



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Ag World

Insight into the Forces Affecting Agriculture

Volume 5, Number 1 • January 1979

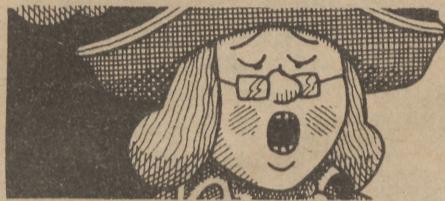
copy
ID

A Farm Summit

“Confrontation Is Dangerous, and Farmers Have a Choice—Coalition or Bankruptcy”

by James E. Vance

In This Issue:



The National Farm Summit Almost Lived Up to Its Name: Reflections on this meeting and the Midwestern Conference on Food and Social Policy p. 3

Observation Points Here and There: Saving Milwaukee Road Provides Montana Rallying Point; Grain Traffic Jam in the Prairies; Public Hearings on Beef Marketing; FAO Council Continues to Endorse TCP; What Makes Farmers Tick?; Vast Schemes in Sudan Run Out of Breath; Organizational Snarls Blamed for Lower Production (in Tanzania) — But Food Position Is "Comfortable." .. p. 4

For the Soviets, the Time to Set Aside Grain Reserves Is Now: "Prudence, a virtue not unknown to the Russians, will dictate the setting aside in years of oversupply of ample grain reserves to feed all these hungry mouths, human as well as animal, in years of scarcity. 1978 appears to be such a year." .. p. 7

Economic and Policy Implications of the 160-Acre Limitation in Federal Reclamation Law: A comprehensive review and recommendations, including the historical evolution of the limitation; amount and distribution of the subsidy; farm size and efficiency of agricultural production; policy instruments for administering the federal water subsidy, the key being control of the water, not the land p. 8

Peat — Ireland's Energy Gamble — Is Paying Off: "Soaring energy prices ... have made the world sit up and study Irish techniques." .. p. 14

International Agricultural Projects Are Good Investment: While "people too often equate public support for international agricultural development with expanded competition ..." other countries "need our agricultural products and will continue to need them ..." . p. 15

Spaceship Earth — Riders vs. Food: On the United Nations Fund for Population Activities' "State of World Population" p. 16

Approximately 500 members of the agricultural community gathered at College Station, Texas recently for a "Farm Summit" to "find creative answers and new solutions and to frame these findings in specific, practical and useful terms," according to Dr. Jarvis Miller, president of Texas A & M University, in a press release preceding the meeting. He added that "the challenge now is to identify areas of agreement ... (which) far overshadow the areas of disagreement."

The writer of the following article was there and concludes that "about the only item which all groups and individuals agreed upon was that dissension among various segments ... is harming their ability to solve farm problems." He summarizes task force reports and adds some thoughts of participants pertaining to each of the reports.

James E. Vance is a former county agent, and for more than 25 years as a reporter covered the "agribeat" throughout the country.

"Hallucinate, capitulate, confront or cooperate" — those were the four choices given for agriculture during the recent National Farm Summit's three-day diagnosis of the industry's ills.

The myriad of concerns, opinions and suggestions blended into a clear and simple message: "farmers no longer can go it alone."

"Coalition" emerged as the most likely political successor to the once-powerful "farm block" to deal with the Congress and Administration.

The first of its kind, the Summit attracted some 500 persons representing almost every state to Texas A&M University to "find new approaches to a cure for agriculture's economic ailments." The Agriculture Council of America (ACA) was cosponsor with Texas A&M.

Dr. Jarvis E. Miller, A&M's president, welcomed participants with a carte blanche invitation for new ideas and new thinking, for serious discussion and for an objective, in-depth look at agriculture.

And debate there was, ranging from remarks such as "save the farm — eat an economist or lawyer" made by belligerent voices representing the American Agriculture Movement, to seasoned University of Chicago Economist Dr. T.W. Schultz's observation that he was "afraid that we are not ready for what's ahead economically in this country."

The Summit was "spiced" with the likes of John B. Connally's charge that "the U.S. is like a babe

in the woods fighting for its economic survival at international trade tables."

About the only item which all groups and individuals agreed upon was that dissension among various segments in agriculture is harming their ability to solve farm problems.

"This Summit was the outgrowth of a request by a group of agricultural producers to the Texas Agricultural Experiment Station that agricultural leaders at Texas A&M University 'do some thinking,' explained Dr. Neville P. Clarke, director of the Station, "and come up with a summit type conference for a broad look by representatives of land grant colleges and university systems, and by producers, at problems confronting farmers — in hopes of some solutions."

Five task forces were formed more than a year ago: International Trade; Nutrition, Product Quality and Safety; Resource Use and Production Costs; Farm Commodity Prices and Income; and Agriculture's Role in Government Decision.

In an effort to get an all-encompassing range of expertise and input, the 75 members of the task forces included 15 active farm-producers and another 15 farm-oriented representatives of commodity and trade organizations.

Remaining members included representatives of land grant university systems, and a few representatives of the U.S. Department of

Agriculture and the White House staff.

Officials of major farm and livestock organizations declined to participate. However, Tony T. Dechant of Denver participated as a "responder" to the task force report on international trade, and not as president of the National Farmers Union.

Six or seven "spokesmen" for the American Agriculture Movement (AAM doesn't have officers) were invited to participate, including Gene Schroeder of Springfield, Colo., national spokesman, and Gerald McCathern of Hereford, Tex., state spokesman. Four participated, not including the upper level spokesmen.

In an apparent breakdown of communications within the American Agriculture Movement some spokesmen sent up warning signals that they regarded the Summit as a get-together of a bunch of "the learned caste" who wanted to make farm policy without hearing from producers.

The AAM timed a convoy of trucks hauling grain, primarily from Colorado to the Port of Houston to "cut out the middle man" in transportation of farm products, to coincide with the Summit.

The three-day stop at Texas A&M University would include a "rally," a "voice" at the Summit — and exposure to swarms of news people who came to the A&M campus,

Continued on next page.

(Farm Summit:
Continued from preceding page.)

some expecting confrontations between AAM spokesmen and A&M and Summit officials.

Any such thoughts by AAM or reporters diminished after an open invitation and a "rally" site were extended by A&M officials to the "visiting farmers." They accepted.

ACA Chairman Dale Hendricks, a dairyman from Bloomfield, Iowa, set the tempo of the Summit with a charge that "all segments of agriculture have been very cautious of each other, but now must work together in a joint venture to preserve the system we have and to carry on."

Dr. Schultz keynoted the conference with a plea, "Do not look back and keep looking back at economics in agriculture. That's changed."

After numerous meetings and nearly a year of study to find new approaches to crucial issues facing agriculture, the five task forces presented their studies. Each was "challenged" by at least two "assigned reactors," and questions and discussion followed from the floor.

Highlights in brief from the detailed and sometimes lengthy Task Force Reports included:

International Trade — The Task Force identified two requirements for restoring and maintaining confidence in the freer trade system: 1) a system where imports are available at all times and countries can afford to buy; and 2) increased stability of world prices.

It took a position against international commodity agreements designed to raise or lower world prices. Such price-band proposals have superficial appeal by appearing to act directly on prices. The danger, however, is that they tend to alleviate symptoms above cause. With unresponsive international prices, stocks would not adjust nor consumption be allocated.

Nutrition, Product Quality and Safety — The food arena is a jungle where the current approach to resolving disputes is outmoded. Producer input is considered "profit motive," and consumer input is rejected as "politically motivated." The problem is how can producers influence decisions without appearing to speak from a position of vested economic interest?

Farm Commodity Prices and Income — Farm programs in the future must consider middle-sized, or family farms, with annual sales from \$20,000 to \$100,000. The government must provide direct payments without levying control on

production, additional credit to new farmers and new incentives to private industry which will provide new non-farm jobs in rural areas.

Agriculture's Role in Government Decision-making — The Department of Agriculture must expand its program to encompass issues regarding food and nutrition. The standing of the Secretary of Agriculture must be upgraded, and agriculture must work harder to form issue-oriented internal and external coalitions.

Resource Use and Production Cost — Agriculture's biggest economic problem is inflation. Suggested control measures are less government spending, limiting wage increases to productivity gains and mandatory indexing of prices for products and costs.

Agriculture's complexity and grasping for answers were constantly evident in what participants said.

On International Trade:

• "The U.S. must have stronger trade agreements that would give farmers a fair price, a system for raising and stabilizing prices of raw materials such as agricultural products. We live in a system 'rigged' against raw materials. We have never understood the free market system, which actually exists in a 'textbook world.' Free marketing is largely a political system, and we (farmers) get what's left. The textbook world and the real world are far apart," (Tony T. Dechant).

• "International trade will continue to grow because the U.S. supply is dependable. We may run into necessity of export subsidies on some crops, but a subsidy war between countries would be damaging. We can anticipate a transportation problem in world trade within two or three years. If agriculture is included in the Geneva Conference a grain stocks policy will be established. If nothing comes out of the Tokyo Conference we will be on a 'collision course' of international policy which may lead to international cartels." (Dr. Timothy E. Josling, Food Research Institute, Stanford University.)

• "U.S. agriculture should take a lesson from industrial manufacturers such as IBM and Boeing. When the computer and airplane market is saturated these companies go for 'segment sales.' Agriculture should sell 'segments' — processed products — through this type of market. But agriculture doesn't." (John Brinker, A.O. Smith Harvestore Products, Inc. Albright, Ill.)

"If agriculture recognizes that farm problems have changed, then it must recognize that solutions must change also."

On Nutrition, Product and Quality Safety:

• "New decision-making mechanisms are needed to resolve disputes in the food arena. The present approach is badly outmoded because of producer-consumer distrusts of 'profit and politics.' This does more to make matters worse than to resolve them." (Dr. C. Peter Timmer, Harvard School of Public Health and Dr. Malden Nesheim, Division of Nutritional Sciences at Cornell University, in presentation of task force paper.)

• "There should be less regulation of the food and fiber system, but present rules should be kept, with no additions. There's a need for expanded nutrition education, but the task force did not agree on the substance of the education. There should be more direct interventions in the marketplace, aimed at restrictions on food advertising, changes in food grades to recognize consumer concerns, and government-mandated increases in the price of products which have high public health costs. If goals calling for reduced consumption of foods such as eggs, butter and beef are implemented the result would economically hurt the animal sector of the U.S. farm community." (task force members.)

• "Paid witnesses in government hearings could be dangerous as agencies could bring in their own witnesses. This is the reverse of democracy. Some private organizations once paid witnesses, but law now prohibits this practice." (Richard Lyng, president of the American Meat Institute.)

On Resource Use and Production Costs:

• "Agriculture cannot compete with industry in laws for use of water. (Control of water was suggested, but to use it according to markets for agricultural products.) I do not advocate regulations on size of farm, but more information is needed for use by small farm operators. There should not be special government programs for large farmers. Agricultural taxation is a serious problem, but the task force did not have reference material available to render a recommendation. There should be a bringing together of rural landowners and environmentalists." (Emery N. Castle,

vice president, Resources for the Future.)

• "Agriculture will become more capital intensive. Creditors should get a little tougher on the upswing to put away savings for the downswing. Farmers won't like it, but they will survive on the farm." (Gene Swackhamer, president, Farm Credit Banks of Baltimore.)

• "Agriculture has gotten into a box, and doesn't know how to get out. If production is controlled to control prices agriculture would become government controlled, isolated and out of the mainstream of America. To consider only production to cure agriculture's ills would be like an ostrich sticking its head into the sand. Supply, processing, distribution and food retailing must be taken into consideration. Agriculture must awaken to the pressures, consider all segments and get progressively into the political arena — form a political coalition, because agriculture can't go it alone, especially in politics. The political arena will determine what is socially acceptable." (Prof. Luther T. Wallace of University of California at Berkeley.)

• "The task force (Resource Use and Production Costs) didn't get down to exactly what needs to be done in pest control problems. Economists have worshipped efficiency in agriculture while social and other impacts of agriculture went down the drain." (Arnold Aspelin, Environmental Protection Agency.)

On Farm Commodity Prices and Income:

• "The major problems of commercial agriculture, regardless of size of farms — are inflation and instability. Farm policy must recognize that agriculture and returns to agriculture differ by size and type of farm. Tailoring one program to suit all farming would be a strait-jacket. The American Agriculture Movement is one of the nicest things to happen to agricultural economists in the last 10 years (he had been chided from the floor). The basic problem facing the AAM is low cash flow. Many members are young, either just entering or expanding their farms. Society has little to gain from a system of super-farms. Only one of the 11 members

Editor and publisher
Edward L. Jackson

Managing editor
Rudolf H. Schnasse

Contributing art director
John Baskerville

Circulation
Helen Jackson

Circulation and business offices at 1186 West Summer Street, St. Paul, Minnesota 55113. Telephone: (612) 489-3326.

Editorial office at 20 North Kent Street, St. Paul, Minnesota 55102. Telephone: (612) 225-6211.

Published monthly, except for a combined June/July issue. Subscription rates: \$15 per year in the United States; elsewhere \$18 surface mail. \$30 air mail per year. Back issues available for \$1.50 each.

Second Class postage paid at St. Paul, Minnesota. Publication No. 083750.

Postmaster: Please send change of address Form 3579 to Ag World, 1186 West Summer Street, St. Paul, Minnesota 55113.

Copyright © 1979 Ag World Inc., Printed in U.S.A. All rights reserved.

Ag World endeavors to keep readers in agriculture better informed of what others are saying, reading and doing about agriculture, and to present today's best thinking about agricultural matters with far-reaching implications.

The opinions expressed in individual articles are not necessarily advocated by the staff of **Ag World**.

Ag World
Insight into the Forces Affecting Agriculture

VOLUME 5, NUMBER 1, PUBLISHED BY AG WORLD, INC.

"Members of the agricultural community are going to have to work together toward solving agriculture's problems, and are going to have to think through what we need to do in order to get what we want. And, we are not ready yet."

of the task force (Farm Commodity Prices and Income) agreed that 100% parity would be good for agriculture." (Dr. Luther Tweeten, agricultural economist, Oklahoma State University.)

• "If agriculture were at 100% of parity it would price U.S. farmers out of world markets. We would like, however, to see parity prices and see what would happen in reality, instead of in theory. The free-market system didn't build this country. The profit motive did. The AAM is a visible sign that more farmers are saying they have been in the farm minority long enough, and that they want to 'get out of the back of the bus.' One problem of inflation is the farm debt. The AAM put \$25 million into its tractor demonstrations, but raised farm income by \$4 to \$5 billion last year. Professors have stabilized their own income, so it's time professors help farmers stabilize farm income. It isn't right for economists to compare a man with a \$100,000 investment with a man with a lunch bucket." (Jim Kramer, Kansas AAM spokesman on the task force.)

• "Prices at 75% of parity will not maintain an adequate supply of milk. Dairymen must have at least 80% of parity. We are not in favor of direct payments. Everybody hears about costs, but never about cost-benefits... Policies are very lenient when there is a surplus, but we get very stingy when we don't have enough of something." (Ervin Elkin of Amery, Wisc., president, Associated Milk Producers, Inc.)

• "There is no way I can foresee 100% of parity at the market place for agricultural products. We tried for years (in the USDA) to figure it out, and if the 'other party's team' can figure out a way to do it, then 'God bless 'em'." (Dr. Don Paarlberg, long-time USDA economist during Republican administrations, now professor emeritus, Purdue University.)

On Agriculture's Role in Government Decision Making:

• "It's 'rubbish,' those charges that the White House does not listen to the Agriculture Department, and that there's an anti-farmer attitude in the White House, in the Congress and among consumer groups that I have talked to. Ninety percent of the decision-making (affecting agriculture) is *not* based on raw political power. But raw politics is a problem facing farmers. Congress often rushes through legislation which sometimes worsens the problem. Agriculture must have a strong coalition with the food industry." (Lynn Daft, domestic policy staff at the White House.)

