pesticide Law.

MEETING ON SPRAY DRIFT

Terry Shafer and Larry Miller of Caldwell, Kansas, organized a meeting which was held at The Land Institute on July 26, 1980, to discuss problems connected with spray drift. The meeting



Shows a plane spraying a mixture of parathion and endrin near South Haven, Kansas, March 1, 1976.

was attended by organic farmers, bee keepers, gardeners, and people who had already been sprayed adversely. Four state officials involved in enforcing the law addressed the group: J. Howard Duncan, Director of the Bureau of Sanitation of the Department of Health and Environment; Freeman Biery, Director of the Weed and Pesticide Division of the Kansas State Board of Agriculture; Bill Greenwood, Noxious Weed Administrator; and John Flint, Pesticide Use Law Administrator. Salvatore Attanasio, an ecological specialist of the Pesticide Division located in Salina, also was present.

Larry Miller began the meeting by showing slides of aerial spray planes at work with parathion and toxaphene, and he described his experiences in photographing them. He has been threatened by both farmers and sprayers. His pictures reveal negligence and irresponsibility on the part of aerial spray applicators. One of the main problems in trying to report these law breakers is the difficulty in identifying them. New FFA regulations permit numbers on aerial spray planes to be so small that planes cannot be identified by an observer on the ground.

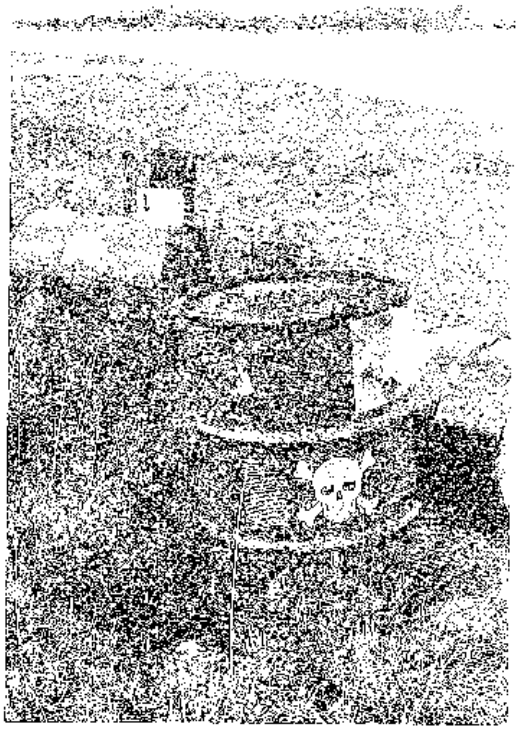
When a violator of the Pesticide Law is identified and reported, the State Weed and Pesticide Division of the State Board can deal with him in four ways, according to Freeman Biery. First they can send a letter of reprimand to his company. If there are several complaints against him (before the Shafer case, they did not keep records of the number of complaints), they will hold an informal hearing with the head of the company and the applicator. Third, there can be a formal hearing before the State Board of Agriculture with the applicator, his company, and their attorneys attending. The last procedure is to take the flagrant violators to court.

What to do after spray drift damage:

The law states that people whose property has been adversely affected by spray drift should file a form within sixty days in the office of the county attorney in the county where they live. That form is sent on to the State Board of Agriculture. It is also important to notify the Weed and Pesticide Division immediately by a phone call so that an investigator can take samples of vegetation to do residue analyses, before the pesticide begins to break down or be further dispersed by wind or rain. The analysis takes three weeks to a month to complete, but the complainant won't have much of a case without it.

Who is at fault?

Freeman Biery emphasized that most of the



pilots, who must pass an exam to be certified, are conscientious and law-abiding. He said that 75% will comply without reminders, 95% will comply with some reminders, and about 5% are recalcitrants.

Mr. Biery expressed the view that the person who hires the aerial spray applicator should in some way be held accountable for the effects of spray drift. In some cases, farmers have hired applicators from out of state to spray areas which certified Kansas applicators refuse to spray, such as fields near rivers or lakes.

Other persons at the meeting complained about farmers who hire an aerial sprayer after finding just a few insects in their field, and those who spray because their neighbors are without first checking to discover whether they really need pesticides or not.

The behavior of the aerial spray applicator and the farmer can be traced to a prevailing attitude taught through the agricultural universities and the county extension agents and influenced by the flood of advertising by the pesticide industry. The farmer calls his extension agent when he finds insects in his field, and using the "slot machine approach to dispensing knowledge," as Dr. Harold Briemyer of the University of Missouri calls it, the extension agent sticks in the name of the insect and pulls out the name of an insecticide which the farmer should use. The farmer believes that this is the necessary solution to "save his fields," and

his neighbors should passively accept risk to them for his larger economic good.

Integrated Pest Management is another approach, but county agents have not been trained in this area. Kansas State University now has one man working on Integrated Pest Management.

One of the farmers at the meeting was outraged by the general indifference to the effects of spray drift on organic farms. He pointed out that an organic wheat farmer can sell his wheat for $9 a bushel. After pesticides have drifted on his field, he cannot be certified as an organic farmer for five years following the drift. This means he not only loses the economic gain from one crop, but from six.

A state representative reminded the farmer that he could notify the Weed and Pesticide Division and be put on a list distributed to sprayers informing them of farmers who did not wish to be sprayed. The Kansas Organic Producers collected names of farmers and gave them to the Division this past spring. This was an unnecessary and offensive procedure to the farmer. "Why should I have to do this? If I don't ask for spray, I shouldn't receive any, and I should not have to notify the applicator to leave me alone," was his reaction.

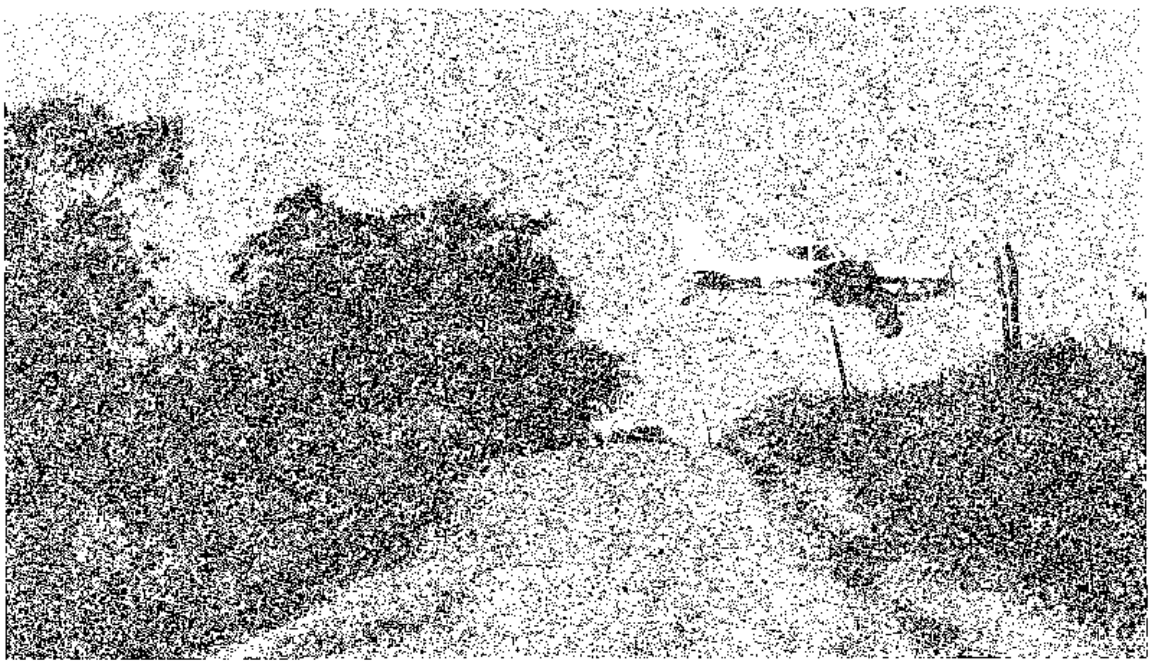
This same man spoke about the decline in wildlife populations, especially birds, since his youth. He described man as "just a little bigger pest," who is certain to be affected adversely by the poisons he spreads on the earth.

