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# HARD TOMATOES, HARD TIMES: Failure of Jim Hightower

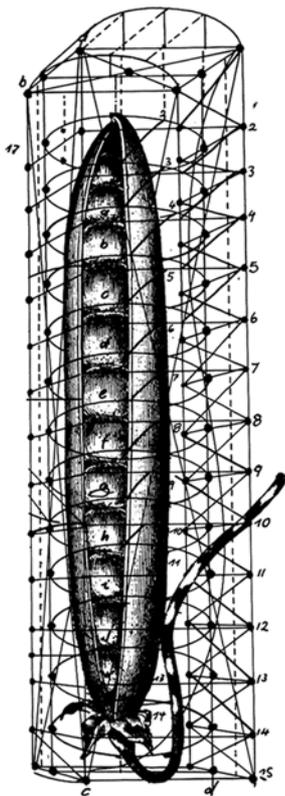
Corporate agriculture's preoccupation with scientific and business efficiency has produced a radical restructuring of rural America that has been carried into urban America. There has been more than a green revolution out there—in the last 30 years there literally has been a social and economic upheaval in the American countryside. It is a protracted, violent revolution, and it continues today.

The land grant college complex has been the scientific and intellectual father of that revolution. This public complex has put its tax dollars, its facilities, its manpower, its energies and its thoughts almost solely into efforts that have worked to the advantage and profit of large corporations involved in agriculture.

The consumer is hailed as the greatest beneficiary of the land grant college effort, but in fact consumer inter-

ests are considered secondarily if at all, and in many cases, the complex works directly against the consumer. Rural people, including the vast majority of farmers, farm workers, small town businessmen and residents, and the rural poor, either are ignored or directly abused by the land grant effort. Each year about a million of these people pour out of rural America into the cities. They are the waste products of an agricultural revolution designed within the land grant complex. Today's urban crisis is a consequence of failure in rural America. The land grant complex cannot shoulder all the blame for that failure, but no single institution—private or public—has played a more crucial role.

The complex has been eager to work with farm machinery manufacturers and well-capitalized farming operations to mechanize all agricultural labor, but it has accepted no responsibility for the farm laborer who is put out of work by the machine. It has worked hand-in-hand with seed companies to develop high-yield seed strains, but it has not noticed that rural America is yield-



## Land Grant College Complex

ing up practically all of its young people. It has been available day and night to help non-farming corporations develop schemes of vertical integration, while offering independent family farmers little more comfort than "adapt or die." It has devoted hours to the creation of adequate water systems for fruit and vegetable processors and canners, but 30,000 rural communities still have no central water systems. It has tampered with the gene structure of tomatoes, strawberries, asparagus and other foods to prepare them for the steel grasp of mechanical harvesters, but it has sat still while the American food supply has been laced with carcinogenic substances.

The land grant college complex is made up of three interrelated units, all of which are attached to the land grant college campuses. The first unit is comprised of the Colleges of Agriculture, created in 1862 by the Morrill Act. The State Agricultural Experiment Stations are the second unit. They were created in 1887 by the Hatch Act for the purpose of conducting agricultural and rural research in cooperation with the Colleges of Agriculture.

The Extension Service, created in 1914 by the Smith-Lever Act completes the picture. It was designed to bring the fruits of research to all rural people.

Reaching into all 50 states, the complex is huge, intricate and expensive. It is estimated that the total complex spends three-quarters of a billion tax dollars appropriated each year from federal, state and county governments. The public's total investment in this complex, including assets, comes to several billion dollars in any given year, paying for everything from test tubes to experimental farms, from chalk to carpeting in the dean's office. But this public investment is being misspent. The land grant complex has wandered a long way from its origins, abandoning its historic mission to serve rural people and American consumers.

The Agribusiness Accountability Project, a public-interest research and advocacy organization based in Washington, D.C., created the Task Force on the Land Grant Complex to look into this issue. In addition to research done in Washington and by correspondence, studies were conducted on the campuses of the University of California, Cornell University, University of Florida, Iowa State University, University of Maryland, Michigan State University, North Carolina State University, Purdue University and Texas A & M University.

It is practically impossible to talk with anyone in the land grant college complex or to read anything about the complex without confronting the staggering achievements wrought by agricultural research. There is no doubt that American agriculture is enormously productive and that agriculture's surge in productivity is largely the result of mechanical, chemical, genetical and managerial research conducted through the land grant college complex. But the question is whether the achievements outweigh the failures, whether benefits are overwhelmed by costs. Ask a family farmer or any rural American about the costs. There is a crisis in the countryside. While the agribusiness conglomerates continue to grow because of agricultural research, the independent farmer is pushed out of the way or, worst of all, just forgotten. Tragically, the land grant complex, the public's primary investment of intellectual and scientific resources in rural America, has not only failed to respond—it has contributed to the problems. There is an obvious failure. You don't even need the readily available statistics to see that rural America is crumbling. And not just the family farm, but every aspect of life is crumbling—entire communities, schools, churches, business and a way of life. For example:

□ 47.1 percent of the farm families in this country have annual incomes below \$3,000.