• "Take pride and shove it aside, yield a little here and a little there. Agriculture has a choice — all of nothing, or a part of something. Farmers sell themselves short when they say 'it's us against all others.' Farmers along with other

agricultural groups can be, and are, influential in passage of much of the legislation. Agriculture's future depends upon sound leadership. The hard part will be the sacrifices which must be made." (Fowler West, staff director for the House Committee on Agriculture.)

• "Too many farmers offer lip service while trying to perpetuate their rugged individualism. You can't thumb your nose at the government, and expect the government to do your business. Ideology is the problem — not the answer. Confrontation is dangerous, and farmers have a choice — coalition or bankruptcy." (John Kramer, associate dean of law, Georgetown University.)

• "Agricultural coalition has become a necessity. If farm organizations had done their jobs, organizations such as American Agri-Women wouldn't have been needed." (Sharon Steffens, American Agri-Women, Grand Rapids, Mich.)

Closing comments reflected the fact that the Farm Summit served as a sounding board and that there are more questions than answers. A few samples:

Connie Caufield, AAM spokeswoman from Decatur, Mich.: "The comments have been all about what's wrong. We know what's wrong. What we want is for the 'learned caste' to tell us how to solve our problems."

Dr. Jarvis E. Miller, A&M president: "Land grant colleges and university systems may have been timid, but the time has come for land grant institutions to have a louder voice in helping form the policy and in solving the problem."

Dr. Perry Adkisson, A&M's vice president for agriculture and renewable resources: "This conference, as a meeting of minds with different objectives, was healthy. Discussions were open and rational...."

Dr. Ronald Knutson, an agricultural economist at Texas A&M: "Problems facing agriculture, particularly producers, are rising inflation, farm prices and income, uncertainty of government policies, regulations, endangered middle-sized farms and a legacy of old farm programs from the 1950s and 1960s. If agriculture recognizes that farm problems have changed, then it must recognize that solutions must change also."

Dr. T.W. Schultz, University of Chicago: "We have discussed it all. Although tempers sometimes flared, this was beneficial to the outcome of the Summit. When there is heated discussion, then the audience remembers what was said. Members of the agricultural community are going to have to work together toward solving agriculture's problems, and are going to have to think through what we need to do in order to get what we want. And, we are not ready."

The National Farm Summit Almost Lived Up to Its Name

by Lauren Soth

Farmers often feel misunderstood by the general public. So do doctors, labor union members, business tycoons, teachers and even newspaper people. Each special interest group thinks it is being picked on by government, not given its true deserts.

Farmers have an extra bad case of paranoia right now. They believe the escalating cost of food is being unjustly blamed on them. They have reason for this belief, but public understanding of the true cause of higher food cost is growing.

Consumer organizations, labor unions, business groups and churches more and more are discussing the food problem in its correct proportions. They recognize that farmers have been setting new records of production but that costs of processing, packaging and delivering food to consumers in grocery stores and restaurants have been rising rapidly.

Farmers need to realize that they are not quite the victims of misunderstanding their lobbyists say they are. Two recent conferences on food and agriculture policy help widen perceptions of what makes the food system work and what government policy can do and not do.

One was the third annual *Midwestern Conference on Food and Social Policy* in mid-November at South Sioux City, Nebraska, sponsored by the Sioux City, Iowa Chamber of Commerce and the Sioux City Industrial Development Council, along with Morningside College, Briar Cliff College and Westmar College.

The other was the *National Farm Summit* at College Station, Texas, sponsored by the Agriculture Council of America and Texas A&M University. Both conferences attracted farmers, agribusiness people, politicians, professors, farm journalists and consumer group representatives.

The Sioux City sponsors deserve the praise of farmers for their initiative. Surprisingly, no farm organization was listed as a sponsor.

The National Farm Summit, I felt, almost lived up to its pretentious name. It was based on a series of papers prepared by "task forces"

covering different policy problems.

The "Summit" did result in a healthy exchange of viewpoints. American Agriculture Movement (AAM) supporters were on hand in large number. They contributed greatly to the conference by vigorously asserting their opinions on the issues.

I had been under the impression that AAM had rather dwindled away with higher wheat and cattle prices. But I may have to change my mind — a painful process — judging from the vitality displayed at College Station. AAM appears to have kept its enthusiasm, despite no formal organization, no memberships and no elected leaders. Georgia and some other states are trying to set up organizations, but at the national level the leadership remains diffused.

Lawrence (Bud) Bitner, one of the AAM founders from Colorado, said the purpose of AAM was to support coalitions and to "activate" the conventional farm organizations. Two leaders of the Movement in western Kansas, James Kramer and Lonnie Morris, told me many Kansas AAM people were members of the Farm Bureau and Farmers Union.

The leaders are planning another "march on Washington" with tractors next year.

It is doubtful that such tactics will work in 1979 if the goal AAM seeks is higher farm prices. The farm groups might do better using facts and reason. With inflation raging ahead, neither Congress nor the Administration is likely to be receptive to anything that would raise food prices.

One thing the Sioux City and College Station conferences brought out forcefully was the harm inflation is doing to farmers. Instead of crying for higher price supports, AAM and others it can "activate" would serve farmers well to call for a major assault against inflation of the costs of farm production — and the costs of distributing food to consumers.

Copyright 1978, Des Moines Register and Tribune Syndicate, Inc., 715 Locust Street, Des Moines, Iowa 50304.



Observation Points Here and There

News and views from listening posts
around the world



Saving Milwaukee Road Provides Montana Rallying Point

by Dick Hansen Jr.

Is the Milwaukee railroad really bankrupt? And if so, can employees save it? Will the Japanese ride to the rescue? These and other related questions are high on the list of concerns of both shippers and receivers of Montana grain and rail freight.

Granted bankruptcy status in December, 1977, the Milwaukee Road served notice it intends to shut down operations of the "Pacific Cost Extension" (PCE) within two years. Milwaukee employees immediately organized a committee, called Save Our Railroad (SORE), headed by Fred Simpson, former vice-president of planning for the Milwaukee.

At a hearing called late last fall by Montana's governor Tom Judge, the trustee of the Milwaukee railroad Stanley E. G. Hillman, indicated he plans to shut down the PCE from Minneapolis-St. Paul to Seattle. His position was that this portion of the system is not profitable and a cessation of operations would be in the best interest of debtors, the railroad and stockholders.

If the Milwaukee does abandon this section, it would leave Montana as the only major grain-producing state in the nation without competitive railroad service. The state already has the highest grain rail freight rates in the nation.

"If we lose this system, it is doubtful we will ever see another competitive rail system built into this state again," said George Skarda, chairman, Montana Wheat Research and Marketing Committee.

Also, in a railroad bankruptcy usually every attempt is made to reorganize and maintain as much of the system as possible. Hillman, first said the Milwaukee would cease operations on PCE within two years. When employees began their plans to finance and reorganize this branch, Hillman confused the issue by saying he can't wait for the employee group's feasibility study, because time is too short.

Simpson recently announced Japanese investors are interested in financing reorganization of the Milwaukee lines west of the Twin Cities. According to Simpson, the

railroad would be organized into a new firm serving the northwest U.S., with direct access for Japanese goods into the Midwest. He said the Japanese are very interested in survival of the Milwaukee, and that includes the possibility of financial assistance.

While specific contacts with Japanese financial interests have been made, Simpson declined to identify them at this time, or to discuss more detail. However, he noted the Japanese are interested because "they don't like the idea of having all their eggs in one basket with the Burlington Northern railroad."

Also, the yen is strong now in relation to the dollar and the Japanese are being encouraged to send money rather than television sets to the Northwest, Simpson said. In addition, they are nervous about what happens if the Panama Canal ever closes and access to U.S. markets is blocked. Simpson said they are very concerned with the new treaty and worry that the canal may no longer be reliable enough to depend upon.

Efforts to save the Milwaukee have provided a rallying point for both shippers and receivers of rail freight, not only in Montana, but throughout the Northwest. Spokesmen for these groups point out that trustee Hillman has been unorthodox in his movement toward cutting up the system in order to "save" the railroad.

They speculate that officers of the corporation have made a deliberate attempt to run off lucrative trans-continental traffic in order to put the railroad in a severe cash squeeze which will require cessation of operation and liquidation. Too, they ask, is there more money available to the stockholders if the railroad is liquidated than if reorganized? And, does the stockholder group today consist primarily of speculators?

One thing seems certain. Shippers and receivers of rail freight in Montana are not going to let the Milwaukee abandon this section of the nation without a good fight. With only the Burlington Northern railroad left with a monopoly on this vast and productive region (grain, coal, timber, etc.), the Milwaukee is important as a viable, competitive force in Montana's transportation system. And, if it takes the Japanese yen to do the job, so be it, most agree.



Grain Traffic Jam in the Prairies

by John Twigg

Grain marketing, prices and grain trade politics in general, have been attracting an unusual share of attention here.

"A multiplicity of problems has beset the grain handling sector, ranging from strikes and slowdowns to severe logistical transportation problems involving railways and shipping," Richardson Securities of Canada said in a recent newsletter.

As a result of this the Canadian Wheat Board had to defer two million tons of deliveries in 1977-78, one million in this crop year and turned down three million in new sales, according to a Board spokesman.

"This of course is a tremendous financial blow to Prairie farmers and there is apparently no immediate remedial action in sight," the letter said.

In response to the shipping problems, the Wheat Board announced that it was tendering for up to 2,000 hopper cars, to be paid for by Prairie grain farmers. However, an angry response from farm spokesmen made the Board amend its position to merely assuring that it will have sufficient cars available.

Early in January, the agriculture ministers from the four provinces of Western Canada, and possibly the ministers responsible for transportation, will meet in Winnipeg with the federal ministers of agriculture and transportation to discuss the transportation problems.

Federal Transport Minister Otto Lang said that if the parties involved in grain handling cannot find solutions to grain hauling delays and backlogs he would seriously consider the appointment of a "grain transportation controller" who would have full powers to order solutions to the problems. However, it remains to be seen if Lang would actually dare to carry out that threat.

Since the bulk of the Canadian wheat crop is exported, the price in effect is determined by the Wheat Board's ability to sell on the world market, and that of course is hampered by the handling problems and the large crops from other countries.

Canadian representatives at the

International Wheat Agreement talks still are optimistic some agreements can be reached that would raise the price above cost of production levels, but there is growing skepticism about such an agreement among farmers.

Meanwhile, Hazen Argue, chairman of the Canadian Senate's agriculture committee, continues to lobby for a cartel of wheat-exporting nations. Argue sees the new IWA as basically fallen through, and also is claiming some progress in convincing United States officials of the merits of a cartel.

U.S. Ambassador to Canada Thomas Enders made a four-day visit to Saskatchewan in December, and surprised local observers by including grain marketing high on his list of topics to discuss with local officials. Enders said there are problems, but he came out firmly in opposition to the formation of a producers' cartel. He said United States grain farmers are producing above their cost of production and therefore do not need a cartel.

There is much optimism about the size of future Canadian grain crops, and the grain companies are involved in a number of programs to enlarge their handling capacities on the West Coast.

The Saskatchewan Wheat Pool spent \$13 million to build a new 84,000-ton annex at its Vancouver facility; United Grain Growers is spending \$20 million, and Pioneer also is opening a new facility.

The consortium of grain companies headed by Alberta Pool which is looking at building a new facility at Prince Rupert was urged by Lang to take the bull by the horns and get on with the job.

The status of five inland terminals operated by the Canadian Grain Commission continues to be in limbo since the government still has not announced any sales. Federal Agriculture Minister Eugene Whelan said they will not be sold to "just anyone." That apparently was meant as a reassurance to farmers concerned that they might be bought by Cargill Grain, which has been making slow but steady inroads into the Canadian market and is seen by some as a long-term threat to the Wheat Board.

Cargill recently bought Panco Poultry Ltd. from the British Columbia government, which was trying to unload the company as a low-profit operation not belonging in the public sector.



Public Hearings on Beef Marketing

100/- ✓
by Jay Richter

Beef pricing at both retail and wholesale promises to be a topic of warm debate in the U.S. for some time to come. Agriculture Secretary Bob Bergland, sensing that beef prices are heading for new high levels consumers may find unacceptable, has been advising cattlemen to increase production.

Noting that beef output is lagging, thus inviting competitive inroads by pork and poultry, the Secretary said:

"We know that consumers have only so much to spend — and we know that if the price of any product gets too high, the consumer will either reduce his purchases of that product or switch to a cheaper one."

In 1973, the Secretary went on, "The price of beef reached that point for many housewives who decided to paint signs and stand in front of supermarkets ...

"The fact is that, measured in constant dollars, the price of choice beef today is still 13% lower than it was in 1973.

"But you know and I know that the price of farm products — especially the highly visible price of beef — will come under increasing scrutiny during inflation-conscious 1979.

Turning to the general question of beef marketing costs, Bergland observed that Congress is likely to come up with legislative proposals "to change the way that meat prices are set." Such proposals, indeed, were advanced in December by the House Small Business Committee, chaired by Representative Neal Smith, Iowa Democrat.

The committee concluded that meat pricing tactics by large food chains and meat packers are reducing the returns of both livestock producers and independent retailers. Following what staff people said was 14 months of investigation, the committee recommended:

- (1) licensing and regulation of meat price reporting services;
- (2) use of more than one market reporting service;
- (3) creation of a Meat Industry Standards Board;
- (4) establishment of a "proper" market basis for sales to prevent price manipulation;

(5) criminal penalties for deliberate manipulation of prices.

Investigators found reporting prices of the "Yellow Sheet" to be inadequate, biased and subject to easy manipulation. The committee noted that as much as 90% of all beef carcass sales are based on formula pricing — meat sold for future delivery with the price determined by figures published in a price reporting journal.

As much as 90% of the industry, the committee said, uses the Yellow Sheet, published in Chicago.

Department of Agriculture officials said it could not be concluded from a USDA study that Yellow Sheet quotations were inaccurate reflections of negotiated prices. But in a just-issued report on the study (covering only 30 days of July, 1977), USDA noted the Yellow Sheet is "the main guide" packers use to bid on live cattle.

About 70% of carlot carcass sales by 35 packing houses moved under formula prices, based on Yellow Sheet quotations. Carcass quotations of this service and the Meat Sheet, the report said, "were based on less than 2% of the federally inspected steer and heifer slaughter."

Although the report contains no recommendations, USDA officials apparently think something should be done about beef marketing. Secretary Bergland already has announced public hearings, at times and places that were yet to be named. Meantime, he said, he would appoint a task force to come up with "possible improvements ... in meat pricing and price reporting."

sented in the FAO document "The State of Food and Agriculture 1978") confirm that the increase of food production in the developing countries will be not more than about 2.7% in 1978. The average annual increase in agricultural production in the developing world during the first eight years of the present decade remains well below the 4% target of the Second Development Decade, but also below the 3% achieved in the previous decade.

In this context it is encouraging that the total carryover stocks of cereals (outside China and the U.S.S.R.) will probably reach about 200 million tons by the end of the 1978/79 agricultural year (against 177 million in mid-1978), about 21% of annual consumption. The stocks are, however, concentrated mainly in North America.

As far as the flow of resources for agriculture in the developing countries is concerned, the information on *domestic expenditure* is in the view of FAO "particularly scanty." Latest data on *external resources* indicate that "although there was a large increase in real terms in 1977, the total commitment of external assistance for agriculture was little more than half the target figure." (This "target figure" obviously refers to the rather utopian target of the UN-World Food Council in its Manila and Mexico Declarations of 1977 and 1978: annually \$US 8.3 billion at 1975 prices.)

Much time of the session was devoted to a discussion on the FAO-Technical Cooperation Programme (TCP). Saouma considers this event still — as he told the Council — a "historic decision, taken by a consensus which embraced the enthusiastic welcome of the great majority." The TCP is funded by the regular budget of FAO (based on assessed contributions), and absorbs about 10% of the budget. The Council had before it the first evaluation report which is based on a variety of sources (among them the Director-General himself and other people involved in the planning and implementation of TCP projects) and on the study of a consultant (appointed by Saouma himself). The evaluation report of the FAO Secretariat concludes that "the initiation of the TCP in 1976 was a milestone in the history of the Organization" and that experience has "confirmed the validity and effectiveness in action of the TCP." A great majority of the Council endorsed its main findings.

