

fulfillment, sustainability and opportunity for evolution".

Thirdly, most, if not all, Canadians need to be committed to the developments being proposed. The connection between Canadians and Canada, particularly the part of it where they live, needs to be strengthened. Such a healthy relationship is similar in many ways to a successful marriage. We need to see the earth as partner, not as slave, or as a resource to be mined, but as collaborator in our own evolution. Federalism will have to take on a new meaning, and be a means and measure of the cooperation between the numerous self-reliant, self-governed communities that will make up the new Canada. Our present over-urbanized, over-bureaucratized structure creates so much distance between people and the things that they should act responsibly towards, that most, knowingly or unknowingly, act irresponsibly most of the time. Furthermore, for this commitment to evolve, greater attention needs to be paid to the process of human development, from conception through pregnancy, birth, early childhood, schooling, work and play activities, to eventual death. Within our present system there are many barriers to human development which, if removed, would help individuals to reach their potential and so be in a better position to contribute to Canada's development.

Some of these points may be seen more clearly by considering the following visual model (in this case applied to pest control). (Fig. 1). Canada and its population may be represented by the shape on the left. It has some smooth (trouble-free) properties and some rough edges that spin off problems. Current approaches to these tend to be curative (aspirins, prisons, hospitals, pesticides, weapons, etc.) Most proposals from those concerned with the future focus on efficiency and/or substitution (e.g., of materials or procedures with less harmful side-effects). These may be regarded as "shallow" solutions because the more successful they are, the more they protect and perpetuate the structures and processes that are the causes of the problems. Furthermore, in this model, people are perceived to be on the outside of the system, and problems are solved by applying materials or procedures from the outside.

"Deep" solutions, in contrast, involve the re-design of the underlying structures and processes that are generating the problems. In fact, the aim is to design systems so that if problems arise there are sufficient resources within the system to spontaneously generate solutions to solve them. In this case, people perceive themselves within the system and work in partnership with it, evolving together.

We conclude with a diagrammatic comparison of a shallow and a deep approach to pest problems.

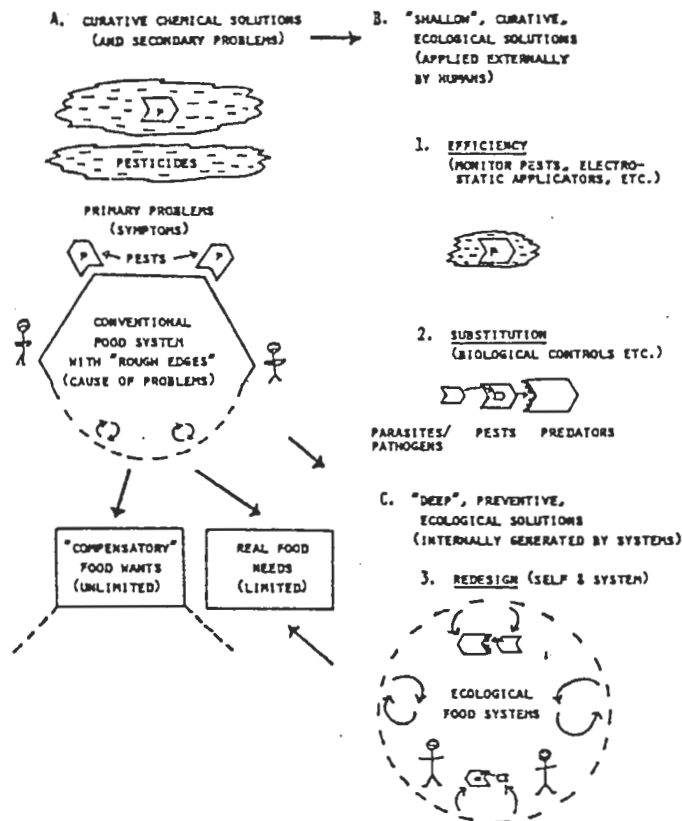


Figure 1. Diagrammatic Comparison of "Shallow" and "Deep" Approaches to Pest Problems"

A slightly different version of this paper was presented as a brief to the Macdonald Royal Commission hearings on Economic Development held in Montreal on November 2, 1983.