□ More than half of the farms in the country have sales of less than \$5,000 a year; together, this majority of farmers accounted for only 7.8 percent of farm sales.

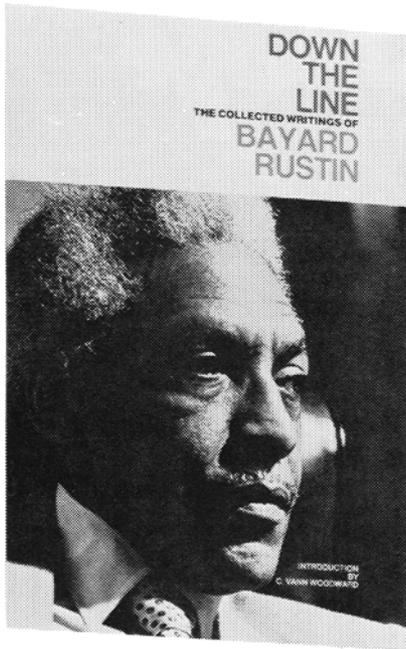
□ Since 1940, more than 3 million farms have folded, and farms continue to fold at a rate of 2,000 a week.

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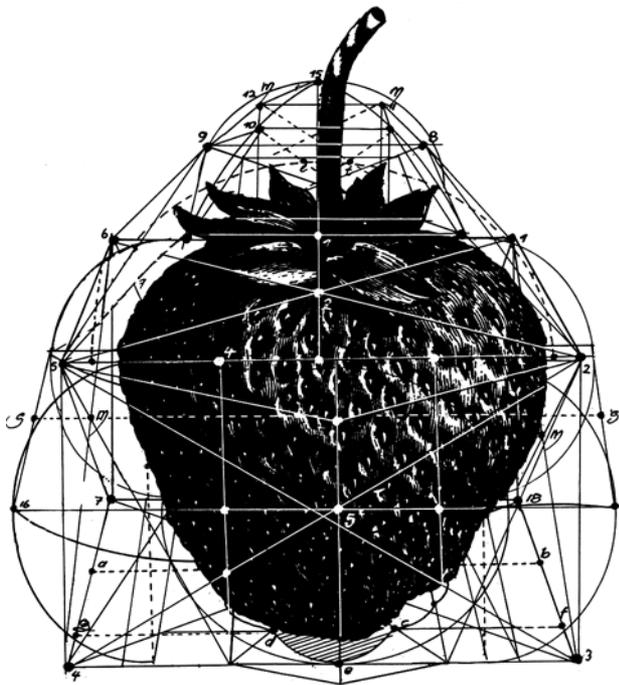
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- The number of black farm operators fell from 272,541 in 1959 to 98,000 in 1970.
- For the first time since the nation was settled coast to coast, the farm population has fallen below 10 million.
- During the 1960s, the proportion of farm people over 55 years of age rose by a third, while the proportion of those under 14 years of age declined by half.
- Hired farm workers in 1970 averaged an income of \$1,083 if they did farm work only, while those who also did some non-farm work averaged an income of \$2,461.
- 14 million rural Americans exist below a poverty income, with millions more clinging just on the edge of poverty.
- Independent, small-town businesses are closing at a rate of more than 16,000 a year.
- 132 rural counties have no doctor.
- 30,000 rural communities are without central water systems; 30,000 are without sewer systems.
- 2.5 million substandard houses—60 percent of the bad housing in America—are occupied by rural families.
- 64 percent of all rural counties lost population during the sixties.
- Since 1940, 30 million people have left their rural homes for urban areas, and this migration continues at a rate of 800,000 a year.
- More than 73 percent of the American people live now on less than 2 percent of the land.

Despite the obvious need, the land grant complex has not provided the answers. For example, in the fiscal year 1969, a total of nearly 6,000 scientific man-years (smy) were spent doing research on all projects at all state-agricultural experiment stations. Based on USDA's research classifications, only 289 of those scientific man-years were expended specifically on "people-oriented" research. That is an allocation to rural people of less than 5 percent of the total research effort at the state agricultural experiment stations. And the experiment stations were doing less of this type of research in 1969 than they were in 1966.