It was resolved that the Director-General "make every effort to further strengthen and improve the TCP." (The consultant's study was not made available to the

Council, and nobody asked for it.)

Very few Council members expressed reservations. The most outspoken statement was given by the delegate from the United States. For the USA the issue is not "whether FAO should maintain its practical orientation toward field programmes, or whether technical assistance should be provided through FAO to developing countries." The real issue — "regarded with particular seriousness in the United States" — is whether the regular budget of the FAO or other U.N. agencies financed by assessments (and therefore obligatory for their members) should be used for technical assistance programs save in "exceptional circumstances." The present terms of reference of the TCP open — said the U.S. delegate — "too many possibilities for launching less urgent, longer term projects which could be handled through voluntary funding channels" (such as UNDP). Therefore, "tighter guidelines emphasizing emergencies" are recommended as well as allocating more resources to the poorest developing countries (so far only 59%). Another serious objection raised by the USA concerns the very high percentage of physical inputs (equipment) granted by the TCP (nearly 50% of the total commitments against about 15% in other technical aid programs administered by FAO, but funded by voluntary contributions). The grants of equipment are, of course, a central point for the developing countries, and they strongly opposed the U.S. suggestion. Typical was the statement made in the plenum of the Council by the delegate of Sri Lanka: "Part of our experience so far with donors has been the great reluctance to spend on equipment without thrusting some expert on us. We would even go so far as to say that equipment should form a very large part of any technical cooperation program."

The basic problems raised by the creation of a technical aid program such as the TCP go far beyond FAO. If other specialized agencies should follow this example, the whole U.N. system of technical assistance would be balkanized and funds scattered over the international landscape (Arthur Goldschmidt) with chaotic consequences.

The "Group of 77" must be requested to speak one language in the specialized agencies of the U.N. system as well as in the UNDP bodies in order to avoid building a good dozen of "sovereign" empires.



FAO Council Continues to Endorse TCP

100/- ✓
by Otto Matzke

The November-December Session of the FAO Council indicated general agreement that the main responsibility "to give adequate priority on food and agricultural development lies on the developing countries themselves" (so said Edouard Saouma, Director-General of FAO). Saouma went on: "While many are in fact placing great emphasis on agricultural development, not enough is done overall."

The most recent figures (as pre-



What Makes Farmers Tick?

86

by Trevor M. Johnston

One important thing about farming is that it creates work for a lot of people. Some of them work on farms, many of them pick up salaries in agribusiness, in processing, distribution and marketing, and others feed off farming via government funds pumped into the agricultural sector.

It used to be that everyone found a nice, safe niche in that agricultural production and marketing system and looked forward to a handsome dividend at the end of the year. Costs, inflation, technology and changing trade patterns have changed all that.

These same ingredients of adjustment have also changed farmers. No longer do farmers produce crops and livestock ad infinitum to be reaped by agribusiness and government and devoured by hungry consumers. Farmers' attitudes have changed. The instincts, values, aims and aspirations of the farmer and his family have been jolted in the seventies. Old ideas and practices have been jettisoned. Jealously guarded values and concepts have been placed in jeopardy.

This means that farmers are no longer predictable. Their reactions to certain circumstances will no longer follow the rules. We need to know what these changes mean to farmers and to those who feed off them.

One research worker at the Australian Bureau of Agricultural Economics, Mr. K.W. Kerridge, has been looking at the response of individual farmers to adjustment pressures in an effort to formulate a more effective adjustment policy.

One of the surprising results was that only 13% of farmers desired to maximize their income. The majority of farmers (55%) expressed the desire to "make a satisfactory level of income." Only 5% of farmers felt it was most important to expand their business.

Only 11% of farmers valued "pride of ownership" highly. The majority of farmers (62%) valued farming because it allowed them "to meet a challenge and gave them the feeling of achieving something worthwhile."

In the majority of cases (65%) farmers were attracted to the "independence and freedom from supervision" values of farming.

Farming for recognition and prestige has gone by the wayside with only 7% expressing this desire. Belonging to the farming community was ranked first by 54% of farmers while continuing the family tradition was ranked first by 39%.

The range of what farmers disliked about farming was diverse. The largest group (30%) disliked

fluctuating prices. Uncertainty of prices and seasonal conditions was the bugbear of 16%, while lack of bargaining power annoyed 9% and government intervention angered 7%. But about 19% disliked "nothing in particular."

It would be foolish to draw specific conclusions from this tentative study, but it does unearth enough information to indicate that farmers and farming 'ain't what they used to be.' Anyone who does business with the farmer or with his products ought to start thinking about what that means to himself and his livelihood.



Vast Schemes in Sudan Run Out of Breath

125

by Robert Pouliot

Soon after the 1973 Middle East war, the well-known Saudi Arabian entrepreneur Adnan Khashogji told Sudanese President Gaafar Nimeyri: "The only way I see doing anything here is to bring in a lot of money."

This said and done was enough to unleash a wave of projects designed to transform Sudan, Africa's largest country but one of the world's poorest, into an "Arab breadbasket." With 200 million acres of cultivable land of which only 15% is now being used and plenty of water, such a potential could indeed, thanks to a mix of petromoney and western technology, help to secure a reasonable degree of self-sufficiency within a decade for the Middle East.

But five years later, the dream is still just that. Faced with a growing labor shortage and severe lack of infrastructure, the development dash in agriculture has dissipated the country's financial strength, aggravated inflation and widened the balance of payments gap.

Grandiose schemes, such as a \$6.6 billion project by the Arab Authority for Development & Agriculture Investment to triple Sudan's output by 1985 are being supplanted by action on much smaller-scale ventures.

What went wrong is that development expenditures to carry out such an ambitious goal shot up nearly ten times since the October war but few big projects undertaken since have begun to contribute to production. Because of largely deficient infrastructures, many schemes will take seven to ten years before they start making a profit. This has produced a soaring balance-of-payments deficit with adverse impacts on getting access to world capital markets or tapping new investment sources to pay for essential equipment and meet start-up deadlines.

It is apparent that Sudan's main economic strength is also its major weakness. Despite the fact that more than 34% of its area is barren

desert, agriculture accounts for 98% of its exports and 75% of its labor opportunities, besides providing half of the government's revenues. Yet, this rural economy is just now discovering the need to modernize its road and transport facilities. There are only 400 miles of paved roads, and 85% of the overall network is unfit for major trucking services during the long rainy season (6 to 9 months). When the most fertile tracts are 500 to 1,200 miles away from Port Sudan, the country's sole and hence heavily congested port on the Red Sea, any improvement in transportation is bound to have positive effects on the growth of agriculture.

That explains why Arab and other foreign interests have become increasingly skeptical about the feasibility of huge projects. Each undertaking has to provide its own roads and transport, electric power network, housing and other services, thereby sharply increasing costs and delays.

Another big headache for the long-term future is the shortage of labor.

The authorities have tried to persuade Ethiopian refugees to bring in this year's cotton crop but failed. If mechanization is to be scaled down, the country's total population of 18 million might not be able to support projects of this kind.

Serious shortages are also emerging in the skilled labor force. Large numbers of scarce craftsmen plus technical and managerial staff are finding more lucrative jobs in the Gulf States. Sudanese expatriates totaled more than 150,000 at the end of 1977, compared with only 30,000 a year earlier and the trend is booming out of hand.

Those combined factors have compelled the Nimeyri government to introduce strenuous financial and economic measures lately, while harsher controls on exit visas are at least discouraging a heavier outflow of workers. Following a 20% devaluation of the pound (1\$=2.5SP), the development budget oriented towards agriculture was cut by 36% in the current fiscal year and a vigorous program to reschedule more than \$1 billion of medium-term debts is now under negotiation. The new pattern is to follow the example of Somalia which has put the emphasis of its \$710 million development plan on small projects designed with local needs in mind.



Organizational Snarls Blamed for Lower Production; But Food Position Is "Comfortable"

75

by Judicate Shoo

Tanzania's annual National Agricultural Conference ended in the country's coastal town of Tanga recently with a resolution calling on the government to suspend the training of nutrition and home

economics officers and instead to train more agricultural officers. More of them are needed to implement the eight-year \$19 million grain production program aimed at making the nation self-sufficient in food crops by 1985. The program starts this 1978/79 planting season.

A drop in production of cash crops — the country's main foreign exchange earners — has been recorded in the recent years. At the same time, there has been an increase in the production of cereals, although there is room for improvement if the resources available in the villages were fully utilized. Cashew nuts dropped from 96,000 tonnes (t) during the 1976/77 season to 70,000 t the following season. Cotton dropped 23%, from 195,000 to 151,000 t in same time period. Pyrethrum declined from 3,250 to 2,700 t; sisal from 118,000 to 107,930 t. Production of copra is so low that some associated industries were forced to close.

There is an urgent need for the Ministry of Agriculture to strengthen links with the field staff to avoid misinterpretation of national agricultural development policies. After adoption of the 1972 government decentralisation policy, the Ministry of Agriculture appeared to have suspended its relationship with the field staff so that regional directorates are now formulating their own policies. Due to lack of coordination between Ministry and villages, the Ministry's Crop Development Division experiences problems in administering extension services to the extent that the Ministry does not have the confidence to forecast crop harvests because there is no free flow of information.

The Ministry was also criticized for short supplies of necessary agricultural requirements available to the regions. The conference noted that crop production throughout the country would have increased with the necessary inputs. The food position, however, is comfortable in almost all of Tanzania's 20 mainland regions. It is expected that this will be even better in 1979.

The major constraints in crop production are attributed to lack of funds, transport, spare parts, trained manpower, coordination, proper agricultural policies, inputs, and widespread crop diseases and vermin. There is an escalation of diseases and pests attacking crops, with pest control services offered being very poor.

There was an outcry over an acute shortage of field officers at regional, district and village levels. More than half of the country's 8,000 planned villages have no field officers despite a policy requiring at least one field officer for every village.

Faulty use of fertilizers resulted in poor crop production in some parts of the country, especially fertilizer used by maize (corn), bean and cotton growers. Fertilizer use should be concentrated in areas where soil tests have been carried out to identify the type of fertilizer suitable for such areas.

For the Soviets, the Time to Set Aside Grain Reserves Is Now

by Alexander M. Derevanny

For the farmers in the western as well as the eastern world the relative quiet of the winter months is usually a time for stock-taking.

Looking back at a year that filled elevators and grain bins to overflowing, the question of how to make best use of the blessings of 1978 is asked nowhere with greater intensity than in the Soviet Union.

There are several good reasons.

Among others, there is the question of reserves. Then, there is the problem of how to keep some of the notoriously grain-deficient satellites on an even keel. The Soviets' yearly grain supply commitment, originally limited to the three northern tier members of COMECON (Poland, East Germany, Czechoslovakia) and Mongolia, have been expanded in the course of the years; first it was North Korea, then Cuba, now it's Vietnam. In this study, we shall deal with the question of reserves.

In the past, years of relative grain abundance barely made up for the supply gaps left by the immediately preceding crop failure years. Thus, the 1973 crop (222.5 mill. t) plugged only partly the deficit of the 1972 crop (168.2 mill. t); 1976 (223.3 mill. t) was used to make up for the disaster of 1975 (140.1 mill. t). All these years, however, saw extremely heavy grain imports from America, Canada and Australia.

If there was an accumulation at all of reserves in all these years, it was bound to be small.*

Things are somewhat different in 1978/1979.

There is now, according to Mr. Brezhnev, a 235 mill. t crop — some western observers, it should be noted, have started to seriously question not only the overall quality but also the overall size of the crop — coming after 1977 which certainly was not a good year (195.5 mill. t). But then, everything considered, 1977 was not a bad year either — not in terms of average Soviet grain production, anyway.

Except for the economists who truly believe that the 1978 crop of

*) In his book "The Soviet Impact on World Grain Trade", D. Gale Johnson, professor of economics, University of Chicago, points to a not widely known but interesting fact, i.e. that large grain crops in the Soviet Union do not automatically lead to a build-up of reserves. He calls attention to 1970/1971, two good crop years in a row — a great rarity in the history of Soviet cereal farming — when grain stocks were actually reduced. Professor Johnson attributes this phenomenon to a change in Soviet agricultural policy, then concealed and not surfacing until several years later. The change Professor Johnson has in mind is the decision to switch the Russian diet from a predominantly carbohydrate diet to one richer in animal protein. A policy change of this magnitude is not likely to occur so soon again.

235 mill. t can be repeated year after year with unfailing regularity — even in the USSR these are few and far between — this seems like a unique opportunity to set aside a strategic reserve. The use of a military term in this instance is deliberate.

Without wishing to go into the details of Soviet troop and military personnel movements reported by the daily press from the Far East, Southeast Asia, the Middle East and even Africa — in the latter instance the troops may not actually belong to the USSR armed forces, they might be only Soviet controlled and directed — there remains nevertheless the fact that these movements must be logically supported which, before anything else, means an adequate food supply.

As an example, let's take the Far East. According to recent reports, the Soviets have 44 divisions totaling — with ancillary forces — as many as one mill. men stationed along China's border. Two new deepwater ports for the Soviet Pacific fleet, also equipped with the most up-to-date grain loading and unloading devices have been under construction for some time. Nakhodka, a former fishing village, about 100 miles southeast of Vladivostok, in actual operation for some 10 years, is also known for being the site of one of the USSR's most gigantic, vertically integrated "ptitse fabrika" (layer and meat type poultry farms) with a yearly capacity of several million eggs and several thousand tons of poultry meat. Twelve miles further down the Bay of Peter the Great is Vostochny, another one of the new deepwater ports capable of handling freighters up to 100,000 t. A separate railway spur has been built from there to join the Trans-Siberian Railway north of Vladivostok.

Then, of course, there is BAMA, the Baikal-Amur Railway now being built across southeastern Siberia at a cost estimated to be running in the neighborhood of 1.5 mill. rubles per kilometer. While primarily said to be destined to transport the mineral riches of the "Primorye Kray," its strategic significance is undeniable. The new railroad will also be used for the transportation of grain.

A major new base for the Soviet Pacific fleet is also envisaged for Korsakov on the island of Sakhalin. Finally, there is Kam Ranh Bay in Vietnam, constructed by the Americans at a cost of several billions of dollars during the Vietnam

war, now taken over by the Soviets.

One thing is certain. When it comes to food production, the local oblasts of Amur, Khabarovsk and the Primorye Kray cannot even support the swollen population of the region's new industrial cities, let alone the huge influx of manpower now permanently stationed in the region.

Except for some narrow coastal strips of mostly alluvial, highly acid, podzolic soils, this is almost entirely sparsely populated, permafrosted, barren wilderness.

As to Vietnam, now engaged in a latent armed conflict with Cambodia, the costs of keeping the economy from collapsing are variously given as between \$2½ to 3 billion.

How much of this amount will be debited to the food supply account is not known. But it will be substantial.

Vietnam had three rice crop failures in a row. Famine conditions in certain regions are reported by travelers.

Thailand, experiencing similar floods in the richest rice crop regions as the Vietnamese, will probably barely be able to make domestic ends meet.

The Soviet Union, never a rice exporter, can only supply wheat. Actually, this is what was done already in past years, at about 200,000 t per year. This time, considering the earlier mentioned circumstances, also, because since the American withdrawal from South Vietnam, Hanoi has to provide food for a total of 50 mill. people, the quantities will be undoubtedly very much larger.

It took us much longer than we thought to describe a single aspect of the reasons why we believe that the Soviets will want to use the 1978 bumper crop primarily for the accumulation of reserves.

This, however, is by no means all.