The state officials didn't know how to respond to the farmer. They could discuss the problems of enforcing the law and defend their procedures, but they were embarrassed by the larger issue, the ethics of an entire system which promotes widespread use of potentially-harmful chemicals.

There is always the problem of the regulatory agency being more closely aligned to those they regulate than to the public they are supposed to protect. Chemical company literature is abundant in the office of the Weed and Pesticide Division. The employees were likely trained in the agricultural university. As they teach and test the aerial applicators and farmers, they become acquainted with them and relate to their problems. The only way the public can counteract this comfortable association is to be more knowledgeable and more vocal in its insistence that the law be obeyed and enforced effectively.

The Weed and Pesticide Division of the Kansas State Board of Agriculture is very willing to work with the public in understanding and enforcing the Pesticide Law and Regulations. They insist that they need more employees to investigate claims and more money to adequately enforce the law. But they also need a reorientation of values, and it is up to the ecologically-conscious public to influence this change. One person asked about the use of a weevil as a biological control for Russian thistle, and Bill Greenwood replied that this was only an effective tool in areas where they could not spray. Until we can reverse that general approach in the state office, the agricultural university, the county extension office and the farmers' heads, we will continue to have problems with spray drift.

TO KEEP INFORMED- TO WORK WITH KANSANS FOR SAFE PEST CONTROL, CONTACT TERRY SHAFER, RT. 3, LAWRENCE, KANSAS 66044.



A plane spraying toxaphene over a public road near Braman, Oklahoma on May 29, 1979.

RAIN | NEW CRITERIA The Midwest Journal of Appropriate Technology | KANSAS SOLAR ENERGY SOCIETY | TRANET

New Alchemy | Tilth

Prairie/Plains Resource Institute

The Prairie/Plains Resource Institute is a nonprofit membership organization founded in April, 1980, by Bill and Jan Whitney of Aurora, Nebraska. Its goal is to promote an interdisciplinary and sustainable vision of natural and cultural resource development for the grassland region, i.e. the tallgrass prairie to the east and the Great Plains to the west. Four specific areas will receive attention in attaining this goal:

1) Inventory of natural areas, archeological sites and unique cultural resources,
2) Preservation of unique and endangered natural communities such as prairie remnants,
3) Restoration of abused lands, especially prairie restoration,
4) Education concerning man's place in the grassland community, interpretation of the importance of preserving and restoring the natural, productive components of the prairie.

The projects which are currently underway include development of a native seed source for diverse prairie restorations, a statewide natural area inventory and preservation project for Nebraska, development of a practical model for floodplain development, information networking, and educational programs for all ages.

The Land Institute Herbary contains plant materials donated by the Prairie/Plains Resource Institute. They can be seen in two specially-marked triangular areas on the north side.

Membership in the Prairie/Plains Resource Institute is $10 for individuals and $50 for corporations. Members will receive a journal three times a year, beginning in December 1980. The journal will report on all institute activities and accomplishments and contain articles about life on the grasslands. Write for more information or send checks for membership to Prairie/Plains Resource Institute, 1219 16th, Aurora, Nebraska 68818.

Appropriate Technology Resource Center

The Appropriate Technology Resource Center in Lawrence, Kansas is an outgrowth of a 1978 free university class in appropriate technology. Class members wanted to share some of their understanding about A.T. and began by establishing an informational bulletin board in the Pentimento Cafe. This has expanded into a resource center staffed by volunteers which is open five afternoons a week to provide information on a broad range of topics, including solar and wind energy, conservation, organic gardening and wholistic health.

The A.T. Center maintains a non-lending library of books, journals, cassette tapes, slides and files of community resources.

Up-to-date information on ATRC activities is available by calling 913-841-3086, or by visiting ATRC at 1101½ Massachusetts, Lawrence, Kansas on Monday from 1-3, Tuesday 12-4, Wednesday 2-4, Thursday 1-5, or Friday 2-4.

Small Farm Energy Project Training Institute

The Small Farm Energy Project, P.O. Box 736, Hartington, NE 68739, is now offering a new service. It has established a training institute to reach out to other organizations working in rural America. Now in its fourth year of working with fulltime, commercial small farmers in adopting low cost energy innovations on their farms, the Project hopes to encourage the establishment of farm energy programs by other groups.

The Institute will provide services by arrangements with its clients. It prefers two or three day programs with continuing services as needed. These can be seminars or workshops at the location desired by the client. One to one consultation with organization staff members is also offered by the experienced staff from the Small Farm Energy Project.

The Institute will negotiate fees based on the type of service desired by the client and the client's ability to pay. For groups with severely limited resources, the Institute may be able to assist in finding funds to pay for the training.

The Windcraft 2500—Power to the People

Dana Jackson

The Windcraft 2500 is a new wind electric system manufactured in Kanapolis, Kansas. This machine, designed by former Research Associate at The Land, John Craft, and fabricated by Bircher Machine, Inc., will connect directly to existing electrical systems. When the wind blows, the machine produces electricity to run lights and appliances in the home. If not enough electricity is produced by the wind system, additional power is brought in automatically from the utility power company. If the wind system is producing more than is needed, the excess is fed back to the utility. When the wind is not blowing, electricity is provided by the utility company in the normal manner.

John Craft was at The Land Institute recently, servicing the Wincharger which he installed for us in May, 1979, and we talked about his new machine. During the fall of 1977, he and Marty Peters, another research associate, had investigated the opportunities for building and selling wind energy systems. They concluded then that the market was not viable. I asked John why he had changed his mind. What is different in 1980 that makes a business venture into wind energy systems feasible?