The focus of agricultural research is warped by the land grant community's fascination with technology, integrated food processes and the like. Strict economic efficiency is the goal. The distorted research priorities are striking:

- 1,129 scientific man-years on improving the biological efficiency of crops, and only 18 smy on improving rural income.
- 842 smy on control of insects, diseases and weeds in crops, and 95 smy to insure food products free from toxic residues from agricultural sources.
- 200 smy on ornamentals, turf and trees for natural beauty, and a sad seven smy on rural housing.
- 88 smy on improving management systems for livestock and poultry production, and 45 smy for improving rural institutions.



□ 68 smy on marketing firm and system efficiency, and 17 smy on causes and remedies of poverty among rural people.

A close analysis of these research projects reveals even less of a commitment to the needs of people in rural America than appears on the surface. In rural housing, the major share of research has been directed not to those who live in them but to those who profit from the construction and maintenance of houses—architects, builders, lumber companies and service industries.

Other people-oriented projects tend to be irrelevant studies of characteristics, seemingly stemming more from curiosity than a desire to change conditions. At Cornell, for example, a study found that “employed homemakers have less time for housekeeping tasks than non-employed homemakers.” Other projects are just about as “useful.”

□ Mississippi State University researchers discovered “that families in poverty are not of a single, homogeneous type.”

□ The University of Nebraska is at work on a study of “factors affecting age at marriage.”

□ A cooperative Regional Research study unveiled two findings of such significance that Dr. Roy Lovvorn included them in CSRS’ 1970 presentation to Congress: “the rural population is dichotomous in racial composition” and “pre-retirement family incomes have a direct bearing upon economic expectations for retirement.”

□ Back at Mississippi State, researchers concluded that “the better educated young individuals are able to recognize and take advantage of economic opportunities attainable through migration.”

□ University of Nebraska researchers surveyed football coaches in the state and got 60 percent agreement “that introduction of a federally sponsored school breakfast program would benefit the nutritional health of teenage athletes.”

For the most part, then, even this small amount of people-oriented research done by the land grant complex, is nothing more than useless poking into the behavior and life styles of rural people.

### Mechanization Research

The agribusiness corporations envision rural America as a factory that will produce food, fiber and profits on a corporate assembly line extending from the fields through the supermarket checkout counters. It is through mechanization research that the land grant colleges are coming closest to this agribusiness ideal.

Mechanization has been a key element in the cycle of bigness: enough capital can buy machinery, which can handle more acreage, which will produce greater volume, which can mean more profits, which will buy more machinery. Mechanization has not been pressed by the land grant complex as an alternative, but as an imperative.

Once again, those who most need the help of the land grant complex are its primary victims. If mechanization research has been a boon to agribusiness interests, it has been a bane to millions of rural Americans. The cost has been staggering.

Farm workers were the first to get the axe. Again and again the message is hammered home—machines either exist or are on the way to replace farm labor. There were 4.3 million hired farm workers in 1950. Twenty years later, that number has fallen to 2.5 million. As a group, those laborers averaged \$1,083 for doing farm work in 1970, making them among the very poorest of America’s employed poor. The great majority of these workers were hired by the largest farms, which are the same farms moving as swiftly as possible to mechanize their operations.

Farm workers have not been compensated for jobs lost to mechanization research. They were not consulted when that research was designed, and their needs were not a part of the research package that resulted. They simply were left to fend on their own—no retraining, no effort to find new jobs for them, no research to help them adjust to the changes that came out of the land grant colleges. Corporate agribusiness received machines with the tax-payer’s help, but the workers who are replaced are not even entitled to unemployment compensation.

Independent, family farmers are also hard hit. Designed to the specifications of the largest-scale producers, mechanization has not been much of a blessing to those who are lacking capital, acreage or management capabilities. Small- and medium-scale farmers, making annual sales under \$20,000, (which includes 87 percent of all farmers in the United States), simply are not able to make much use of \$25,000 harvesting equipment. Even the great majority of large-scale farmers, with sales ranging up to \$100,000 a year, have not been well served by the mechanization research of land grant colleges.

The rapidly increasing cost of farming, in combination with perennially low farm prices, is driving farmers off the land. Tractor prices range from about \$7,000 for a small one to \$36,000 for huge crawler tractors. A tractor is useless without plows, rakes, harrows and other essential attachments. These cost extra, and dearly. Harvesting equipment is tremendously expensive—for example, a cotton picker costs \$26,000 to \$30,000 and a tomato harvester runs \$23,000. More sophisticated pieces, with electronic sensors and other gadgets developed by land grant scientists, simply are out of the question for all but the very well heeled. Operator of his own 600-acre Nebraska farm, Elmer Zeis told a newspaper interviewer about these costs:

You can't get a piece of small equipment for under \$1,000. The combine I bought this fall cost \$20,000; I pay all that and use it one month out of the year. Then I have to trade a piece or two each year just to keep current.