There is the growth in the USSR's population — soon there will be 260 mill. people — but just as important or possibly even more so, at least from the point of view of grain reserves requirements, is the uninterrupted growth in livestock and poultry numbers. The year-end animal census which customarily includes also animals kept by the private sector — figures are not available at the time of writing — will undoubtedly show record numbers for all livestock and poultry on Soviet farms except possibly, sheep and goats. Hog numbers are sure to have completely recovered from the mass slaughters of 1975/1976. A return to the January 1, 1975 figure of

72½ mill. head would not be a surprise.

Then, there is the increase in weights of slaughter animals. Cattle delivered to government slaughter houses are now averaging 367 kg as compared to 354 kg a year ago, and hogs 105 kg as against 103 kg in 1977. Poultry numbers increased by 54½ mill. birds in the first 9 months of 1978 and poultry meat production jumped 16%.

All this leads to the conclusion that management, especially livestock management has markedly improved and, also, that more concentrates are being fed than ever before. A month ago in this column, we pointed out that the Soviets are customarily feeding 40% of their wheat. We also said that this year it might be more because of the large quantity of wheat not usable for anything else. USDA estimates the 1978/1979 Soviet feed use of wheat with 43 mill. t. In October, USDA's total forecast of concentrates expected to be fed to Soviet farm animals was 125 mill. t. Already then, this figure looked rather conservative since the Soviets themselves estimated having fed 143 mill. t of concentrates in 1977. Of course, the Soviet figures include not only grain but mill feed, pulses, legumes, grass flour, etc. as well. The difference of 18 mill. t between the Soviet and the USDA estimates, attributed to the use of these secondary feed ingredients looks to us as somewhat on the high side.

Be it as it may, since concentrate feeding to Soviet farm animals is increasing at 5 mill. t per year, much larger consumption of feed grains and high-protein oilseeds must be anticipated from now on — provided of course that the Soviets will continue to follow the goals of their livestock policy announced some ten years ago: to increase animal productivity to western levels.

History has shown that droughts in European Russia and/or the West Siberian crop areas repeat themselves with much greater regularity than abundant moisture years like 1973, 1976 or 1978. Prudence, a virtue not unknown to the Russians, will dictate the setting aside in years of oversupply of ample grain reserves to feed all these hungry mouths, human as well as animal, in years of scarcity.

1978 appears to be such a year. •

Economic and Policy Implications of the 160-Acre Limitation in Federal Reclamation Law

by David Seckler and Robert A. Young

Proposals for strict enforcement and, conversely, for relaxation or elimination of acreage limitations in federal irrigation projects have arisen in response to recent court decisions regarding two large California irrigation districts. These proposals are examined against criteria including distributive justice, allocative efficiency and administrative workability. Empirical evidence is offered which shows that proposed regulations would permit overly generous family incomes in the two areas and brings into question the existence of significant economies associated with larger size farms. An alternative policy instrument, based on control of the water supply, rather than of the land, is proposed so as to reconcile more effectively conflicting policy objectives.

The Reclamation Act of 1902 opened the door to three-quarters of a century of subsidized agricultural development in the West through provision of inexpensive irrigation water. While it is perhaps impossible to determine exactly how much the total subsidy of federal water projects has been to date, certainly it is in the billions. The number of farms directly benefited has been barely more than 150,000. The per farmer stakes can be high indeed. As will be shown subsequently, even a modest farm operation of 160 acres in California may receive a subsidy on water costs, the capitalized value of which is in excess of \$100,000.

In an attempt to assure widespread distribution of program impacts, the 1902 Reclamation Act contained the following provision:

No right to the use of water for land and private ownership shall be sold for a tract exceeding 160 acres to any one individual landowner, and no such sale shall be made to any landowner unless he be an actual bona fide resident on the land, or occupant thereof residing in the neighborhood.

There are few, if any, examples in American jurisprudence where the gap between *de jure* and *de facto* looms so large. The 160-acre limitation can be subject to administrative interpretations. For example, the U.S. Department of Interior is now proposing to interpret this as 640 acres of owned, together with 320 acres of leased, land for a total 960-acre limitation. Such a "family farm" in the Westlands District of California would operate about \$1.5 million worth of land, with about \$200,000 worth of machinery. Their net annual income would average more than \$100,000, of which about \$36,000 is due to the difference between the subsidized value of federal water and the price of state water supplies.

The controversy over the 160-acre limitation is essentially a controversy over the distribution of this subsidy. The parties to the conflict represent two fairly distinct pecuniary and ideological positions. Opponents of the limitation are mainly those farmers now benefiting from nonenforcement of the limitation who demand the en-

trepreneurial freedom to acquire as much land and water (and subsidy) as their efforts and ingenuity permit, within the limits and rules of the "free enterprise system." They further argue that larger farms are essential for economic viability and to low-cost food production. Proponents of rigorous enforcement of the limitation advocate a more widespread distribution of the opportunities provided by the reclamation program, and expect also the creation of a more desirable "rural community". Neither side, to our knowledge, advocates reducing the amount of the subsidy.

The values underlying these conflicting ideologies emphasize, in John Brewster's terms, the "Enterprise Creed" versus the ideal of "distributive justice." The enterprise creed is distinguished by a belief in capital accumulation as the test of virtue. The ethics of distributive justice holds that society is obligated to provide all its members with opportunity or access to the means necessary for developing their potential to the fullest extent possible.

For our part we write from a perspective distinct from either of the above positions. We perceive no reason to subsidize any individual or group unless there is good reason to believe that the subsidy creates external benefits, or offsets external costs, or provides collective goods that would otherwise not be forthcoming. Among these collective goods we would include help to the weak and the poor. Applying these criteria, we find that there is no compelling rationale for anything like the amount of subsidies now being provided under federal water programs. Nor do we find the "efficiency" arguments of the opponents to limitation; nor the "family farm" ideology of many of the proponents of the limitation, persuasive.

But while there is nothing so enjoyable, nor so necessary in policy analysis, as a quarrel over values, that quarrel is not our central objective here. Before policy recommendations can be intelligently formulated, a background of more objective facts and theories must first be established. It is our central objective to contribute to the formulation

of that background. The following does not pretend to be a value-free tract — a policy analysis (unlike an "economic" analysis) does not need to pretend to be so; rather, it is presented as a marshalling of such facts and theories as we consider relevant around the values expressed in the preceding paragraph.

The remainder of the paper is organized as follows: after a brief historical survey of the controversy over the limitation, the discussion attempts to review the present status of federal water programs with respect to the acreage limitation, with particular reference to the Westlands and Imperial Water Districts in California. Estimates of the amounts and distribution of the subsidy are presented and the impacts of the limitation in this agricultural situation are analyzed. With this background established, we turn to one of the more important and complex elements of the controversy — the question of economies of size to provide a basis for some alternative lines of research in the future. Last, we attempt to generate alternative policy instruments commensurate with the discussion of the preceding sections. The conclusions are that (a) the amount of the subsidy should be reduced, (b) there are better ways to distribute whatever subsidy remains than through the acreage limitation, but, (c) these bet-

ter ways may not be legally or politically feasible, and (d) if so, then rigorous enforcement of the limitation in the range of 160-320 acres of owned and/or leased land per operating family unit, depending on particular project areas, is indicated.

The Historical Evolution of the Limitation

The United States government has, historically, pursued policies which increase the productive capacity of the agricultural sector in order to assure adequate food supply for consumers, to improve the economic well-being of the rural population, and to settle and secure new territories. In accordance with the Jeffersonian vision of a nation of small, independent landowners, the first major tool of agricultural development policy was the distribution of publicly owned lands to potential settlers at nominal prices. The general policy of encouraging family farms was continued with the Homestead Act of 1862, which offered 160 acres of land free to those who would live on it for five years. As the tide of settlement flowed westward throughout the nineteenth century, it was found that crop production in the arid and semiarid west was largely dependent on irrigation water.

Federal support of private irrigation development came with the

AG WORLD ABSTRACT

California agriculture thrives because irrigation water is added in large measure to the arid land. Much of that water comes to farms by way of subsidized federal water projects. And, "the per farmer stakes can be high indeed," say the authors who are both professors of economics at Colorado State University.

Much has been written and said about the conflict which represents "two fairly distinct pecuniary and ideological positions," and still, the issues remain clouded. This article from the November issue of the "American Journal of Agricultural Economics" takes a broad look at the subject, offers considerable detail, is written with clarity and even an appropriate touch of humor. We therefore reproduce the article in its entirety.

The authors say that their article "does not pretend to be a value-free tract — a policy analysis unlike an "economic" analysis) does not need to pretend to be so." Rather, they "write from a perspective distinct from either of the above positions" ("enterprise creed" versus "distributive justice").

"We perceive no reason to subsidize any individual or group unless there is good reason to believe that the subsidy creates external benefits, or offsets external costs, or provides collective goods that would otherwise not be forthcoming," Seckler and Young say.

The authors divide their article into four parts, all of which have a bearing on the possible resolution of the conflict.

- The Historical Evolution of the Limitation, culminating in "a rather striking set of proposed regulations by the U.S. Department of Interior."
- The Amount and Distribution of the Subsidy is "a more micro-economic view of the agricultural situation in California as it has evolved under the federal water program." The authors conclude that "the agitation against the present situation is well founded," but they doubt that present proposals "are workable at all."
- Farm Size and the Efficiency of Agricultural Production, in which they suggest that "increasing average farm size does not necessarily imply the presence of economies of size; it only implies the absence of significant diseconomies of size," but also that the present state of knowledge is insufficient.
- Policy Instruments for Administering the Federal Water Subsidy. The central thought "is to control the water, not the land," through a two-tier system providing "an opportunity for joint administrative and market determination of the use of the water resource."

Confirmation of Western Water Rights Act (1866), the Desert Land Act (1877), and the Carey Act of 1894. By the end of the century, almost four million acres had been placed under irrigation. However, most of the normal irrigation season flows were being utilized, so further development would require larger capital investments for dams and reservoirs to store spring season runoff, and proposals for federal action in this field became frequent.

Direct federal participation in arid land reclamation came in 1902 with the adoption of the Reclamation Act. The sale of public lands was to provide a revolving fund to be used for the construction of major irrigation facilities. Settlers were to receive land without cost, but were to repay, without interest on the capital, the public investment in the irrigation structures. Capital and expertise were provided for water projects on a scale larger than could be afforded by private interests or local communities. Later amendments converted the repayment procedure to an "ability to pay" principle, in effect, separating repayment requirements for irrigation water from the true costs of the water while continuing the interest-free provision. Current projects are subsidized to the extent of over 80% of costs. That is, water recipients are obligated for less than 20% of the investment in structures and conveyance systems, including imputed interest on that investment over the normal repayment period (North and Neely). This degree of federal cost-sharing makes the program exceedingly attractive to potential water users and local and state governments in prospective project areas.

The Reclamation Act was formulated against a background of widespread abuses in administration of the Desert Land Act and other legislation which distributed the public domain. Great tracts of land were accumulated by absentee landowners who financed their employees in filing fraudulent claims and later obtained the land once the employee secured title (Hibbard, p. 429). The ensuing scandals provided the basis for a new political movement which advocated a land policy that favored small, family farms.

In the Reclamation Act, the 160-acreage limitation was supplemented with a residency requirement and with antispeculation rules. The latter required that owners of land in excess of 160 acres must sell it at a pre-project price, so as to prevent the original large owner from reaping the

capitalized value of the federal subsidy to the detriment of the intended recipients of the subsidy. Thus, the "160-acre limitation" provisions represent not just a limit on land, but include several other constraints aimed at ensuring that small, family farms would be the outcome of the federal program.

The acreage limitation law from the beginning has been perhaps the most controversial aspect of the reclamation program, and numerous attempts at repeal have been launched (Sax, p. 210). There are, no doubt, reasons to question a rule limiting for all times and all places the amount of land a farmer can utilize, in view of drastic changes in technology, scale of farm operations and relative prices during the ensuing three-quarters of a century, and conditions of production that vary among different projects. However, most of the dispute has been on ideological grounds. Both proponents and opponents have assumed a stance of moral righteousness and ominously have warned that if their lead is not followed even revolution may ensue. Theodore Roosevelt set the tone in a rather heroic address in defense of the limitation before the Commonwealth Club of San Francisco in 1912.

I wish to save the very wealthy men of this country and their advocates and upholders from the ruin that they would bring upon themselves if they were permitted to have their way. It is because I am against revolution; it is because I am against the doctrine of the Extremists, of the Socialists; it is because I wish to secure this country against ever seeing a time when the "have-nots" shall rise against the "haves;" it is because I wish to secure for our children and our grandchildren and for their children's children the same freedom of opportunity, the same peace and order and justice that we have had in the past (Taylor, p. 262).

Roosevelt's threat of revolution from the Left was taken up by a senior vice president of the Bank of America as late as 1969 who contemplated a revolution from the Right (or, at least the West). Of the 160-Acre Law, he said, it is a "ridiculous law, fostered by provincialism and Eastern political jealousy . . . subjugating economic realism to petty political tyranny . . ." And, he added, "maybe this is what causes the seeds of a civil war" (Taylor, p. 253).

Both sides, for all their revolutionary ardor, have approached the subject with some caution. There is always the danger, when quarreling over the distribution of public subsidies, that the attention of those taxpayers who do not receive the

subsidies will be aroused and the subsidies may be withdrawn altogether. The point was eloquently put by congressman Claire Engle in testimony before a House subcommittee.

I grant you, you start kicking the 160-Acre Limitation and it is like inspecting the rear end of a mule: you want to do it from a safe distance because you might get kicked through the side of the barn. But it can be done with circumspection, and I hope we can exercise circumspection (Taylor, p. 253).

In the half-century since the publication of the original law, the Department of Interior has relied only to a limited extent upon formal, written rules and regulations for the interpretation and enforcement of this document. Rather, it has been handled in the fashion of English common law, and interpreted, basically, as a "Dead Letter" law. That is to say, the interpretation and the enforcement of the law have been at the convenience of administrative bodies depending upon the nature of the particular situation in which they are to be applied. By this means, as the British have long understood, the law is at the discretion of the administration. On the whole, as Sax (p. 213) observes, "interpretation and enforcement of the excess land law was less than vigorous." Thus, as various administrations and various courts have had the law before their attention, the countryside has become agitated.

The level of conflict has intensified in the last few years as a populist administration has come into conjunction with strict constructionist courts. In August 1977, the federal circuit court in San Francisco ruled that the 160-acre limitation applied to the Imperial Irrigation District, California. That District, comprising some 445,000 irrigated acres located on the Mexican border in the Imperial Valley, had operated under a 1933 administrative ruling by the Secretary of the Interior which held that the acreage limitation did not apply to the District.

Previously, in August 1975, in response to a suit filed by *National Land for People* challenging Bureau of Reclamation procedures employed in the disposal of excess lands in the Westlands Irrigation District in the San Joaquin Valley of central California, the court ruled that the U.S. Bureau of Reclamation shall "forthwith promulgate rules and regulations on procedures and criteria to be used in the approval of excess land" (Hinds, p. 3).

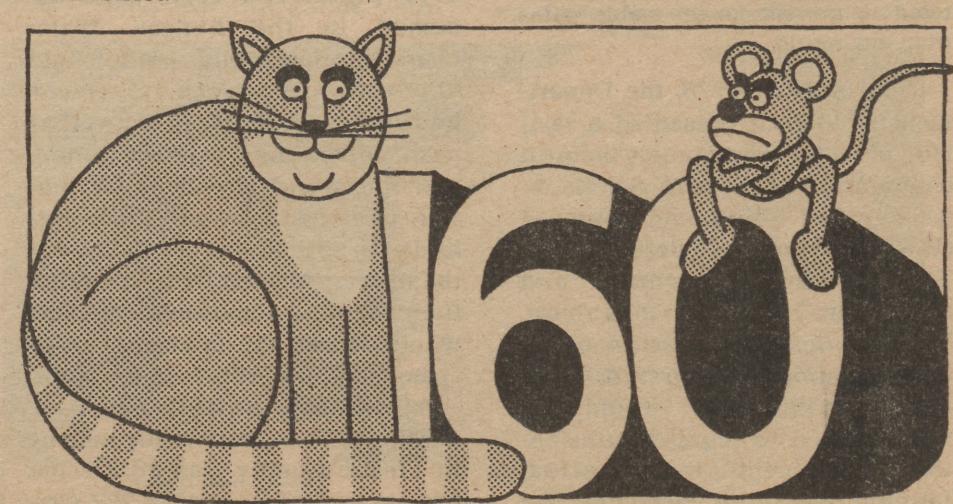
In compliance with that order, the U.S. Department of Interior published a rather striking set of proposed regulations. The following synopsis by Eugene Hinds, Chief of the Division of Water and Land of the U.S. Bureau of Reclamation, provides an indication both of what will be, if implemented, and also what historically has been.