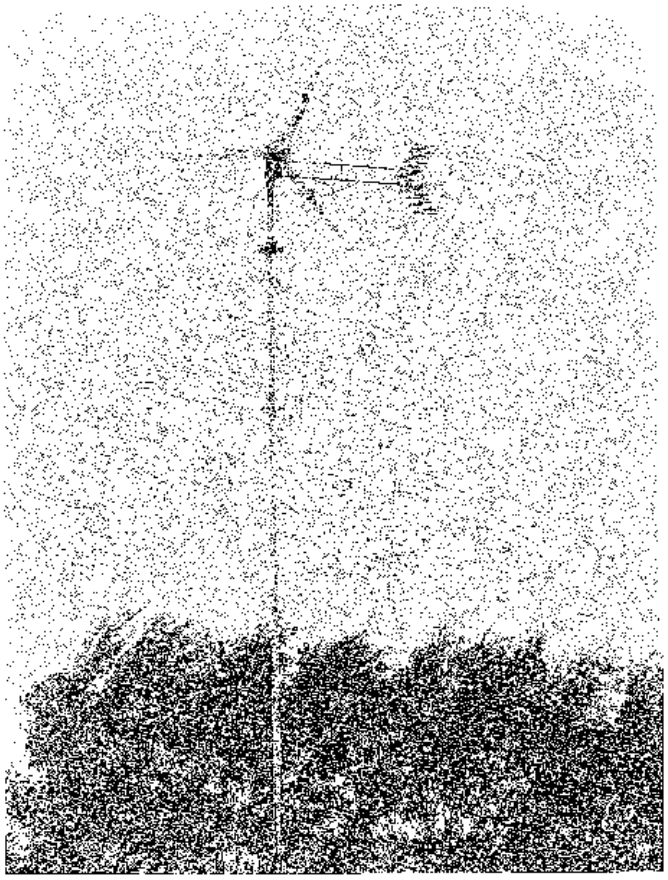
In 1977, John and Marty were talking about selling direct current (DC) generators which require heavy batteries for storing the electricity or expensive synchronous inverters to turn it into alternating (AC) current. The Cadillac of the DC generators is the Jacobs wind machine, and we have one at The Land. Current from the 110 volt Wincharger and the 32 volt Jacobs is stored in two volt batteries each weighing about 325 pounds. The Wincharger requires 55 batteries and the Jacobs, 16. The average homeowner is not interested in setting up that kind of storage system.

John said that the technological breakthrough which is changing the future of the wind electric systems industry is the induction generator. This type of generator can send AC current straight from the wind machine into the home or right to the electric power grid, eliminating the need for batteries or synchronous inverter. The induction generator is lighter (the Jacobs has 200 pounds of copper wire in it) and less expensive than the old types.

Steve Blake of Sunflower Power Company in Oskaloosa, Kansas, has been developing wind energy resources in Kansas since 1972. About a year ago he began selling one of the very first induction wind generators in production, the Enertech 1500, manufactured in Norwich, Vermont. Now there are two companies in Kansas selling induction motor wind energy systems: Sunflower Power and Windcraft Energy Systems.

I asked John Craft why he decided to design a new wind generator when the Enertech was already being marketed in Kansas. First, John thought he could build a better machine. Second, he believed the residential market needed a larger machine, and he pointed out that the Windcraft is a 2500 watt system while the Enertech is 1500 watts.

John and I talked about the other breakthrough causing a "marketplace awakening" for wind energy systems: the tax credit. Both the federal government and the Kansas government allow special tax credits to persons installing wind electric systems. The federal tax credit is 40% of the total installed cost with a $4000 maximum credit. The state of Kansas credit is 30%, or a maximum of $1500. The state credit can be applied to three years of income tax, and if



a person does not pay that much tax, the state will pay him the difference between taxes paid and $1500. Kansas law also exempts all wind electric systems from personal property or ad valorem taxes (KSA 79-4502).

This means that a wind machine with tower and full installation which costs $6000 would actually cost the customer $1800 after the credits were subtracted. The length of time required for the machine to pay back the $1800 would depend upon average wind speed for that area and the rate per kilowatt hour charged by the electric utility.

Although the tax credits make the economics of wind energy more favorable now, there are other obstacles to the marketing of residential systems. One is the reluctance of consumers to be the first to invest, the ones to test the machines. But also significant is the unwillingness of local governments to allow towers fifty to sixty feet high to be installed within city limits. The McPherson, Kansas City Council recently passed an ordinance specifically banning wind generators in the city. Other towns have ordinances limiting the height of structures, and these in effect ban wind electric generators. Variances for these zoning ordinances are not easy to acquire. As more wind machines can be seen spinning above residential areas, they will become more visually acceptable. We have certainly learned to tolerate TV antennas, power and telephone poles and lines, and air conditioners, and eventually towers with wind electric machines will be accepted, and probably enjoyed.

PARALLEL GENERATION

When wind energy began to draw attention several years ago, the electric utilities were scornful of its potential. The pioneers who installed DC generators and synchronous inverters and then fixed their meters to run backwards and feed excess electric current into the regular power system were nuisances to the electric utilities. However, the Kansas legislature has required the utilities to cooperate with home energy producers.

In April of 1979, Kansas became the first state in the nation to pass a law instructing utilities to both interconnect with and purchase extra energy from approved wind electric systems. (Kansas was also one of the first states to provide income tax credits for wind electric systems.) When a customer installs a wind energy system, his utility must apply to the Kansas Corporation Commission for approval of a Parallel Generation Contract, which sets the rate paid to the customer for electric current fed into the line. The rates paid will vary from utility to utility, depending upon the terms of its parallel generation contract approved by the KCC. Not all Kansas utilities have filed a contract plan, and they probably won't until their customers install wind electric systems. But if a person's electric utility is Kansas Power and Light, he or she will be purchasing electricity at a retail rate of 5-6¢ per kilowatt hour, and selling it at a rate of 1.6¢ per KWH; if the utility is the Smoky Hill Electric Cooperative, the customer can sell at a rate of 2.788¢. Kansas Power and Light views the wind machine as a fuel saver only and pays a low rate. The Smoky Hill Cooperative is not a producer of electricity, but a purchaser at wholesale rates from other companies such as KP & L. The Cooperative pays the home energy producer a rate very close to the wholesale price it would pay to any electricity supplier.