Stuart B. Hill is Associate Professor of Entomology with the Dept. of Entomology and Ecological Agriculture Projects at McGill University, (Box 225 Macdonald College, 21, 111 Lakeshore, Ste. Anne de Bellevue, P. Q. H9X 1C0). EAP is the largest resource centre for ecological agriculture in the world and is supported entirely by private funding. Papers providing additional examples of the application of ecological principles to human health, environmental protection, food production and pest control may be ordered from them. Upon request they will supply a list of their publications.

FILMS

A recent film relevant to agriculture is **Country**, produced by Jessica Lange, who also plays the lead role of Jewel Ivy, wife of Gil Ivy (played by Sam Shepard). The Ivys are family farmers and the film depicts the difficulties they have in coping with financial hardships that threaten their farm. They

can cope with natural disasters very well, as their response to a tornado shows. But farmers these days have other disasters to cope with in the form of a high US dollar, which has made US farm products less competitive on the world market. In addition, mounting federal debt, and the tight money policy of the Fed, has held interest rates high. With high interest rates comes a sour real estate market. Land values begin to decline and the farmer's assets shrink. The Ivys are in a bind similar to that of farmers throughout North America. They have high debt, little cash, and no relief in sight. In the film, as it becomes clear that the farm is treated only as a business by the financial system, and it must have a better balance sheet, or foreclosure will be undertaken. **Country** shows the effects of this "debt crisis" on the family. Eventually they manage to pull together, when they begin to realize that their situation is not an act of God or nature, but a human created situation that they can do something about.

A recent news report stated that in the last 4 years over a quarter million North American farmers have been forced to leave the land. The conditions that have brought this about have been dominated by those described above. Some farm organizations are warning that agriculture will soon be dominated by large corporations who will have a verticle integration of the whole market, from production of seeds, chemicals, land, and equipment to the agricultural products produced. They will simplify the food chains and raise patented hybrids. They will reduce the diversity of food crops even more.

One lesson of this film is that the family farm will be saved only by the unified efforts of people who care about it as a culture and who care about the land. There are numerous experiments now going on that hold the promise of increasing the richness of the land, while ultimately decreasing the costs of farming and dependence on high interest loans. There are new financial institutions springing up, alternatives to the debt economy, alternatives to heavy capitalized methods and equipment, alternatives to contamination of the land and loss of the soil. **Country** personalizes the struggle of the family farmers, but it does not bring this larger vision into focus. Nonetheless, it is a good film. (From Silver Bear.)

BOOK NOTES

We have already briefly discussed Lester Brown's **Building A Sustainable Society**, Norton, New York, 1981. Brown is with the Worldwatch Institute, 1776 Massachusetts Ave., Washington, D. C. 20036. Worldwatch publishes papers, reports and books that focus on contemporary world problems. **Building** is representative of the systematic scope of Worldwatch studies. Brown's book presents clear,

concise, accurate accounts of contemporary society. He begins with a lucid discussion of what is wrong with current agricultural practices in North America and also describes the global situation. He considers these problems in connection with population, environmental problems, economic hardships, resource limitations, energy developments, and so on. The book diagnoses contemporary problems as interconnected and requiring an interdisciplinary approach. Brown's writings provide some of the clearest statements on the interconnectedness of contemporary problems, and they provide a comprehensive perspective.

A different sort of book is that of Masanobu Fukuoka, **The One-Straw Revolution**, Rodale Press, Emmaus, 1978. This book is an introduction to natural farming techniques by a man who has devoted his years to testing and developing methods of farming that are in harmony with nature. He started his career as a plant pathologist working for the Government. He writes that he led a rather aimless life. He fell seriously ill, and when he recovered he had lost his earlier confidence. He says that he was in an "agony of doubt" about the nature of life and death. This doubt plagued him until one day he had the profound realization that we know nothing. He realized that the concepts to which he clung, even his "very notion of existence itself, were empty fabrications. My spirit became light and clear. I was dancing wildly for joy." (p. 8) It was this realization that humanity knows nothing that led him to test its truth in farming. If we know nothing, we have no choice but to let nature guide us in farming. The result, he writes, is a method that "completely contradicts modern agricultural techniques. It throws scientific knowledge and traditional farm know-how right out the window. With this kind of farming, which uses no machines, no prepared fertilizer and no chemicals, it is possible to attain a harvest equal to or greater than that of the average Japanese farm." (p. 3) Fukuoka's four principles of natural agriculture are: No cultivation, no chemical fertilizer or prepared compost, no weeding by tillage or herbicides, and no dependence on chemicals. (pp. 33-34) I will not explain the methods that allow agriculture without tilling, spraying and fertilizing, but they are presented with clarity in the book. This is a very deep book and presents a philosophy of agriculture that is eloquently stated and illustrated by careful observation and years of experience. A very important book.