First. In the past an individual's nonexcess acreage entitlement was determined on the basis of the irrigation district in which the land was allocated. In other words, the landowner was entitled to up to 160 acres in more than one district or contract service area. Under the proposed rules and regulations, an individual would be limited to only one nonexcess entitlement for all Reclamation projects.

Second. Under the proposed rules and regulations *residency* would be a requirement for a purchaser of excess land. A resident landowner is a person who has his or her principal place of residence on or in the neighborhood of the land receiving water. *Neighborhood* of the land is defined as an area within a radius of 50 miles from the land receiving water from the project.

Third. Under existing practices, multiple ownership arrangements are acceptable if a loose family relationship exists among all members who are a part of the multiple ownership arrangements, or where the effect of the multiple ownership is to break up large landholdings. The proposed rules would tighten these requirements by requiring that a multiple ownership arrangement in future purchases of ex-

Continued on next page.



**(160-Acre Limitation:
Continued from preceding page.)**

cess land could only be used where a direct lineal family relationship exists among the members and the members qualify as eligible nonexcess owners. A direct lineal family relationship means parents, children, grandchildren, or grandparent relationships.

Fourth. Under current practice, there are no restrictions on leasing of land unless the lease arrangement continues or establishes in the lessee what would constitute an essence of ownership in the land leased. The proposed rules and regulations would change this procedure by first, prohibiting leasebacks of land by the purchaser of excess land to the seller of excess land, and second, by limiting the number of acres that an individual can lease to the same number of acres that he or she would be entitled to own or 160 acres.

Fifth. In the disposition of excess lands the procedure that has been followed is that the owner of the excess land retains the right to choose the buyer of his land. However, the seller and buyer are required to secure, from the Bureau of Reclamation, the approval of the price of the land to be sold and a determination that the buyer can qualify as an eligible nonexcess owner. The new rules and regulations will continue to follow this procedure but will require that the purchaser of excess land be chosen by lottery or other impartial means from those who qualify and express an interest in purchasing a particular parcel of land. A preference will be given to those in a family relationship with the seller. The proposed regulations also require that personal and nonfixture property be sold separately. The purchaser of land will not be required to buy any such items as a condition of the land sale.

Sixth. The current practice, insofar as recordable contracts are concerned, is that a 10-year period is provided for the owner of the excess land to dispose of his land. The term for most recordable contracts that are now in effect begins when the landowner signs the recordable contract. Under the proposed rules and regulations all new recordable contracts will have a disposition period of 5 years which will begin when the Secretary of the Interior determines that project water is available to a block of land.

Seventh. The new rules and regulations strengthen the procedures to be followed in controlling speculation in the purchase and resale of excess land. Currently, price approval is required only for the initial sale of excess land into nonexcess status. As nonexcess the land can be sold at market value. Under the proposed rules and regulations, approval for all resales of land purchased from excess status into nonexcess status will be required for a period of 10 years after the initial sale. After 10 years and until one-half the construction charges are paid, sales will be monitored to prevent unreasonable gains from any resale.

Last, in April 1978, the Department of Interior presented a revision of its proposed policy before a committee of the U.S. Senate regarding five bills being proposed (U.S. Department of Interior, 1978). That testimony confirms and strengthens Hinds' synopsis above. Two features of this testimony require mention here. First, the residency requirement would be strengthened to require "substantial involvement" in the actual farming operations. Secondly, the

limitation would be such that two adult individuals only (whether related or not) could each have 320 acres of owned, with an additional 160 acres of leased land each, for a total of not more than 960 acres of land receiving federal water (U.S. Department of Interior, p. 7).

Exactly how much land will be affected by these revisions is not completely known. However, according to the Department of the Interior (Hinds, p. 6), there are "almost two million acres of land classified as excess land on projects governed by Federal Reclamation law . . ." out of ten million acres served by Bureau of Reclamation (USBR) projects. Some of this land may have alternative sources of water supply. In these cases, if the costs of the alternative water supply warrant, the lands could be withdrawn from USBR water and would not be available for sale. Further, of the total 2 million acres, 750,000 acres are in the Imperial Valley Irrigation District and in certain U.S. Army Corps of Engineers projects, and the relevance of the acreage limitation to these project lands is still a matter of appeal in the courts. Altogether, Interior estimates that about 500,000 acres will be sold from USBR served projects alone, including 258,606 acres under recordable contract. About 80% of the total land affected is in California.

This completes our overview of the situation. For additional details, see Hogan and the previously cited works of Taylor, Sax, Hibbard. We now turn the discussion to a more micro-economic view of the agricultural situation in California as it has evolved under the Federal water program.

The Amount and Distribution of the Subsidy

In February 1978, a special task force from the U.S. Department of Agriculture (USDA) published "An Economic Impact Analysis" of the Department of Interior's proposed regulations. We rely heavily on this study as a source of data for analysis of the distribution and impact of the subsidy on lands served by federal water. (While conditions in California are the focus of attention here, the USDA study includes data for other affected regions as well.) Table 1 provides estimated returns to operator labor and management in the Westlands and Imperial Irrigation Districts of California as derived from this USDA study.

Each area produces largely a mix of field and vegetable crops, including alfalfa, cotton, wheat, barley, canning tomatoes, and sugar beets. Recent county average yields and 1977 prices and costs were assumed in the budget. Water charges, opportunity cost for land at pre-project price of \$750 per acre and real property taxes, as well as cash operating expenses, and machinery and equipment charges were deducted from gross revenues to derive this figure. To the extent the operator has equity in the land, the family disposable income would exceed the labor and management returns shown in the table.

According to the USDA report (p. 12) the 1970 median family income in Fresno County was \$8,622 per annum and in Imperial \$8,257. Cer-

Table 1. Net Return to Labor and Management for New Land Settlers in Westlands and Imperial Irrigation Districts, by Size of Farm

	160	320	640
Westlands	30,120	64,240	101,480
Imperial	21,920	52,840	124,600
Adjusted	(11,120)	(31,240)	(81,400)

Source: Adapted from USDA, *The U.S. Department of the Interior's Proposed Rules for Enforcement of the Reclamation Act of 1902: An Economic Impact Analysis*. ESCS-04, Feb. 1978, tables 8, 9. These data do not exactly match those presented in the above-cited report, in that we have adjusted for double-counter real property taxes (per personal communication, Dr. Charles V. Moore, ESCS, 10 July 1978).

*Note: Land charges were deducted at an assumed pre-project price of \$750 per acre at 9% interest rate. At current market prices of \$1,500 per acre, an additional \$67.50 per acre should be deducted. We have used pre-project values to show the situation *ex ante* for a purchaser of excess lands. For reasons elucidated in this paper, the *ex post* situation (relevant to considerations of just solutions), using \$1,500 per acre, may be appropriate for Imperial. These are shown in the adjusted figures in parentheses.*

tainly, compared to these figures even the smaller family farmer in the project would enjoy a rather good income. It is also relevant to consider that the average farmer in California earns \$15,000 annually

"But while there is nothing so enjoyable, nor so necessary in policy analysis, as a quarrel over values, that quarrel is not our central objective here."

from off-farm sources and that the amount of earnings are not correlated with farm size (USDA, p. 23).

It may be objected that these comparisons are fallacious because they essentially compare a business structure with personal income accounts and therefore neglect risk and financial considerations. There is something to this objection, but as a matter of fact, the risk of loss of income in farming may be no greater than that of a blue collar worker. The coefficient of variation on gross income for the five most important crops in the area averages about 6%.

In the end, whether these returns are high or low is a value judgment and our particular judgment is hardly more illuminating than that of anyone else.

It is, however, important to consider that the Department of Interior has recently estimated that the amount of the water subsidy in Westlands, including the interest on the facilities, is approximately \$1,540 per acre — or slightly more than the current market value of the land (USDA, p. 2) This means that without the subsidy, if the water were charged at full cost, nearly all of the current \$135 rental value of the land would be absorbed in water charges. Assuming four acre feet per year, this implies that the total cost of the water is \$33.75 per acre foot. The point is that the subsidy provides all the gross \$135 annual revenue to the landowner per se. In light of this fact, the distribution of the land in Westlands and Imperial acquires a certain plausibility.

In Westlands, Southern Pacific Land Co. has 80,000 acres of land under recordable contract; Boston

Ranch Co., 26,000 acres; all this land must be disposed of within ten years at pre-project values of \$750 per acre. Nevertheless, these landowners have in effect received the equivalent of an interest-free loan in the amount of the difference between the price at which they must dispose of the land and its market value for ten years. If they rent out the land at its current value, \$135 per acre, the annual savings is \$67.50 per acre. In present value terms, the benefit to delaying the sale for ten years is \$433 per acre (discounting the savings stream at 9%). Therefore, Southern Pacific Land Co. realizes about \$34,600,000 more net income over the ten-year period than they would have received had they purchased the land at market value at the beginning of the period.

Unfortunately, there are no statistics on the exact distribution of the land in either area. The statistics are partly confused by the problem of distinguishing between farm owners and farm operators in the two areas. The two are quite different, partly because of the effects of

the water subsidy itself.

The USDA estimates that most of the 265,000 acres excess land in Imperial is owned by 204 partnerships and corporations for an average of 1,299 acres each, and operated by 150 farm operations, for an average operation of 1,767 acres.

In Westlands, 434 owners control 224,000 acres of land under recordable contracts. While this is an average of only 516 acres each, the three owners mentioned above have nearly one-half the total, so the average of the rest must be about one-half this amount. Significantly, while there are 1,822 total ownership units in Westlands, with an average holding of only 316 acres, there are only 199 farm operations in Westlands farming an average of 2,889 acres. The average farm operation is over nine times the average ownership size. It seems clear that when given a choice between the life of the *rentier* and the life of a dirt farmer, the owners know where the values lie.

In sum, it is reasonable to say that from the perspective one would normally have of the "family farmer," the amounts of money being made and the distribution of public funds through the water subsidy, are little short of the grotesque. The agitation against the present situation is well founded.

However, it is equally clear that the U.S. Department of Interior proposals to correct this situation, while better than the present, are hardly close to the ideal — if indeed they are workable at all. Consider the lottery aspects. Under the proposed revisions, excess lands will be disposed of at a fixed, pre-project price of \$750 per acre. The new

owners will acquire immediately the difference between this amount and the \$1,500 capitalized market rental value of the land as a windfall gain. On 640 acres of owned land, therefore, their capitalized net worth will rise by \$480,000 for an investment of the same amount, or an increase of 100%. Since there appear to be no other clear qualifications other than ability to pay the \$750 per acre cost and reside within fifty miles of the land, virtually every person in the area who does not already have 640 acres of such land would be a fool not to enter his name in the lottery. The logic, even the sense of such a program escapes us. It will quite clearly accelerate the division between farm owners and farm operators and continue the subsidization of the *rentier* class. The only difference is that the landowners will now have to live in the vicinity of the farm to receive the coupons. Nor can one be sanguine about enforcement of these, or even improved, regulations. The premise of the revisions is the same as that for the past three-quarters of a century of suc-

the belief in economies of size is "The Survival Theory." This theory, developed by Stigler and others (Madden and Partenheimer), holds that under reasonably competitive conditions the various firms in an industry will be driven toward the lowest point on the long-run average cost curve (LAC) for that industry. If this is true, then two conclusions seem to follow: (a) that a frequency distribution of firm sizes will reveal the lowest LAC point, because firms will tend to cluster around that point; (b) that if technology or other forces shift this point out over time, this fact will also be revealed by a tendency for average firm sizes to increase. Thus, for example, in agriculture the survival theory seems to permit one to infer from the fact that average farm sizes are increasing, the conclusion that there exist significant economies of size. This logic undoubtedly accounts for the nearly universal belief in economies of size in agriculture. However, the conclusion does not necessarily follow from the premise. Increasing average farm size does not necessarily imply the

er than 1.0 and others much less than 1.0. Those at a C/R ratio of one are making normal profits; those above, losses (less than opportunity costs); and those below, excess profits. It is likely that those farmers who are achieving above average profits will want to invest in land to expand their operations and, thereby, increase their total net annual income. They will likely buy out those farmers experiencing losses. As this process proceeds, the farms of the superior managers will increase in size, the numbers of farms operated by inferior managers will decrease, and average farm sizes will increase. This process is not necessarily associated with economies of size: it would proceed even if the LAC curve were perfectly horizontal over all size ranges.

Thus, there are two quite distinct survival theories to consider. Both predict increasing farm size. However, the first survival theory, S_1 , attributes the cause to economies of size, or decreasing LAC, while the second survival theory, S_2 , attributes the cause to different managerial abilities among farmers, together with the natural desire to increase net annual income or total wealth. It is, of course, extremely important to find which of these theories is true in relation to the acreage limitation. If S_1 is true, any change in the existing distribution of farm sizes would increase the C/R ratio. Thus, reducing farm size would imply a move in the direction of inefficiency. If, on the other hand, S_2 is true, then the change would be inefficient only if the allocation of land from larger to smaller size farms coincided with an allocation from superior (low C/R) to inferior (high C/R) farm managers.

It is, of course, possible that both theories are true, but unless their relative importance is known the efficiency consequences of any proposed acreage limitation cannot be ascertained.

The conventional theoretical model of economies/diseconomies of size usually reveals a "U" shaped LAC curve. This is rarely found in agriculture. Instead, the typical curve is obtuse angled or (if one may indulge in "appropriate terminology") appears to be a "Lazy L." (PCII in Figure 1 is typical in the literature (Madden and Partenheimer). This fact would appear to support S_1 over S_2 , but this inference is not necessarily true because S_2 would also predict a "Lazy L" curve. The reason is the migration of managerial ability through different farm size categories. As the superior farm managers increased the size of their holdings, they would bring low C/R ratios with

them and cause the average C/R ratio in range of the larger sizes to decline. Conversely, as inferior farm managers decreased in size, or stayed where they are, their high C/R ratios would become a progressively larger proportion of the total in the range of lower sizes. Thus, the simple slope of LAC does not provide a test between S_1 and S_2 .

However, there are certain theoretical, even philosophical, differences between the two theories that do provide some grounds for a test. S_1 envisages the farmer caught in the grip of technical-structural determinants of economies/diseconomies of size. Thus, S_1 would predict (a) comparatively small differences in C/R between farmers of the same size, with comparatively large differences in C/R between farmers of different sizes; and (b) that the variations between farms of different sizes would have a systematic quality such that there would be an area of optimum size of farm, in which many farms are concentrated, and the smaller the farm, the greater the C/R . S_2 , on the other hand, implies a rather open production environment in which the manager is more free to maneuver. Thus, S_2 would predict (a) that variations in C/R between farms of the same size would be larger than variations in C/R between farms of different sizes; and (b) consequently, there would be little clustering around a particular farm size, with no systematic variations in C/R values across farm sizes. Of course, these are the implications of S_1 and S_2 in extremis, as archetypes. Empirical tests are needed to see which most closely approximates reality.