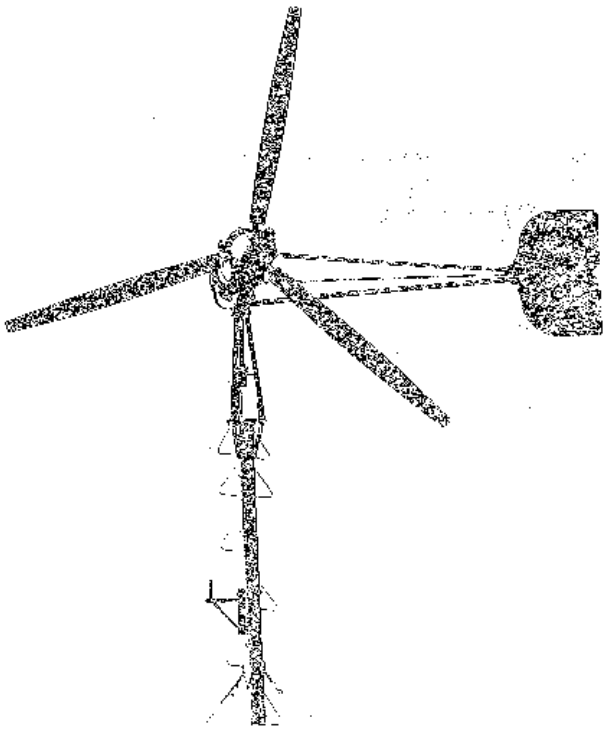
The Smoky Hill Electric Cooperative Association seems to be very interested in encouraging wind electric systems. They are installing three meters for each wind machine to gather data on just how much electricity will be gained. One meter measures how much power the machine is producing, one measures how much the customer is drawing out, and the third measures how much is fed into the grid.

More favorable rate structures can be found in other states, according to an article in the Wind Power Digest, Fall 1979, (page 6). The Southern California Edison and San Diego Gas & Electric Company bill the customer on the basis of monthly net energy consumption. The Pacific Gas & Electric Company pays the home energy producer about half the retail rate for electricity produced by wind machines. As federal rules under the Public Utility Regulatory Policies Act (PURPA) go into effect, rate structures for parallel generation will be reassessed all over the U.S.

AGAINST THE CURRENT

The manufacture and marketing of a new wind turbine machine by Bircher Machine Co., and Windcraft Energy Systems in Kanapolis, Kansas, is an event contrary to the current trends in wind energy development in the United States. Small companies are being swallowed up by large companies. Most of the federal grant money awarded through the DOE Rocky Flats Wind System Program for research and development has been awarded to companies with names such as Grumman, Alcoa, McDonnell and Lockheed. Small, independent wind machine companies do not get the breaks.

The same thing is happening in solar energy. I never liked that cartoon which concludes that oil companies won't get into solar energy because they don't own the sun. They don't need to own the sun. All they need is DOE grant money for research and the capital to start



productinn and buy up their competition. AMOCO owns Solarex of Maryland; ARCO owns Northrup Solar in Texas and Energy Conversion Devices of Michigan; EXXON owns Solar Power Corporation and Daystar Corporation, both of Massachusetts; MOBIL owns Mobile-Tyco of Massachusetts; and SHELL owns Solar Energy Systems of Delaware. A longer list of corporate take-overs is given in an article called "The Solar Blackout" by Ray Reese (author of The Sun Betrayed) in the Sept./Oct. 1980 issue of Mother Jones.

There is a growing concern among those in the appropriate technology network that the corporations and the government are co-opting the whole movement. It is easy to become cynical as one reads the Ray Reese article. Tom Bender in an article in the September/October 1980 issue of RAIN struggles with the realities of government-corporation exploitation and finally comes up with some concluding sentences about opportunities under our democratic tradition to restore some of the power to the people. Byron Kennard, in the same issue, suggests that we can do it by changing our rhetoric, eliminating the term "Appropriate Technology" and replacing it with "Community-based Innovation." "All we ever meant by appropriate technology was 90% social innovation and 10% hardware," Byron says.

The impetus to move our country along soft energy paths is strong now, so strong that the vehicles we chose to ride may be the large oil companies. What is wrong with an oil company moving into the solar energy field instead of into nuclear power? Nothing. But, if the objectives of appropriate technology are not to be totally forgotten, we must make sure the small producer of energy equipment is not bumped out of the way.

Part of the food cooperative movement ethic is that consumers should buy from local producers as much as possible, not only to save transportation energy and money, but to affirm the community. Appropriate technology, which includes small scale food production as well as wind energy machines, is based on the individual and the local community gaining more control. A Grumman wind generator or Solarex collector will give the consumer some of the control over his life which the electric utility formerly had. But they also give political and financial power to Grumman and AMOCO Oil Company. As we develop alternate sources of energy, our ethic should include the precept that we buy from and support local manufacturers of equipment as much as possible. It is a way of showing our faith in free enterprise if we can enable the small entrepeneur to thrive in spite of the attempted domination of the alternate energy business by large corporations.

We congratulate John Craft and Leo Bircher on beginning the manufacture of the Windcraft machine. Their ingenuity, courage, hard work and dedication are old American values which have led to success in the past. But they, and other companies like them, will need the support and encouragement of the appropriate technology network, as well as the community of local consumers, to be successful.

"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." (Tom Bender in Rainbook.)

Changing Wind Energy Systems

The tail to the Wincharger lay by the base of the tower, and two blades were screwed into the board fence north of the garden after a wind storm on August 29. We reasoned that a twister had torn off the tail, which kept it out of the wind, and the blades began spinning so fast that one flew off and the shaft broke, sending the other two to the ground. We have never found one of the blades.

We hope to replace the 110 volt, 1500 watt DC Wincharger with a new 2500 watt Windcraft interconnect system.

Consumer Information Board

Ivy Marsh

The Kansas Corporation Commission's newly-formed Consumer Information Board is composed of people who were nominated by 32 organizations across the state in an effort to provide a cross-section of viewpoints in formulating state policy. The Consumer Information Board (CIB) is part of the Kansas Corporation Board's (KCC's) load management project, initiated to find ways to encourage use of electricity in off-peak hours and curb a need for expensive new power plants. It will make energy need forecasts and initiate new rate design studies. This advisory board is designed to increase public participation in the regulatory process, to relay accurate information to Kansas consumers, and to communicate consumer concerns to the KCC about the direction they think the KCC should be going in these areas. We work with KCC consultants on energy conservation, alternate energy sources, and energy storage techniques. We will also help arrange public regional forums and hearings to explain policies and to gather comments on state actions concerning energy. Consumers must learn how to play an active role in the decision-making process in such areas as energy conservation, rate design and regulatory standards, all of which are part of the load management study.

The KCC began its comprehensive load management, conservation, and rate design study in mid 1978 because of its concern over rapidly rising energy costs. Later Congress passed the Public Utility Regulatory Policy Act (PURPA) of 1978, which is part of the National Energy Act. It requires agencies such as the KCC to study utility rate standards to make sure the rates are fair and equitable and promote conservation. Part of the KCC's study is to design rate structures that will comply with the PURPA recommendations. Another part of the study will forecast the future electric generation capacity needed in Kansas. This information is vital in order for the KCC to fulfill its obligation under the plant siting act passed by the 1979 session of the Kansas Legislature to make sure Kansas utilities are not overbuilding and charging Kansas customers for excess, unneeded capacity in the future. The goal of all these studies is to enable the KCC to develop an effective cost-of-service methodology and other innovative rate designs, and evaluate the cost effectiveness of electrical utility load control techniques.

Recent electricity interim rate increases went into effect in June, 1980, including a new summer/winter differential rate design. This new rate, combined with the unusually hot weather conditions that prevailed statewide, caused a startling increase in utility bills. In addition to looking at the total cost of the monthly bill, consumers need to learn to pay equal attention to the kilowatt hours of electricity used each month when making comparisons to past bills.