Another valuable book from Rodale press is **The Cornucopia Project, Empty Breadbasket**, 1981. (Rodale also publishes the magazines **Prevention** and **Organic Gardening**, and runs a large organic farm.) This book provides an account of what is wrong with U. S. agriculture. It also offers a series of comprehensive proposals for reforms that would

achieve a good agriculture. It backs up its analyses with ample, useful facts and figures.

A book on agriculture which is becoming a modern classic is Wendell Berry's *The Unsettling of America*, Avon Books, New York, 1977. This is Wendell Berry at his best, with analyses of farm culture, tradition, and the dilemmas of the modern farmer in North America. Berry illuminates the relationships between farmers and land, between farming and poetry. He sees the crisis in agriculture as a crisis of modern culture. The ecological crisis is a crisis of character and of agriculture. Berry explores other possibilities, other relationships to the land which are obscured by mortgages, mechanized equipment, debt and modern chemical warfare against nature. A moving and insightful book. One of the most literate on the subject of farming.

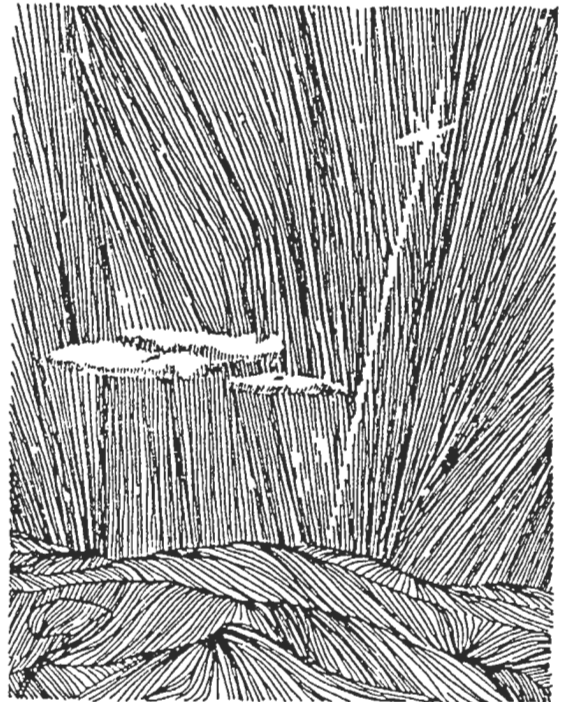
Two classic studies of agriculture that should be mentioned are Sir Albert Howard's *An Agricultural Testament*, Oxford University Press, London, 1956, and E. H. Faulkner's *Plowman's Folly*, Crosses and Dunlap, New York, 1943. Faulkner's book makes the case against the moldboard plow and makes the case for surface tilling which works organic matter back into the soil. Sir Howard is regarded by many as the father of modern ecological agriculture. *An Agricultural Testament* is a book rich in observation and reflection. It conveys a sense of discovery in its approach to sound agricultural practices. Sir Howard had deep insight into the natural cycles of which agriculture is a part. He points out the shortcomings of approaches which fail to consider the whole of "nature's round."

We have earlier mentioned *Soil at Risk: Canada's Eroding Future*. This is a publication of the Standing Senate Committee on Agriculture. It can be obtained by writing to the Clerk of the Standing Senate Committee on Agriculture, Fisheries and Forestry Committees and Private Legislation Branch, The Senate of Canada, Ottawa, Ont. K1A 0A4. The committee's research led them to conclude that "Canada is facing the most serious agricultural crisis in its history and unless action is taken quickly, this country will lose a major portion of its agricultural capability." The report points out that this is a "quiet crisis" and not many people know about it. They hope that their report will help to change all of this. The report not only discusses the negative aspects of current practices, but gives a large number of case histories of farmers who are managing to solve the problems of cropland lost through bad farming practices. In addition, the report considers a number of other steps that might be taken by the government to encourage resolution of the crisis of diminishing croplands and soil fertility.