The few remaining pages of this section are devoted to an examination of some data relevant to the S_1 , S_2 theories. Rather than attempt to survey all the studies of economies of size, we have elected to focus on the series of studies of Yolo County cash crop farms under direction of Harold O. Carter and Gerald W. Dean. While we shall disagree with some of the conclusions reached in these studies, our disagreement in no way detracts from our admiration of these pioneering efforts and the high scientific standards under which the studies were performed.

First, we turn to a closer inspection of Figure 1. These observations were taken from a study of Yolo County farmers in 1958. We shall not go into the details underlying these data except to say that the costs include imputed land costs, that the farms were chosen from a relatively homogeneous group, and that, in the judgment of the authors,

Continued on next page.

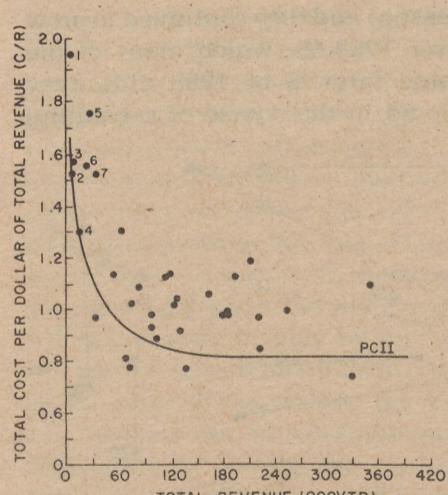


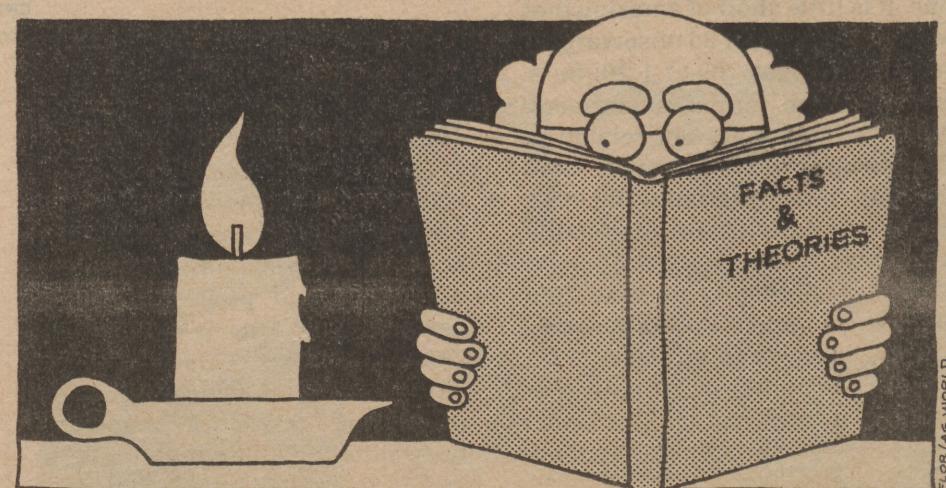
Figure 1. Cost, revenues, Yolo County farmers, 1958

ter, fig. 8, p. 37) which is representative of most studies. Through farm account studies, the ratio of total cost to total revenue, C/R , is computed for each individual farmer. Then a scatter of these C/R observations is plotted against the measure of size — either acres farmed, or gross revenue. Last, the LAC curve is fitted to the bottom of this scatter between the farmers with the lowest C/R ratios at different sizes. The PCII curve for present purposes.

Now, as shown in Figure 1, some would bring low C/R ratios great-

An important intuitive basis for

January, 1979



FLORA & THE WORLD

(160-Acre Limitation:
Continued from preceding page.)

"the Yolo County area appears sufficiently representative of many other irrigated field crop areas of California and elsewhere in the West (in terms of types of crops, size of machinery and equipment, etc.) to suggest a similar pattern of cost relationships (Carter and Dean, p. 277). (Of course, farms growing certain specialty crops such as fruits, nuts, and vegetables might well differ.) Now, it is clear that if a nonlinear function were to be fitted to these data with regression techniques, it would have the shape of PCII, and exhibit economies of size, on the average, to the range of around \$160,000 TR, with insignificant economies/diseconomies thereafter.

But it is also clear that a good part of this regression line is due to the influence of the seven smallest (and most inefficient) farm observations. Indeed, if one were to put these seven to the side, and fit a regression line to the remaining 27 observations, the resulting regression line would be horizontal, for all practical purposes, at a C/R ratio very close to one. We have, in fact, verified this conjecture with data read from the graph. However, the original data are no longer available and only 34 of the reported 37 observations are detectable in the original scatter. The plotted data are sufficient, in any case, for our present purposes.

The conclusion would then be that there are no appreciable economies for sizes beyond the \$45,000 TR level. The difference is highly significant. At a very rough average figure of \$250 per acre of rotation for the owner-operator (Dean and Carter, table 5, p. 23, and p. 39), economies of size would cease at about 180 acres, rather than at about 640 acres as before. On a weighted average acreage basis, these seven smallest farms represent even less of the total than their numbers and should not be permitted to have such enormous impact on the analysis. This suggests that in studies of economies of size, either two or more regressions should be run on the data according to how they are divided into distinct groups, or other, more sophisticated, techniques of statistical analysis should be used to determine the boundaries of the conclusions drawn from such data.

The second aspect of Figure 1 that deserves emphasis is the very high variation of the individual observations about the regression line. It is little short of amazing that while C/R ratios for 34 observations vary from about .75 to 1.20, or $\pm 22\%$, between individual farmers, these variations are not related to size. Clearly, there is much more involved in the determination of efficiency of agricultural production than mere farm size.

Thus, with respect to these data at least, S_2 appears superior to S_1 . Indeed, even the seven most inefficient farmers of Figure 1 may simply be vestigial remains of a selection process against poor manage-

ment rather than victims of disabilities caused by insufficient size. While one must be cautious in projecting on the basis only one set of observations, we agree with the authors that the Yolo County farmers are not atypical of western irrigated crop farmers and believe that inspection of the individual observations underlying other, "Lazy L" type, LAC curves in the literature would reveal similar relationships. (See, for example, the very wide confidence intervals around the "Lazy L" curve in Moore, fig. 7, p. 46.) In any case, it does not seem to us that the data in this particular study support the authors' broad conclusion that, "from a policy standpoint, the results clearly indicate the economic inefficiency associated with development programs limiting farm size in similar agricultural areas to 160 or 320 acres. If such size limitations appear desirable on social and other grounds the sacrifice in efficiency should be clearly recognized" (Carter and Dean, p. 277). This conclusion, as the authors observe, perhaps rests more on their synthetic than on their statistical studies (Carter and Dean, p. 276).

In 1965 Wildermuth and Carter resurveyed these same Yolo County farmers. For analytical purposes they employed the Farrell Method (Wildermuth and Carter, pp. 178-79) of computing the comparative efficiencies of the farmers in the two periods. In this method, "the overall efficiency [of a firm] is equivalent to the ratio between the minimum observed cost per unit of production and the average cost for the firm in question." While this method is obviously subject to the danger of the reference, minimum C/R firm being a "fluke," this problem will not be gone into here.

Figure 2 presents in graphic form Wildermuth's data (table 4.8, pp. 51-52) on the efficiency and size re-

"Consider the lottery aspects . . . The logic, even the sense of such a program escapes us. It will quite clearly accelerate the division between farm owners and farm operators and continue the subsidization of the rentier class."

ter (Table 2, p. 190) which indicates a great deal that cannot be said in general, but very little that can.

Their regression analysis attempted to explain 1965 efficiency by the following variables: (the numbers in parentheses are the order in which the stepwise regression introduced the variables) 1958 efficiency (7), age (4), education (6), index of innovativeness (1) (the rate of adoption of new technology over the period), index of intensiveness (2) — comparative product per acre, total crop acres (3), and equity ratio (5). The R^2 was .6523, with only "innovativeness" and "intensiveness" significantly different from zero at the 95% level. E. L. Michalson, a discussant of the paper, observed, "that these two variables overshadow all the others may occur because they are both estimates of managerial ability or entrepreneurship" (p. 197).

The authors themselves believe that because of the rather high correlation between total crop acres and "innovativeness" (.4050) and intensiveness (-.3038) that these variables "covered up" (p. 189) the effect of size on efficiency. But, obviously, if these variables were eliminated, the regression equation itself, including total crop acres, would be reduced to virtual meaninglessness. A further problem with innovativeness is that if large size farmers in 1958 were growing farmers (for whatever reason) and they continued to grow over 1958-65 (which many of the large farmers of 1958 did), they would in the course of expanding

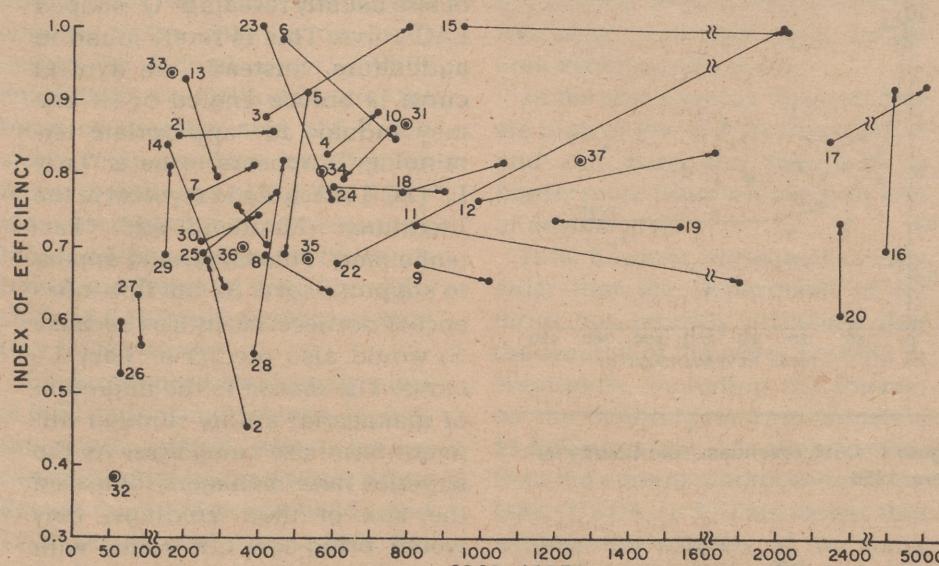


Figure 2. Changes in size, efficiency Yolo County farmers 1958-1965

relationships for each farm in 1958 (the beginning of the arrow) and in 1965 (the head of the arrow). This Figure has more than a little resemblance to those remarkable photographs of 'cloud chambers' in studies of particle physics and, indeed, it would perhaps take the genius of a Murray-Gellman to crack the cipher. This impression of mystery is largely confirmed by the extensive statistical analysis of these data by Wildermuth and Carter.

machinery capacity naturally adopt more up-to-date technology. One questions whether this variable is wholly legitimate, but its elimination would reduce R^2 to about .29.

Perhaps the most surprising result is that not only does 1958 size fail to account for much of 1965 efficiency, but even 1958 efficiency fails to account for much of 1965 efficiency! Thus, if one were to attempt to test between S_1 and S_2 by asking whether farms are efficient

because they are large (S_1) or large because they are efficient (S_2) the data fail to support either hypothesis, because efficient farms in 1958 may not be efficient in 1965, and vice versa.

Finally the seven exit farmers, indicated by the circled points, were reported to have exited for no systematic reason, and age accounts for only two (p. 182). Thorstein Veblen was once asked how he could master so many languages; he replied, "I simply write each word on a blank sheet of paper and stare at it until the meaning comes to me." We have tried the "Veblen Method" on Figure 2 to no avail.

Perhaps a clue lies in this background information: during this period the Bracero program was phased out. Farmers were forced to mechanization or to employ higher priced domestic labor, and this caused a cost-price squeeze such that the break-even point rose from an efficiency value of .71 in 1958 to .80 in 1965 (p. 1978). Thus, farmers confronted quite a large investment decision in this period. The response to this problem could be either to purchase the machinery, to sell the farm, to rent the farm to others, or to purchase larger units of machinery and rent land from others. Now virtually all the expansion of farm size through this period was by means of rented land (p. 176) and perhaps the contractions were through renting less land or renting out some of the land. This suggests that the response may have been determined by the managerial-organizational differences in "family" as distinguished from "corporate" forms of agricultural production (see the preliminary treatments of this theory in Seckler, 1976 and 1970). Renting land in or out is an adaptive mechanism similar to custom or cooperative machine utilization techniques. Interestingly enough, the use of custom services declined between the two surveys. It is also possible that many farmers found it more profitable to decrease efficiency and produce high-valued crops rather than produce low-valued crops at high efficiency. Perhaps all these factors of management, institutional structure, economies of large machines, and rental devices of managerial specialization and machine sharing could be put together in more general theory that would explain Figure 2. We do not know, but the 1965 study apparently caught these farmers in a period of disequilibrium and we would hesitate to derive any firm conclusions without a third follow-up study (which would be a valuable contribution to the literature in any case). But three lessons may be drawn from this section: that facile generalizations

"The first point of departure from the present and proposed regulations is to control the water, not the land."

of economies of size drawn from S_1 theories alone will not stand up; that the profession needs much more hard, empirical studies of inter-temporal changes, such as presented by Wildermuth and Carter, (and perhaps less synthetic studies) to find the truth; that, in the present state of knowledge, no judgments on the dynamic efficiency aspects of any acreage limitation can be derived from a priori principles, such as the S_1 model. Hypotheses posed within a more general framework, such as that recently proposed by Leibenstein, are more likely to yield detailed understanding of the relationships.

Policy Instruments for Administering the Federal Water Subsidy

The central problem is to determine the most expeditious means of regulating the distribution of the subsidy to meet important social objectives. We have listed these objectives as efficiency in food production, regional economic development, provision of opportunity for small farmers, and the creation of viable rural communities. To this list should be added cost-effectiveness in government programs and administrative feasibility.

Now the question is: How can the federal government regulate its water in a manner conducive to these several incommensurable objectives? In order to address this question we first shall outline a system of rules and administration that we believe would permit market forces to find a solution conducive to all these objectives. Of course, the emerging solution will not represent the optimum of what could be attained if the system were designed to serve only one objective alone. There will necessarily be a trade-off between objectives. However, we do believe that the system proposed will reach a nearer-to-satisfactory state between all these objectives, on the whole, than either the present situation or the proposed revisions.

The first point of departure from the present and proposed regulations is to control the water, not the land. Hitherto, the idea has been to control the subsidy on the water indirectly through control of the land by means of an acreage limitation. But if the objective is ultimately to control the subsidy and the subsidy is attached to the water, then the control of the water is the direct route, and, through the control of the water, one can also exercise indirect control over the land.

The second element in this program is a two-tier system of water pricing for federal water. The base price of the water will pertain to water used up to a certain amount — so many acre feet per year. This will be an administrative price

periodically determined by a federal water board for particular areas served by federal waters. Any water purchased by a user over the base quantity will be purchased at an amount determined by competitive market forces.

Third, the right to purchase base water is determined only by an affidavit testifying that the purchaser is a bona fide farmer. The criteria for being such a farmer should include (a) that he lives on the farm, (b) that he himself manages the farm, (c) that the farm is not leased to other parties, nor is it operated by tenants, (d) that the base water will not be sold to other parties. Any violation of these provisions will require reimbursement of the difference between the base price and the market price of the water used, and loss of the right to purchase water at the base price for a period of years.

Fourth, the land can be leased at any time, but the price of the water for leased land is the market, not the base price. In the event of sale of the land, it must be sold at the pre-project value, as determined by the water board.

There are no other regulations. The farmer can farm as much land as he wishes with his base water allocation. Qualification for the base amount is irrespective of spouse and number of children. Those who purchase water in excess of the base amount at the market price are exempt from all the regulations. They need not live on the farm, nor be farmers at all; they can sell whatever land they have, at whatever price it will bring (net of the estimated difference between the pre and post-project value of the base price water in the case of land served by base water). In essence, this structure gives the individual the opportunity to play by one of two sets of rules. If he wants to play by the rules of the market, he can buy himself out of governmental regulation by paying the market price of water. If he wants to benefit from the lower price of base water, then he plays by the rules of the administrators. This is the principle of the system; some of the administrative details and impacts require further comment.