The Commission authorized a slightly higher price per kilowatt hour in the summer months (July, August and September) because peak demand that occurs usually is because of air conditioning, and this causes utilities to build new plants to meet the summer peak demand. The new differential rate meets the guidelines of PURPA, which recommends that utility prices more closely match the actual cost of providing service. (Since peak demands of most utilities occur in the summer, it costs the companies more to produce electricity at that time. The companies must provide the generating plants necessary to meet the peak, and to try to furnish all of the energy that the customers demand. To operate plants at maximum capacity during these peak demand periods, the utilities' generating units often burn the more expensive fuels of oil and gas to generate electricity.)

Owners of total-electric homes felt they received a double-whammy because the KCC also made utilities flatten rate blocks for all-electric customers during the summer months so that they pay the same rates as persons who do not have total-electric homes. In the past, those customers were allowed declining block rates which meant the more electricity used, the less it cost per kilowatt hour. Commissioners stated that this kind of rate does not encourage conservation nor does it accurately reflect the cost of providing service.

In addition to the summer/winter differ-

ential rate and the loss of the declining block rate advantage, still another rate increase went into effect in June because two new power plants went into commercial service for the first time: Jeffrey Energy Center Unit # 2 near St. Mary's, Kansas, and the Iatan Unit # 1 north of Kansas City. (Although Iatan is in Missouri, it furnishes electricity to Kansas customers as well.) Until such plants are actually providing electricity to customers, the investment and operating costs cannot be included in the companies' rate bases.

I was pleased that The Land Institute was included in the first eighteen groups asked to submit nominations for the Consumer Information Board and was surprised and honored when Wes and Dana Jackson asked if I would serve. It is an interesting group of people: fifteen women and seventeen men. I question the claims of "geographic balance" when a thirty-two member board has eleven from Topeka, four from Wichita, three from Garden City, two from Manhattan, and one each from Ottawa, Goodland, Lawrence, Salina, Kansas City, Iola, Emporia, Marysville, Enterprise, Newton, Sedgwick and Clay Center. However, there is a balanced and broad-based representation of interests and organizations.

Mari Peterson attended the initial meeting in March and from her beautiful and comprehensive notes, I can tell they were inundated with speakers, information and handouts. In June I attended two days of hearings for the new Residential Conservation Service Program, as well as the second CIB meeting on June 20 where we met with the Commissioners, saw a film on solar energy, heard speakers on the trends in Kansas energy legislation over the past five years, and progress reports on the proposed Residential Conservation Service Program, the lifeline study, and on cogeneration and interconnection studies.

The Consumer Information Board divided into subcommittees at the close of the meeting, and I am on the Alternate Energy Sources subcommittee chaired by Gerald Hundley of Garden City, Kansas a member of the Kansas Solar Energy Society. The other subcommittees are Energy Storage Techniques, Energy Conservation, and Customer Complaints.

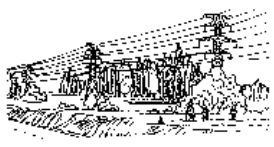
It is interesting to hear so many divergent points of view on the subject of energy. Some members of my subcommittee are pro-nuclear, and some even refuse to believe there is an energy shortage, let alone a crisis! Turning out a subcommittee report is a major event! Fortunately, from my point of view, those who do not seem to have a grasp of the situation are also not inclined to do their homework and turn in ideas to be incorporated into the record, so the end result seldom reflects those viewpoints, in spite of the chairman's best efforts to encourage their participation.

Our meetings, held quarterly or more often if the need arises, provide an opportunity to learn what other communities are doing, especially in energy conservation and alternate energy sources. The most impressive to me is the Wichita-Sedgwick County Energy Plan, a twenty-five year energy blueprint adopted by both the city and county commissions. There is an energy office, an area energy monitoring group, a home insulation loan project, a weatherization program, a Board of Education-sponsored "Energy Adventures Center" and an energy curriculum from fourth to ninth grades, and a feasibility study underway for resource recovery from Urban Solid Waste.

The first visible results of the CIB's work were the two regional public seminars held on September 27 at Hays and October 4 in Emporia for the purpose of informing the public about the way the state regulates power companies, the rate-making process, and how consumers may participate in the KCC rate hearings beginning on October 27, 1980.

For the most part, I have been truly impressed with the sincerity, dedication, and expertise of the KCC staff whose job it is to represent the best interests of the consumer and serve in an advocacy role on their behalf. Commissioners Pete Loux, Jane Roy and Phillip Dick have been friendly, supportive, and attentive to the work of the CIB. They know the CIB will never take a position on any issue before the KCC as a group, since the members represent such diverse organizations with widely differing points of view.

I was surprised and disappointed to read in the Common Cause publication, "In Common," the Winter 1980 issue, that in their evaluation and rating of state energy conservation policies, Kansas rated unsatisfactory. We rated well in having the capacity to forecast demand for energy within the state, in solar use in state buildings, cogeneration, utility declining block rates, a ban on master metering of apartment houses, and a gasohol program (there are those of us who would question that criterion!). But Kansas did not fare well in the areas of state building codes, energy reporting systems, utility time-of-day pricing, and lighting and heat standards (mandatory statewide energy efficiency codes for buildings). From my limited contact with the KCC commissioners and the staff, I am convinced they are working toward achieving the same goals defined by Common Cause. I hope the Consumer Information Board will become a valuable asset in this endeavor.



KCC Generic Rate Design Hearings

Ron Henricks

Electric utility rate structures can be one of the biggest barriers, or, conversely, one of the most favorable catalysts, in giving the average consumer an incentive towards more efficient energy use. Most current electric utility rate structures reflect a reality long past, when energy was cheap and projected to be cheaper, so electric rates were designed to give lower per kilowatt hour (KWH) prices for higher energy use. While it is now obvious to most people that energy is no longer cheap (and it is projected to become much more expensive), electric utilities have been sluggish, at best, in changing their rate structures to more accurately reflect the current energy reality.

Recognizing this, Congress passed in 1978 an act acronymed PURPA (Public Utility Regulatory Policies Act), which required, among a multitude of other things, that all state utility regulatory commissions hold hearings by November 1980 on the subject of electric utility rate design. To comply with this mandate, the Kansas Corporation Commission (KCC) has scheduled hearings to begin in Topeka on October 27 and probably continue for serveral days. These will be some of the most important hearings the KCC has ever held, especially if the KCC can be persuaded to order the utilities it regulates to fundamentally alter their rate structures.

The hearings will focus on the "appropriateness" of declining block rates (the current system), seasonal rates (recently implemented in many utilities by order of the KCC), time-of-day rates (similar to the structure used by telephone companies for long-distance calls), and cost-of-service issues (whether utilities should use traditional embedded costs or projected marginal costs to determine their revenue requirements and rate structures).