The Future Is Abundant, by Larry Korn, Barbara Snyder, and Mark Musick, eds., is available from

Tilth Assn., 4649 Sunnyside North, Seattle, Wash., 98103. \$12.95 U.S. This is a resource book on sustainable agriculture. It has numerous addresses and references and bring together material that would take days to put together from the library. (Learned of it from *In Context*.)

Finally, we mention what has been called the best current book on agricultural ecology. The book is *Agricultural Ecology*, by W. Cox and M. D. Atkins, published by W. H. Freeman in San Francisco in 1979. Writing in *In Context*, David Katz says that it is "(p)acked with information, outstanding illustrations, and well organized." He recommends it as useful to teachers.



PERIODICALS AND ORGANIZATIONS

The Winter 1984 *In Context* is dedicated to sustainable agriculture. This issue is loaded with ideas, references, and descriptions of ongoing alternative forms of agriculture. The quarterly is available from P. O. Box 215, Sequim, Wa. 98382, for \$14 U.S. per year, back issues \$4.

The *Permaculture Quarterly* is available from Terry White, 37 Goldsmith St., Maryborough, Victoria 3465, Australia. An international journal which discusses permaculture and what is going on in this movement on a world wide basis. There is also a Permaculture Institute of North America, whose address is 6488 Maxwellton Rd., Clinton, Wash., 98236. The Institute provides a wide range of services including referrals for certified designers.

The FAO of the UN publishes **Ceres: A Review of Agriculture and Development**. \$15 US per year, from FAO, Distribution and Sales Section, Via delle Terme di Caracalla, 00100 Rome, Italy. The magazine is well illustrated and the articles clearly written. It is an eclectic and wide ranging magazine that discusses all aspects of agriculture on a world wide basis, but illustrated by specific problems in various countries. Very informative.

The **Institute for Alternative Agriculture** is located at 9200 Edmonston Road, Suite 117, Greenbelt, Maryland, 20770. The Institute is dedicated to the following ends: Reduce farm production costs, increase net-farm income; reduce soil erosion and compaction, conserve energy, minimize pollution from agriculture, avoid dependence on chemical fertilizers and pesticides, contribute to long term, sustainable food production, improve food quality and safety, ensure farm worker safety, preserve the family farm and enhance environmental quality for other species. Write for further information. (Contributed by Oreamnos.)

A new journal devoted to values and agriculture is **Agriculture and Human Values**, a quarterly published by the Humanities and Agriculture Program, Center for Applied Philosophy and Ethics in the Professions, at the University of Florida. The issue I have before me contains a variety of articles and reviews on a range of topics related to farming and husbandry. Most of the articles investigate ethical issues involved in various practices. Available from: Humanities and Agriculture, 243 Sciences Bldg., Dept of Philosophy, University of Florida, Gainesville, Florida, 32611. (The Journal was sent to me by Gary Watson.)

A new farm coalition, the North American Farm Alliance, is stressing grass roots efforts to save the family farm. It offers educational and

technical assistance. The organization publishes a newsletter called **North American Farmer**, 3255 Hennepin Ave. S., No. 252, Minneapolis, Minn., 55408. \$20 US.

FUTURE ISSUES

As mentioned earlier, the Spring Issue of **The Trumpeter** will continue the discussion of agriculture begun here. There will also be some other material and reader info that has piled up in my files. The Summer and Fall Issues will carry discussions of wilderness and wilderness poetry, illustrations, etc. Send your contributions for the upcoming issues. Still to come, the beginnings of an ecostory to be written by volunteers. So far only two persons have volunteered to write episodes. Any others?

NETWORK SUBSCRIPTION INFORMATION

The **Trumpeter** is published quarterly. Membership for 1985 is \$5.00. A complete set of past newsletters (Vol. 1, nos. 1-5) is \$5.50 postpaid. Please make cheques payable to **The Trumpeter**, 1138 Richardson St., Victoria, B. C., Canada, V8V 3C8.

© of all articles and poetry belongs to the authors, except for the piece by Wes Jackson which belongs to the author and **Not Man Apart**. "Agriculture and Heritage" © 1985 by Alan R. Drangson and LightStar.



Artwork on pages 3, 5 and 12 by ARD. The rest are by Jenus Anderson Friesen and are taken from the **Sacred Journey** poetry series.