Determination of the base quantity and price of water entails a value judgment on the size of farm the public wishes to subsidize and the amount of subsidy it wished to provide to the farmer. One would first estimate average farm incomes by size of farm for the region in question (as in Table 1). Clearly, the appropriate amount of water would differ depending on physical and economic characteristics of the project area, such as soils, rainfall, growing season, and distance to markets. Then one would pick what could be considered a viable small

farm size in terms of average cost of production. Next, one would assess the average income a farmer of that size should reasonably earn. The price of the base water would be determined accordingly. For example, in Table 1, it appears that a 160-acre farm is a viable farm size in both Westlands and Imperial, and the base price could be considerably more than the \$7.50 now charged. In Imperial, the 160-acre farm is viable at the unadjusted estimate, but perhaps is not reasonable on an adjusted basis. In Imperial, therefore, the base price may be set higher than \$7.50 per acre foot but at a size level of 320 acres (adjusted basis).

It is an important consequence of this administered price that it is based upon average returns. The superior farmers in the size group can make much more, and the inferior farmers will make much less. By increasing the water price up to a point of reasonable average returns, inferior farmers will be crowded out of business. This provides an opportunity for new small and superior farmers to come into farming. Also, since the price is based on the income of the owner-operator, higher base water charges will lower the income of the *rentier* and, thereby, encourage more actual family farming.

We have said that the price of nonbase water will be determined by competitive market forces. This determination could of course be by means of a water auction. Alternatively, the price could be determined administratively on the basis of estimates of the shadow price of water. In the latter case, the board would have an important feedback in the form of the queue for rights to the water. If the queue were too long, this would indicate that the price was too low, and vice versa. The same feedback mechanism would of course operate in determination of the base water price.

One would expect the market price of the nonbase water allocation to rise to at least \$21 per acre foot. The reason is that farmers using state water are now paying that amount in areas physically indistinguishable from those served by federal water. Of course this water price will also tend to crowd the large inferior farmers out of business and thereby release acreage for utilization by more small farmers or for expansion by superior large farmers. It should be noted that under the competitive conditions prevailing in the non-

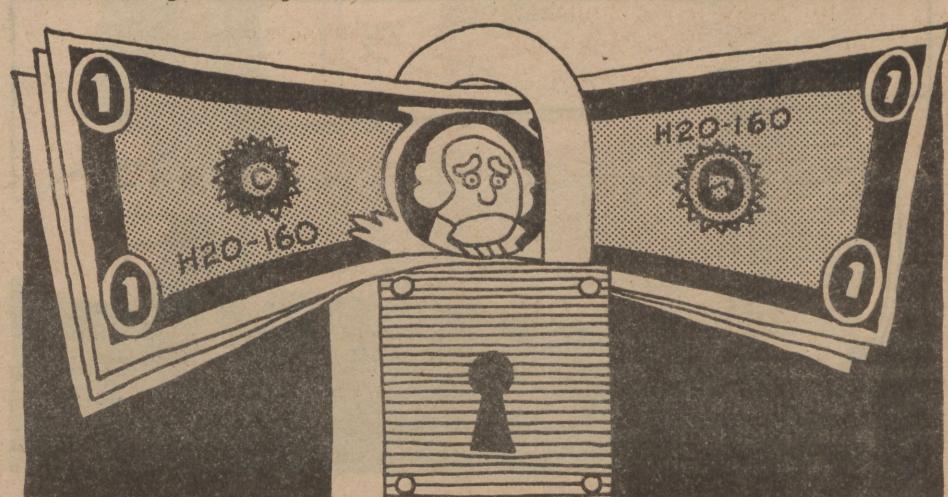
base market, this land would tend to go to superior small farmers unless our skepticism regarding economies of size is drastically misplaced. For example, a price differential of only \$10 per acre foot between the base and nonbase markets amounts to a \$40 per acre "tilt" toward the small farmers. This is around one-quarter of the per acre returns of the most efficient farms of Table 1. Therefore economies of size would have to be on the order of 25% to enable the large farmer to outbid competitively the small farmer for the land. No one, to our knowledge, has suggested economies of size of this magnitude, over this range. Thus, as inefficient farmers are crowded out by these prices, they would tend to be absorbed by superior small farmers and only the very most efficient large farmers would remain. As this process continued, the average social costs of food production as a whole would decrease and the efficiency of water use would increase.

An alternative that should be considered is whether, in this system, there should be such a strong break between the two markets. To put it another way, should the large farms qualify for some acre feet of water at the base price as the small farmer, or should they have to pay an increasing average cost on all the water they use, as the quantity used rises over the base amount. Our own opinion is that the break should remain. This permits everyone to have equal access to the subsidy and everyone to buy themselves out of regulation, on the margin, if they are willing to pay the market price. It avoids discrimination against large farmers simply on grounds that they are large.

If the two-tier system is acceptable as a rough program for the future administration of federal water, the problem remains of how to make transition from the present situation to the future program, as determined by past administration of the water.

Application of the two-tier system to completed projects or to those under construction will pose major difficulties. The situation in Westlands is, of course, much simpler than in Imperial; for Westlands has developed in full knowledge of the necessity to dispose of excess lands whereas Imperial has developed under the assurance that this requirement was not operable in their case. Under the existing

Continued on next page.



(160-Acre Limitation:
Continued from preceding page.)

process of water allocation from the federal government, through districts, to users, the federal government has no control over the price and distribution of water except that afforded by the legal proviso of the acreage limitation itself.

However, it is also clear that the alternatives of a two-tier pricing system could be used as bargaining positions in negotiations between the federal government and water districts to escape rigorous enforcement of the acreage limitation. If the districts were confronted with either these alternatives or a literal interpretation of the 160-acre limitation then, whichever they chose, the maldistribution of the subsidy that now prevails would be alleviated. The federal government is not nearly so powerless in the face of this issue as some would like to believe, or to have others believe.

In Westlands, if the two-tier program were made operable in advance of the disposal of excess lands, it would make the problem of disposal much easier and the allocation of the excess lands much more efficient. Because of the large windfall gains assured to "lucky winners" under the present system, there will be an enormous queue of people wanting this land irrespective of their ability to farm or, indeed, even of their interest in farming. The two-tier system would shorten the queue and change its composition. The amount of the windfall gain would be reduced and it would have to be earned by being an actual farmer. The Westlands experience to date indicates that while many people have a strong preference to the life of the *rentier*, many are less than enthusiastic about actually doing the work. Thus, the program would reduce the Westlands queue to those who really wanted to earn their living through farm work, and to those who believe they had the ability to do so under reduced subsidies.

In Imperial, if the courts do require enforcement, the two-tier system offers perhaps the only equitable means of solving a dilemma of Solomonic proportions. Because of being excepted from the limitation in 1933, agriculture in this area evolved under the rule of market forces which capitalized the value of the subsidy into land values. But that phenomenon is past tense; the present owners are "stuck with the

bill." On the other hand, the public has no obligation to continue the subsidy in the amounts indicated. The two-tier system [around the 320-acre level for Imperial, Table 1 (adjusted)] seems to offer a reasonable compromise between these two positions.

In conclusion, it may be said that past administration of the federal reclamation program has created windfall gains for a relatively few fortunate enough to be landowners in a project area. Relaxation of the acreage limitation is not likely to have much advantage in improving economic efficiency in food production, and certainly has adverse effects on the goal of distributive justice.

The proposed regulations will not improve this situation and may even worsen it. The program of the two-tier water allocation outlined above is certainly not a panacea for all these problems; and, of course, there may be flaws in the program which we have not anticipated. But whatever the eventual mechanism adapted in the administration of federal water, at least three conditions should be satisfied. First, the distribution of the water, and not of the land, should be the point of control. Second, the amount of the subsidy per acre foot of water should be reduced substantially by higher water charges. Third, the market mechanism should be permitted a role in the allocation of federal waters. The system should be both more severe respecting the subsidy and more flexible where the subsidy is not provided. This provides an opportunity for joint administrative and market determination of the use of the water resource. •

References

Brewster, John M. A. *Philosopher Among Economists: Selected Writings*, ed. J. P. Madden and D. E. Brewster. Philadelphia, Pa.: J. T. Murphy Co., 1970, chaps. 1, 7.

Carter, H. O., and G. W. Dean. "Cost-Size Relationships for Cash Crop Farms in a Highly Commercialized Agriculture." *J. Farm Econ.* 43(1961):264-77.

Community Services Task Force. *The Family Farm in California*. Report of the Small Farm Viability Project, State of California, Nov. 1977.

Dean, Gerald W., and Harold O. Carter. *Cost-Size Relationships for Cash Crop Farms in Yolo County, California*. Mimeo graphed. Giannini Res. Found. Rep. No. 328, University of California, Berkeley, Dec. 1960.

Hibbard, B. H. *A History of Public Land Policies*. New York: Peter Smith Co., 1939.

Hinds, Eugene. "The Acreage Limitation Provisions of Reclamation Law." Paper presented to the American Farm Bureau Federation Conference on the Federal

Acreage Limitation, Denver, Colo., 18 Oct. 1977.

Hogan, Harry J. *The Acreage Limitation in the Federal Reclamation Program*. Tech. Rep. 72-007, Arlington, Va.: U.S. National Water Commission, 1972.

Leibenstein, Harvey. *Beyond Economic Man*. Cambridge, Mass.: Harvard University Press, 1976.

Madden, J. Patrick, and Earl J. Partenheimer. "Evidence of Economies and Dis-economies of Farm Size." *Size, Structure, and Future of Farms*, ed. A. Gordon Ball and Earl O. Heady. Ames: Iowa State University Press, 1972, pp. 91-107.

Michalson, E. L. "Discussion" (of Wildermuth and Carter). *Proceedings*. Annual conference, W. Farm Econ. Assoc., 1967, pp. 196-97.

Moore, Charles V. *Economies Associated with Size, Fresno County Cotton Farms, California Agricultural Experiment Station*. Giannini Found. Res. Rep. No. 285, University of California, Berkeley, Nov. 1965.

North, R. M., and W. P. Neely. "A Model for Achieving Consistency for Cost-Sharing in Water Resource Programs." *Water Res. Bull.* 13(1977):995-1007.

Sax, Joseph L. *Federal Reclamation Law: Water and Water Rights*, ed. R. E. Clark. Indianapolis, Ind.: Alden Smith Co., 1967.

Seckler, David. "Reflections on Management, Scale and Mechanization in Agriculture." *Proceedings*. Annual conference, W. Agr. Econ. Assoc., 1970, pp. 80-84. "A Theory of Management, Mechanization and Scale in Agriculture." *Computers Applied to the Management of Large-Scale Agricultural Enterprises: Papers and Proceedings of a U.S.-U.S.S.R. Seminar*. Moscow, Riga, Kishinev. National Bureau of Economic Research, 1976, pp. 231-57.

Taylor, Paul S. "The 160 Acre Law." *California Water*, ed. David Seckler. Berkeley: University of California Press, 1971, pp. 251-62.

U.S. Department of Agriculture, Economics, Statistics and Cooperatives Service. *The U.S. Department of the Interior's Proposed Rules for Enforcement of the Reclamation Act of 1902: An Economic Impact Analysis*. Staff Report, ESCS-04, Feb. 1978.

United States Department of Interior. "Testimony before the Senate Committee on Energy and Natural Resources." Washington, D.C., Apr. 1978.

Wildermuth, John R. "First Adjustment Models: A Socio-Economic Analysis of Changes in Farm Size, Efficiency and Adoption of Innovations." Ph.D. thesis, University of California, Davis, 1967.

Wildermuth, John R., and Harold O. Carter. "The Technological and Labor-Induced Adjustment Process of Commercial Farms in the Sacramento Canning Tomato Area." *Proceedings*. Annual conference, W. Farm Econ. Assoc., 1967, pp. 175-94.

Copyright 1978 by the American Agricultural Economics Association. Reprinted with permission from Volume 60, Number 4 of the *American Journal of Agricultural Economics*, November 1978.

The authors wish to thank John R. McKean for advice and for performing computations and Charles V. Moore for criticism of an earlier draft and assistance in securing and interpreting data. Several anonymous referees were helpful, as well as were participants in a seminar at the University of California, Berkeley. Warren Johnston and Harold Carter were helpful in finding some of the data used here. Support of Colorado State University Experiment Station is acknowledged. Of course, the authors alone bear full responsibility for the views expressed herein.

Peat — Ireland's Energy Gamble — Is Paying Off

Oil crisis made
scheme from 1930s
economical

by Selwyn Parker

When Ireland first began to think seriously in 1933 about converting its turf (peat) bogs into fuel, it was considered something of a joke. The scheme, many experts predicted, would be hopelessly uneconomic. But under the promoting of Eamon de Valera, who believed a sense of nationhood could be fostered by a policy of self-sufficiency — in fuel as in other things — the Turf Development Board persisted.

Today that apparently madcap scheme is paying off handsomely. After hydroelectric power, turf is estimated as the second-cheapest power source available here.

If Ireland had to import equivalent energy, it would cost approximately \$100 million annually. The turf-powered electricity-generating stations supply roughly 25% of the nation's needs.

Although turf power has been at least a qualified success over the years, the real payoff came after the oil crisis. Almost overnight it became economic for the renamed Bord na Mona (Turf Board) to plunder the bogs for fuel on a scale that was, before 1973, impossibly expensive.

Now more than 130,000 acres of once useless bogland have been harvested for fuel, and another 50,000 will be added shortly.

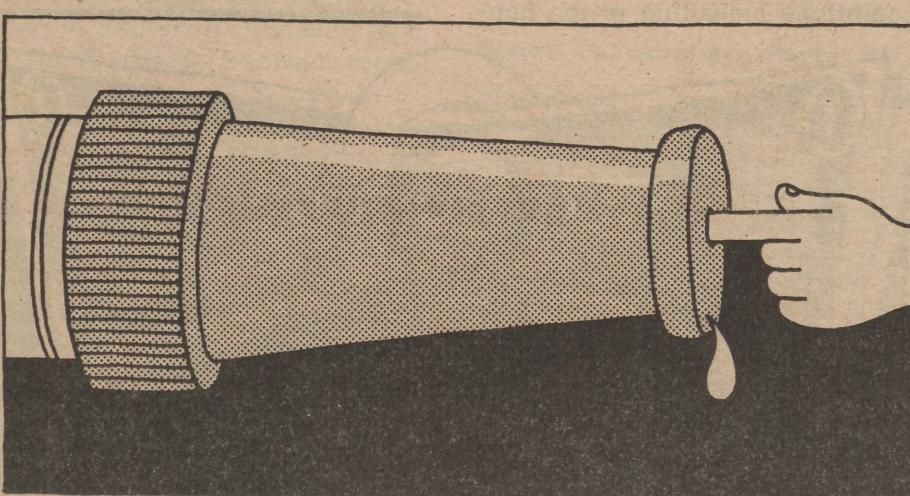
Good Through 2035

Will Bord na Mona eventually run out of bogs?

Yes, eventually, says a spokesman. But current acreage will see Ireland through the year 2035 and probably much longer. As oil continues to rise in cost, it will be economic to add more acres to Bord na Mona's "turf farms."

Financially, "Dev's" policy has been highly successful, especially since 1973. For instance, in 1972-73 total sales hit a respectable \$22.5 million at current exchange rates. Just three years later turnover had soared to \$42 million. And in 1976-77, the latest available figures, sales were \$50 million in spite of a lengthy strike.

Because Bord na Mona is a semi-state body, like the other utilities such as post, telephone and electricity, its trading profit is always much lower than it could be through considerable social obligations such as providing employment. Nevertheless, it achieved



International Agricultural Projects Are Good Investment

N/C

\$3.6 million profits in its latest year.