At this writing, it is uncertain when and where the KCC might hold other public hearings outside of Topeka, to solicit public testimony from persons other than the technical and legal experts who will be testifying in Topeka. If you are interested in finding out when and where all the public hearings will be held, or if you would like to request one for your area, contact R. C. Loux, Chairman, Kansas Corporation Commission, State Office Building, 10th and Harrison, Topeka, Kansas 66612, 913-296-3355.

The KCC needs to hear from the "real world" outside of Topeka, so do not hesitate to air your views, either in writing or in person. Expert testimony given at the hearing in Topeka is important, but the KCC will also be looking to see how interested the general citizenry is in this issue. Your participation can make a difference.

County Energy Planning Update

Mari Peterson

As high energy prices and uncertainty about energy availability begin to affect people in their daily activities, the most common responses have been to take care of one's own situation as best as possible and then turn to the state or national government to do the rest. While this may be the easiest approach, it is not the best. Working together on energy issues from a county level is a better, but a more difficult response because it requires a commitment to sustaining the economic vitality of the county based on informed decision-making. Concerns such as the loss of jobs, the disappearance of small farms, and the outflow of dollars from the county due to high energy prices are the primary concerns of those people who have become actively involved in county energy planning.

Why is it that the county level seems to be a good way to approach energy issues? The large, centralized state and national governments are inherently limited in their ability to obtain all the information needed to guide their people along the best paths for meeting energy needs. Because of the many economic and geographic differences of various communities, government mandates in energy policy may cause great harm to a particular geographic-economic area while attempting to assist another. The most useful function the government can serve is that of assisting the local communities in their requests for funding, materials, and information.

On the other hand, an individual may solve his/her own energy problems but without regard to the long-run viability of the community as an economic-social unit. As energy shortages and high prices begin to impact the economic base of the area, the individual's position, economically or geographically, may become jeopardized.

I have said that working on a county level is not an easy approach to energy problems. Very few counties have their own energy office. In addition, many people need to be convinced that it is to their advantage to become informed on energy matters. Nonetheless, we are making pro-

gress in Wabaunsee and Harvey Counties on energy planning because a nucleus of concerned, active citizens has formed in each county to gather information on energy use in their county and to begin reaching out to others to interest them in the project.

The interested persons in Wabaunsee County formed their working group last spring. Early this summer, Harvey County citizens (Newton and the surrounding area) started their energy planning. Individuals from the Community Services Administration, city and county government, Bethel College, commercial businesses and other areas came together in Harvey County to begin looking at how they use their energy and where they are purchasing it from.

Despite the 110° temperatures in Kansas this summer, we all made some progress. Most of the activity consisted of people making calls to Kansas Power & Light, Kansas Gas & Electric, rural electric cooperatives, natural gas suppliers, and propane dealers to find out how much energy they supply to each county for residential, commercial, and industrial uses. These companies and the Kansas Corporation Commission have generally been very cooperative. The workers in the agricultural sector have been visiting with the ag extension agents and FFA people to gather information. Construction energy-use information is being discovered through consulting with home builders associations and construction firms. Energy planners are visiting with industry managers to interest them in the project and to find out how they use their energy. In addition, mining operators, school systems, and business people are being consulted.

Diane Tegtmeier (my co-worker from the Mid-America Coalition for Energy Alternatives) and I are encouraged by the progress made in data gathering in both counties. Sometime this fall we hope to attach dollar amounts to these energy flows and made predictions of future energy use.

There is one highlight that deserves mention from this summer. In June, we received a $7,500 grant from McDonald's to assist in financing phone and mail expenses, travel, and consultation fees for the next year.

Activity is moving into full swing as the cooler, fall weather has arrived. We are placing more emphasis on community outreach as the data gathering is nearing completion. Diane has designed some questionaires that we hope will stimulate the interest of industrial managers, business leaders, local government officials, bankers, teachers, church leaders, homeowners, and others. The success of the project will depend on the support and involvement of as many people as possible in each county.

CONTINUED ON PAGE 35.

Hydroelectric Potential Studied

Dana Jackson

We have often wondered what the potential for small scale hydro-electricity production is in Kansas. Robert Mohler, a professional engineer in Topeka, Kansas, agreed to investigate this question, and he submitted a twenty-four page report this summer. A summary of his results follows. Anyone desiring a copy of the entire report may receive it by sending $2 to cover copying and postage expenses.

This study examined the amount of hydro-electricity which could be generated from existing, privately-owned dams and reservoirs in Kansas. The study excludes dams owned by federal, state, county and city governmental bodies and those owned by power companies. Figure 1 shows a typical generator installation which could be used at one of these dams.

Robert Mohler (Rob) computed the average annual energy production per dam and found that the potential ranged from 1 kilowatt hour (KWH) per year in Grant County to 300 KWH per year in Elk County. Total county-wide energy production ranged from 220 KWH per year to 408,000 KWH per year.

For comparison, Rob acquired estimates of the total annual electrical energy consumption for rural customers in each county ("rural" referring to all towns with populations less than 250 people) from the Kansas Corporation Commission and the Kansas Government Journal. Then he calculated the percent of total rural electrical demand that could be provided by small scale hydroelectric sources in each county. The results can be seen on the map in figure 2.

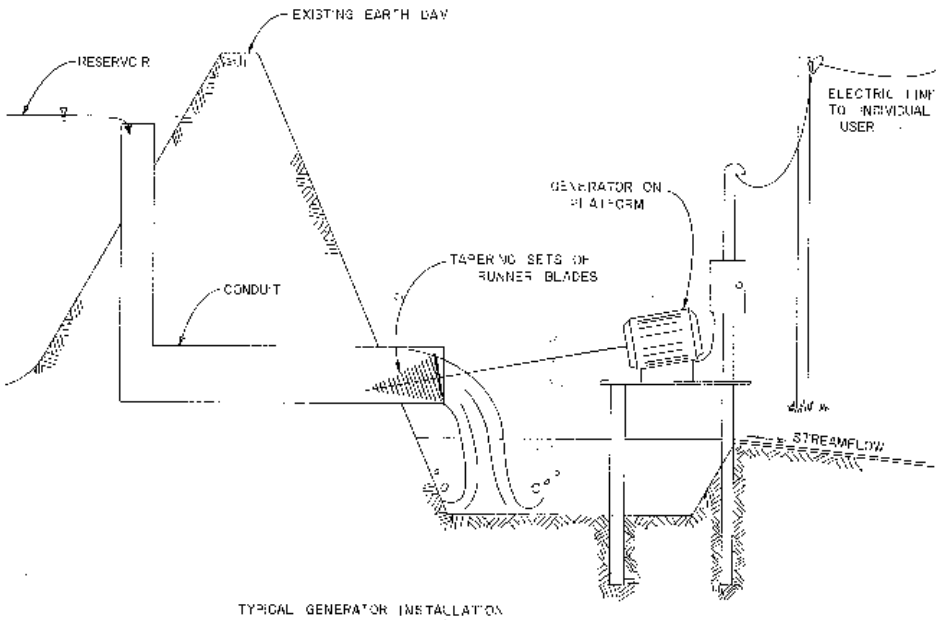
The dams capable of producing a minimum of 200 KWH per year are located entirely in eastern counties. The dams capable of producing a minimum of 1000 KWH per year are located for the most part in the southern Flint Hills and Osage Cuestas. These areas have sufficient rainfall and steep enough terrain to be able to produce a stream flow which will generate these amounts of electricity.