Vegetables Thrive

It also has discovered a nice line in the export of so-called peat moss — the fibrous top layer of most bogs, which is too light for use as fuel but which, mixed with soil, promotes growth of vegetables. Exports last year grossed \$8.5 million.

On the bogs virtually nothing is wasted. Although in the early days Irish engineers sought and got advice from the Soviet Union, which is the only country producing more turf than Ireland, most of the machines developed are unique. The original production process was in sod turf, which is essentially dug out of the ground.

Today's more efficient machines mean that most of the peat harvested is now milled turf — essentially, scraped off. But even milled turf is expensive to harvest.

The latest 50,000 acres, which will provide 2 million tons of milled peat, 130,000 tons of briquettes (compacted turf for domestic and industrial fuel use) and 650,000 cubic meters of peat moss, will cost \$75.5 million to exploit. It is only the high cost of oil that makes the program worthwhile.

Many Countries Inquire

Soaring energy prices and their volatile effect on the balance of payments, especially in small, open economies such as Ireland's, have made the world sit up and study Irish techniques. According to Bord na Mona engineers, they have lately handled inquiries from practically every country in the world, even from the Russians, who regularly still seek and offer advice.

Third world countries especially require turf expertise. Burundi in Central Africa, for instance, depends largely on eucalyptus trees for fuel. But, because the timber will run out in about 10 years, the nation sought help from Ireland.

The result: an engineer went out to advise on the hand-winning of turf and discovered enough there to see Burundi through to the 22nd century.

Meanwhile, research scientists have discovered new, possibly commercial, applications for the versatile turf, which in earlier days served as a wax, lubricant, and even as medicine. Peat bricks may be used in construction and, mixed with kerosene/resin, peat makes an excellent firelighter.

Reprinted by permission from *The Christian Science Monitor*. ©1978 The Christian Science Publishing Society. All rights reserved.

January, 1979

International agricultural development is a good investment for states with strong agricultural economics, and "we need to change the attitude that it's not appropriate for a state to provide funds for international activities, except perhaps for trade promotion," said Vern Freeh, assistant dean of the Institute of Agriculture, Forestry and Home Economics, University of Minnesota.

"In a state like Minnesota that depends heavily on foreign markets for agricultural products, it makes sense for the legislature to provide funds for agricultural colleges to work with their counterparts in other parts of the world. Our future is becoming more and more dependent on other countries," he says.

Unfortunately, says Freeh, people too often equate public support for international agricultural development with expanded competition for U. S. farmers.

"There is the annoying feeling that if we help foreign countries, they will become our competitors on the world market — just as Brazilian soybean producers have been in recent years.

"But the overwhelming evidence is in the other direction. World markets are growing, characterized by larger populations and higher incomes. Highly competitive U. S. agricultural producers have much to gain and very little to lose from any assistance we might provide to developing countries."

"We need their markets. They need our agricultural products and will continue to need them, no matter how much better their own agriculture becomes," he says.

More than a third of U.S. exports go to the less developed countries of the world. And other farm exports which go to more advanced countries are a direct result of successful U.S. foreign aid programs to Europe and Japan after World War II. "This is a good example of how strengthening the economics of developing countries can result in an even larger export market for our farm products," Freeh says.

Further, some of the foreign aid we send overseas returns. Referring to Minnesota, Dr. Freeh points out that about \$50 million of foreign aid came back last year, \$40 million directly to producers and processors and another \$8 million in contracts.

In addition, agriculture benefits from cooperating with other countries by exchanging practical science information. "American agriculture has been using research from abroad for many years. Most research discoveries have some application in most parts of the world. Future advances will depend more on worldwide research."

There are other reasons for supporting international agricultural development, Freeh says. "In humanitarian terms, there is no way to meet the growing world demand for food unless we help the food-deficit countries produce it in their own countries. The world is adding 70 million persons a year. The developed countries like ours have neither the productive nor financial capacity to meet this demand.

"Even if we doubled our production by the year 2000, we would still be able to provide only 25% of the world's food supply.

"This means that we must do a better job of helping people in developing countries produce food. One way to do this is by having our universities and agricultural colleges work closely with counterparts in the food-deficit countries, sharing knowledge and scientific technology.

"But this requires additional funds and faculty at our universities. So far our state and the federal government have been reluctant to provide much of either.

"There's also a need to get the U.S. Department of Agriculture more involved in world food and nutrition problems instead of leaving important decisions to our Department of State and its Agency for International Development.

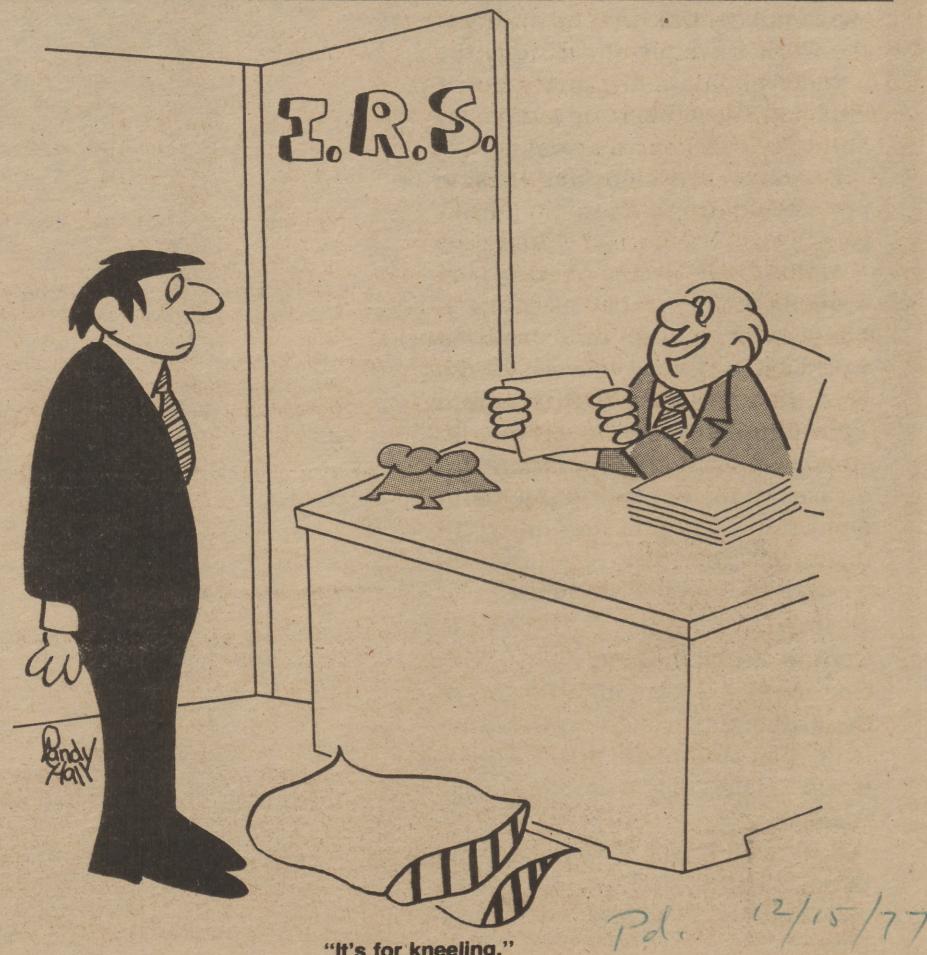
"Minnesota and the U.S. are part of a global society. We no longer have the privilege of being as self-sufficient as we once were. The developing countries need our technology and our food. We need their

"There is the annoying feeling that if we help foreign countries, they will become our competitors on the world market — just as Brazilian soybean producers have been in recent years."

oil, aluminum and tin.

"There's no way to have a stable world except without cooperative action to solve world problems. This has been dramatically demonstrated by recent efforts to achieve peace in the Middle East," Freeh says.

Department of Information and Agricultural Journalism University of Minnesota St. Paul, Minnesota 55108



Spaceship Earth: Riders vs. Food

by Richard L. Strout

25

Who will feed the world's population of 6.2 billion in A.D. 2000?

The United Nations Fund for Population Activities estimates — in the first of its proposed annual reports on "The State of World Population" — that the headlong growth of global population is beginning to subside. But it points out that world population won't "stabilize itself" till the end of the next century, when there may be 12 or 15 billion inhabitants.

With only 4 billion people on Spaceship Earth today, "the world does not adequately support" its population, the report notes. Here are figures:

- 500 million are malnourished.
- 100 million lack clean water.
- 800 million are illiterate.
- 350 million are unemployed or earn less than \$50 a year.
- 250 million live in slums.
- 1.6 billion lack basic health care.

In one of several studies included in the report, analyst Peter Adamson says:

"So on the face of it, a world which so fails to meet the needs of 4 billion cannot be expected to support 12 billion, especially as most of the new people will be born in the regions least able to support them."

Here is how the world population in the year 2000 will be divided, according to UN growth computations:

- Asians, 58%.
- Africans, 13%.
- Latin Americans, 10%.
- Europeans, 9%.
- Russians, 5%.
- North Americans, 5%.

Mr. Adamson notes that the increase in people is a problem only if the world's wealth cannot adequately support them. "The attempt to balance people and resources cannot ignore the fact that, at present, less than 30% of the world's people have more than 70% of the world's resources. The third world (have-not nations) may have 70% of the world's people and 80% of the world's population growth, but it only has 7% of the world's industry and 10% of the world's wealth..."

Disparity in wealth amid rising population troubles some observers.

Mahbub Ul Haq, a World Bank economist, says that because a child born in the industrialized world will consume between 20 and 40 times the resources that a child born in the developing world will, "the very small population increases in the rich world put about eight times the pressure on world resources [that] the very large increases in the poor world" will.

Central Problem Seen

Christopher Freeman, director of the British Science Policy Research Unit, has described this "two-tier world" as the central problem of our times.

Kurt Waldheim, UN Secretary-General, says that greater world equality "is the price of world peace."

Joop Den Uyl, the Dutch Prime Minister, observes, "The uneven distribution of income is the fundamental failure of the present economic system."

The UN report comments, "On present policies, it is clear that the one human home [earth] cannot cope with the coming three- or four-fold increase in the size of the human family. Rafael M. Salas, executive director of the UN Fund for Population Activities, says the problem is formidable, "but the consequences of neglect are too terrible to contemplate."

The study comes four years after the World Population Conference at Bucharest, Romania. The official press summary features the deceleration of the world's growth in what it describes as a "guardedly optimistic message." The decline varies by regions. In Africa, for instance, "fertility is still rising."

Other conclusions:

- All over the world people are pouring into cities. By 2000 Mexico City will have 31.6 million inhabitants — the biggest city on earth.
- Age structure is changing. There is a bulge in numbers of both young people and elderly people.
- Food: "It is a sobering thought," the report says, "that there is no technology now being evolved in the research institutes that promises the possibility of a quantum increase in food production..."
- "The average life expectancy of the human race has risen by 20 years since 1950," the report says. Women often outlive men, so one analyst guesses that "the world of advanced age will essentially be a domain of women."

Reprinted by permission from *The Christian Science Monitor*. ©1978 The Christian Science Publishing Society. All rights reserved.

Re: The Effectiveness of Technical Assistance

(The following is an author's reply to a letter from Mr. Yriart which was published in the December, 1978 issue of *Ag World*.)

Mr. Yriart's letter in response to my article indulges in generalities rather than going into details. It is, of course, understood that the primary responsibility for technical aid — as for all aid — rests with the recipient governments from the planning and formulation to the implementation stage. To state, however, that the shortcomings or failures "are only marginally under the control of an inter-governmental organization like FAO" (Mr. Yriart) is rather surprising.

FAO "administers" (as Mr. Yriart writes) technical assistance (funded mainly by UNDP and by bilateral donors) in an order of magnitude of nearly US \$200 million a year (377 million in 1976 and 1977) and only for this purpose employs hundreds of people. The considerable cost of this activity is reimbursed to FAO. This "administration" of technical assistance implies for obvious reasons a high degree of *substantial* involvement in each phase of a project. Without such a responsible involvement, why should there be the large staff employed in this activity. If FAO, in administering technical assistance, wants to be more than a specialized agency (to move around experts) it cannot be only marginally responsible and decline its deep involvement in substantial matters.

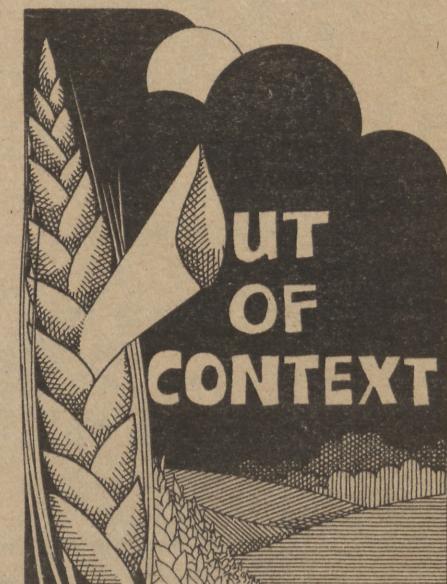
The points made in my article are mainly based on the content of the FAO "Review of Field Programs 1976-1977" and on comments made by many government delegations to the FAO-Conference (e.g., Bangladesh, UK, US, Poland, Israel and Jordan). These speeches do not give "a grossly distorted picture of the discussion," but reflect a rather general feeling of the Conference.

Mr. Yriart carefully avoids to comment on specific substantial issues. E.g., is it correct or not when the Review states that *backstopping* from FAO's technical divisions "on substantive matters" is now "even more difficult to obtain" than a couple of years ago?

Or (another of many examples): The "Review" states in regard to *training*: "There has been a dispersion of responsibility of FAO's training activities among technical units, reducing the coherence and obscuring the focus of their objectives."

Mr. Yriart does not deal with these and many other specific points raised by me. He speaks, however, in very general terms of taking "appropriate measures to improve the quality of technical assistance..." But what has, in fact, been done since 1977?

Rome, Italy
Otto Matzke



"Apart from agriculture, high-technology products like aircraft, computers, chemicals and machinery stand virtually alone in making favorable contributions to our balance of trade — and I would remind you that even agriculture in our nation should perhaps be classified as a high-technology operation."

Roy A. Anderson, chairman and chief executive officer of the Lockheed Corporation in an address before the Wings Club in New York.

"As the global reserve currency, the dollar plays a dual role — one at home and the other abroad. To many of us the problems appear academic and relatively unimportant. To the rest of the world the massive and growing dollar-related liquidity and general abuse of the monetary process are threatening the collapse of the system itself. Liquidity and dollar-related reserves outside the U.S. are approaching the trillion dollar level. Behind closed doors one now hears open discussions of the printing of money. Once a forbidden topic among central banks, it is now a routine conversational item."

Robert O. Anderson, chairman of Atlantic Richfield Company, in an "anguished paper," quoted in "Energy and Superinflation," by Adam Smith (a pen name), *The Atlantic Monthly*, December 1978.

"If other governments are determined to keep us out of their markets, we won't increase sales no matter how big the bargains we offer. The dollar has been falling for a year and a half; its decline has yet to dramatically boost U.S. exports — and this failure has only sent the dollar down further."

From "Getting Tough on Trade," by Robert M. Kaus, in *The Washington Monthly*, November 1978.

(Assistant Agriculture Secretary Carol) "Foreman's comments on fat were of some note, in that she spoke of fat in general. In previous talks, she has specifically used the term 'saturated fat' in making similar remarks. This suggests that at least some persons in government are not now advocating that saturated fat consumption be cut while polyunsaturated fat use be increased."

From a news release by the National Cattlemen's Association, summarizing some presentations given at an NCA nutrition information meeting in Denver in early November 1978.

"The real cost of our conflict-of-interest obsession is that it distracts us from an important and difficult task — constantly probing the good faith of those in positions of trust, and of ourselves."

From "The Conflict-of-Interest Craze," by Michael Kinsley, in *The Washington Monthly*, November 1978.

Ag World,