Rob estimated that 99% of the annual energy production would probably occur during 68 days of production. The production period could be broken into several intervals, depending on the length and intensity of precipitation and resulting streamflow. 90% of the energy production would occur in a 12 day period, but 65% of the annual total would come in only 12 hours. The peak rate of electricity delivery would generally be between 10 KW and 20 KW.

The generally low amounts of electricity which could be generated at existing, privately-owned dams in Kansas is directly related to the

quantity of rainfall. Other geographic areas with different terrain and greater rainfall may be capable of providing a much larger proportion of electricity demands via small hydroelectric facilities.

Next, The Land Institute would like to find out about the potential for "low head" and "run of the river" electricity generation in Kansas.



TYPICAL GENERATOR INSTALLATION
FIGURE 1

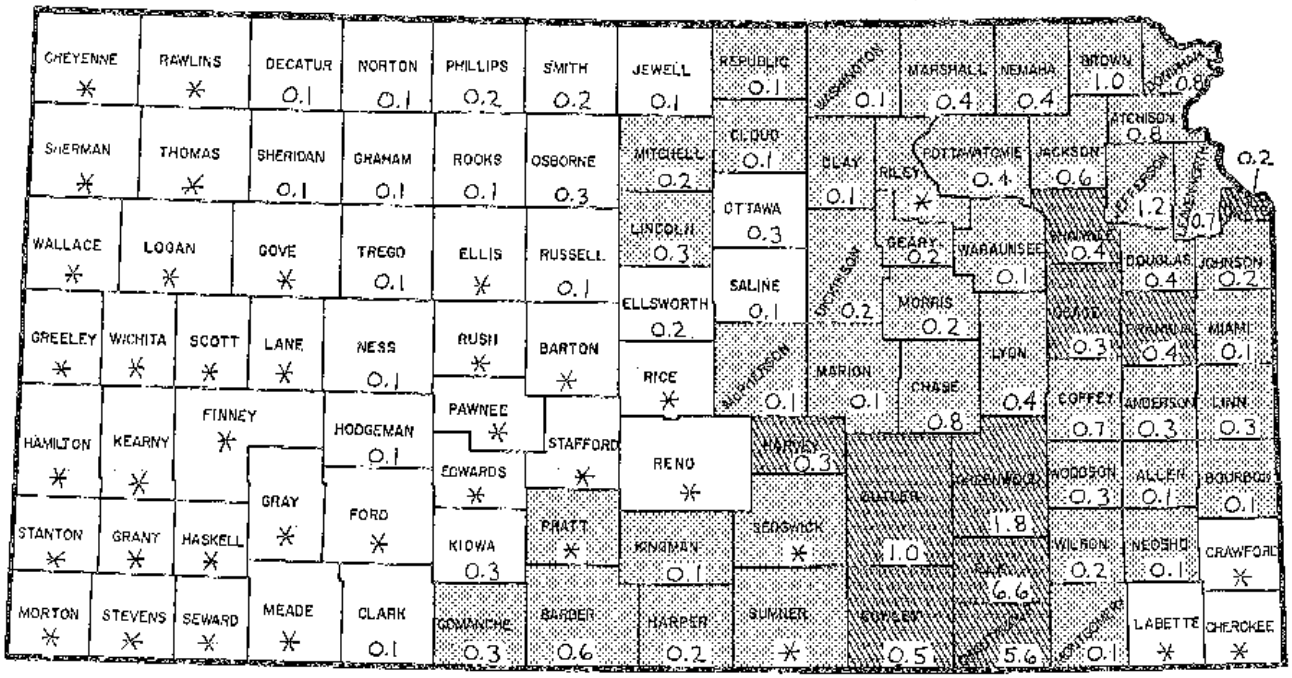


FIGURE 2

HYDROPOWER POTENTIAL AS % OF RURAL ELECTRIC DEMAND (* = less than 0.1%)

Counties with dams capable of producing more than 200 Kwhr/yr

Counties with dams capable of producing more than 1,000 Kwhr/yr

The Worst Environmental Problem

Imagine a school bus full of high school students all singing with the rock group on the radio, "BOMB-BOMB-BOMB, BOMB-BOMB IRAN." Warmongering is top thirty.

Neither these students, nor the irresponsible adults who are profiting from the record, have ever thought seriously about the consequences of our dropping bombs. That we could have a nuclear war because of complex, international tensions created in this area which supplies oil to the industrial world is beyond their comprehension.

Most of us cannot allow ourselves to think about the possibility of a nuclear war and its consequences. The arms race seems so out of our control. But preventing a nuclear war should be the business of everyone, especially the environmentalists, because a nuclear war would be the worst environmental disaster imaginable. Saving Alaska, stopping the large pork-barrel water projects, passing the Superfund, or getting solar hot water heaters on every roof in the country won't mean anything if a faulty computer or hardline general launches a nuclear war.

"Nuclear Weapons: Forever over the Line," by Randy Kehler, who works with the Traprock Peace Center in Franklin County, Massachusetts, was a background paper prepared for a March conference at Mills College in Oakland, California, called "TECHNOLOGY: OVER THE INVISIBLE LINE." Some of Randy's points are reminders why environmentalists must deal with the problem of weapons.

> ...When we think of specific technologies that have gone haywire, that have crossed that invisible line beyond which they enslave more than they serve, we generally think of the communications media (television), the food industry (red dye # 2), transportation (the supersonic jet), or modern medicine (thalidomide).
>
> Modern weaponry, on the other hand - in which I include chemical and biological as well as nuclear weapons - is a technology which began on the dark side of the invisible line. As such it is undoubtedly the nightmarish epitome of all over-the-line technologies. Like the other, more benign technologies, modern weaponry is an "auto-technology" if there ever was one...
>
> I can't think of a technology which is more sophisticated and complex in its design and engineering; one that is more centralized, in terms of profit-making as well as control; one,... with a larger, more entrenched constituencybehind it...; one that is more enshrouded by secrecy (due to "national security") and thus further from popular debate and control; one that exists at a greater level of abstraction (most of us can't begin to imagine what actually happened in Hiroshima and Nagasaki, much less what would happen if a thousand times more bombs, each one hundreds of times more powerful, were dropped) and thus one which is perceived as less of a problem by most people; or one whose potential for destroying life is so total.

But in February, 1980, 600 people met at Harvard to try and imagine what happened in Hiroshima and Nagasaki and what could happen. A special report in Science 80 (May/June, page 32) called "Nuclear War: What IF?" by Richard Knox describes this conference for doctors, nurses, and medical students who "subjected themselves to 16 hours of grim scenario spinning." This symposium, sponsored by Physicians for Social Responsibility and the medical schools of Harvard and Tufts Universities, was held to discuss the medical consequences of nuclear weapons and nuclear war and remind the public that nuclear war is not really survivable.

Participants at the conference heard accounts about the victims of Hiroshima in an attempt to help them overcome what Yale Psychiatrist Robert Jay Lifton calls, "Psychic numbing," defined as a "diminished capacity to feel what happens at the other end of the bomb."

One of the scenarios of an attack on the U.S. was given by Henry Kendall, Chairman of the 92,000 member Union of Concerned Scientists, who said that Russia could destroy the country by targeting 71 of the 119 largest U.S. metropolitan areas and still only use 10% of their strategic arsenal. Such an attack would kill half the U.S. population within 30 days and injure tens of millions. Two thirds of the nation's industrial capacity and 98% of its key industries, including energy and transport would have been destroyed. It would take only 10 Soviet missles to wipe out two thirds of U.S. petroleum refining facilities.

According to Knox, much of current defense planning is based on the premise that both sides will have the capability to strike first, knocking out all the other's land-based missiles in their hardened silos before there is a chance to launch them. But if Russia struck first, the U.S.'s 400 submarine-based missiles and more than 100 Strategic Air Command bombers could still counterstrike and kill an estimated 20 to 100 million people in the Soviet Union. We could "get even."

The United States is developing a "launch on warning" system. Humans are too slow, but a computer could automatically respond and send planes or missiles into the air at the first sign of danger. Designers of this system reply to their critics that the President would still have the last say. Although we would have "launch on warning," the weapons would not be ready to fire until the President sent a signal.

More war technology produces more insecurity. As environmentalist David Brower said at the technology conference, "If we wanted to fight an old-fashioned war, we couldn't. There is nothing intermediate from Armageddon."

Dana Jackson

CONTINUED FROM PAGE 32.

Diane and I would like to give recognition to those people in Harvey County who have been instrumental in getting county energy planning off to a good start. (In the last Land Report there is a listing of active participants in Wabaunsee County.) Jeff Beach, Charles Benjamin, Scot and Meta Blue, Gilbert Buller, Tom Collier, Leon Horst, Jack Kille, Vernon King, Frank Mabry, Sue Modrall, Keith Rhoades, Fern Rudiger, Roger Rutschman, Jack Torline, and Laurie Wolfe.

On October 28th, while Amory Lovins is here, the Land Institute will host a working session for people involved in energy planning. Local groups working on energy planning in Kansas and Missouri are being invited, as well as resource people including Jim Benson, Dave Martin of the Kansas Energy Office, a representative from the Small Farm Energy Project, Jerry Wade from the University of Missouri, and Ed Dutton from Kansas University. The purpose of this meeting is to share ideas on small-scale energy technologies, materials and funding availability, community development strategies, and to deal with problems that may be arising in county energy planning efforts.

Land Institute Recognized for Sustainable Agriculture Research

The Land Institute receives an increasing number of requests for information and frequent invitations to present papers at conferences on energy or agriculture. After data analyses on alcohol fuels by Mari Peterson, Marty Bender, Charles Washburn and Wes Jackson, The Land became a rare voice of caution in the nationwide enthusiasm for producing alcohol fuel from grain crops, and Land people are often consulted about the issue. Wes and Marty planted research plots for the study of polycultures of herbaceous perennial plants as an alternative system of agriculture. As this research is unique, The Land receives many requests for explanations of the work. Recently Wes Jackson was asked to prepare a report on agricultural technology based on the polyculture of perennials for the U.S. Congress Office of Technology Assessment. His study is one of 40 which have been solicited to become a significant part of OTA's report to Congress on the productivity of U.S. croplands and rangelands.

The Solar Energy Research Institute has invited Wes to present one of 19 papers in a workshop on "Tree Crops for Energy Co-Production" in November. Marty Bender will co-author the paper on the role of tree crops in a sustainable agriculture on the Great Plains.

Friends of The Land

The Friends of The Land have been extremely important to The Land Institute. Many helped collect materials to build the first building; many donated time and labor after that building burned to help start reconstructing the classroom/library/shop. Friends donated books and money to help develop another library. The Land needs these friends, and new friends too.

The Land Institute is a private, educational-research organization, financed by student tuitions and private gifts. Contributors receive THE LAND REPORT, any special publications, and notices of interesting events at The Land. The Land Institute is a non-profit organization, and all gifts are tax deductible.

NAME_____

ADDRESS_____

_____

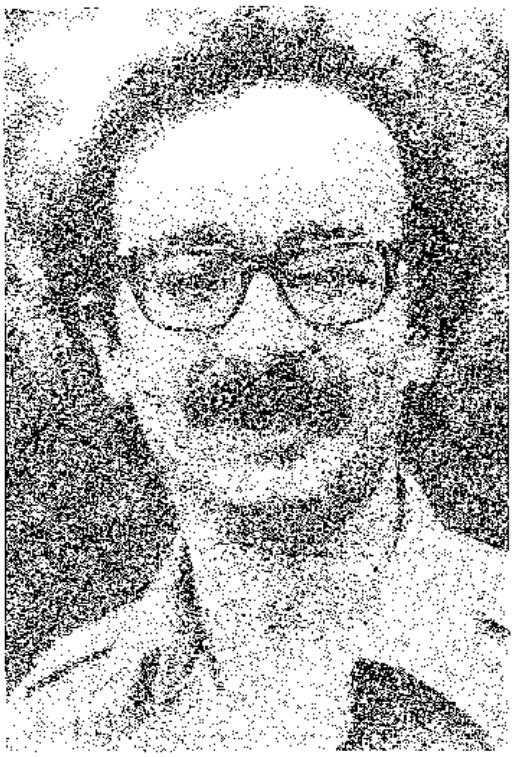
PHONE_____ DATE_____

(CHECK CATEGORY OF CONTRIBUTION)

_____$10 _____$25 _____$50

_____$100 _____$500 (student sponsor)

_____$3 (subscription to THE LAND REPORT only)



SPONSORED BY

THE LAND INSTITUTE

Nuclear Power

and

Nuclear Bombs

"The collapse of nuclear power in response to the discipline of the marketplace is to be welcomed, for nuclear power is both the main driving force behind proliferation and the least effective known way to displace oil.

Amory and Hunter Lovins to Speak

MONDAY, OCTOBER 27 THE SALINA COMMUNITY THEATRE, 303 E. IRON 7:30 P.M.

In this FREE LECTURE, Amory and Hunter Lovins will speak on the subject of their provocative article written with Leonard Ross, "Nuclear Power and Nuclear Bombs," which appeared in the Summer 1980 issue of Foreign Affairs, and their forthcoming book, tentatively titled THE ELECTRIC BOMB.

SPONSORED BY THE LAND INSTITUTE

The Land Institute
ROUTE 3 • SALINA KANSAS 67401

Non-Profit Organization
U.S. Postage Paid
Permit No. 81
Salina, Kansas 67401