Zeis estimated that he had \$50,000 tied up in machinery and another \$25,000 in storage buildings and bins.

Like the farm worker, the average farmer is not invited into the land grant laboratories to design research. If he were, the research package would include machines useful on smaller acreages, it would include assistance to develop cooperative ownership systems, it would include efforts to develop low-cost and simpler machinery, it would include a heavy emphasis on new credit schemes, and it would include special extension to spread knowledge about the purchase, operation and maintenance of machinery. These efforts do not exist, or exist only in a token way. Mechanization research has left the great majority of farmers to "get big" on their own, or to get out of farming altogether.

Who then benefits from mechanization research? The largest-scale growers, the farm machinery and chemical input companies and the processors are the primary beneficiaries. Big business interests are called upon by land grant staffs to participate directly in the planning, research and development stages of mechanization projects. The interests of agribusiness literally are designed into the product. No one else is consulted.

Obviously, farm machinery and chemical companies are direct beneficiaries of this research, since they can

# The Drug Abuse Controversy

Edited by **Clinton C. Brown**  
and **Charles Savage**

There are many books on drug use and abuse.  
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**The Drug Abuse Controversy** is unique in dramatizing the enormous differences of opinion that still exist among the experts—the head-on collisions between eminent doctors, lawyers, sociologists, psychiatrists, churchmen, and government administrators who met at Johns Hopkins recently to debate the issues of drug control and legislation.

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expect to market products that are developed. Machinery companies such as John Deere, International Harvester, Massey-Ferguson, Allis-Chalmers and J. I. Case almost continually engage in cooperative research efforts at land grant colleges. These corporations contribute money and some of their own research personnel to help land grant scientists develop machinery; in return, they are able to incorporate technological advances in their own products. In some cases they actually receive exclusive license to manufacture and sell the product of tax-paid research.

But mechanization means more than machinery for planting, thinning, weeding and harvesting. It also means improving on nature's design—breeding new food varieties that are better adapted to mechanical harvesting. Having built machines, the land grant research teams found it necessary to build a tomato that is hard enough to survive the grip of mechanical "fingers"; necessary to redesign the grape so that all the fruit has the good sense to ripen at the same time; and necessary to restructure the apple tree so that it grows shorter, leaving the apples less distance to fall to the mechanical catcher.

Mechanization of fruits and vegetables has been focused first on crops used by the processing industries. Brand name processors—such as Del Monte, Heinz, Hunt, Stokely Van-Camp, Campbell's and Green Giant—are direct beneficiaries of mechanization research. Many of these corporations have been directly involved in the development of mechanization projects.

The University of Florida, for example, recently has developed a new fresh market tomato (the MH-1) for machine harvesting. In describing the characteristics that make this tomato so desirable for machine harvest, the university pointed to "the thick walls, firm flesh, and freedom from cracks." It may be a little tough for the consumer, but agricultural research can't please everyone. The MH-1, which will eliminate the jobs of thousands of Florida farm workers who now handpick tomatoes for the fresh market, is designed to be harvested green and to be "ripened" in storage by application of ethylene gas. Michigan State University, in a proud report on "tailor-made" vegetables, notes that their scientists are at work on broccoli, cauliflower, cucumbers, snapbeans, lima beans, carrots and asparagus. And the processors have benefitted because mechanization has been able to lower the costs of production.

If produce cannot be redesigned by manipulating genes, land grant scientists reach into their chemical cabinet. Louisiana State University has experimented with the chemical "Ethrel" to cause hot peppers to ripen at the same time for "onceover" mechanical harvesting; scientists at Michigan State University are using chemicals to reduce the cherry's resistance to the tug of the mechanical picker; and a combination of ferric ammonia citrate and erythorbic acid is being used at Texas A&M

to loosen fruit before machine harvesting. This benefits both the chemical input firms on one end and the processors on the other.

Large-scale farming operations, many of them major corporate farms, are also directly in line to receive the rewards of mechanization research. In the first place, it is these farms that hire the overwhelming percentage of farm labor, thus having an economic incentive to mechanize. Secondly, these are the massive farms, spreading over thousands of acres, a scale of operation which warrants an investment in machinery. Thirdly, these are heavily-capitalized producers, including processing corporations, vertically integrated input and output industries and conglomerate enterprises. Such farming ventures are financially able and managerially inclined to mechanize the food system—that 1 percent of American farms with annual sales of \$100,000 or more.

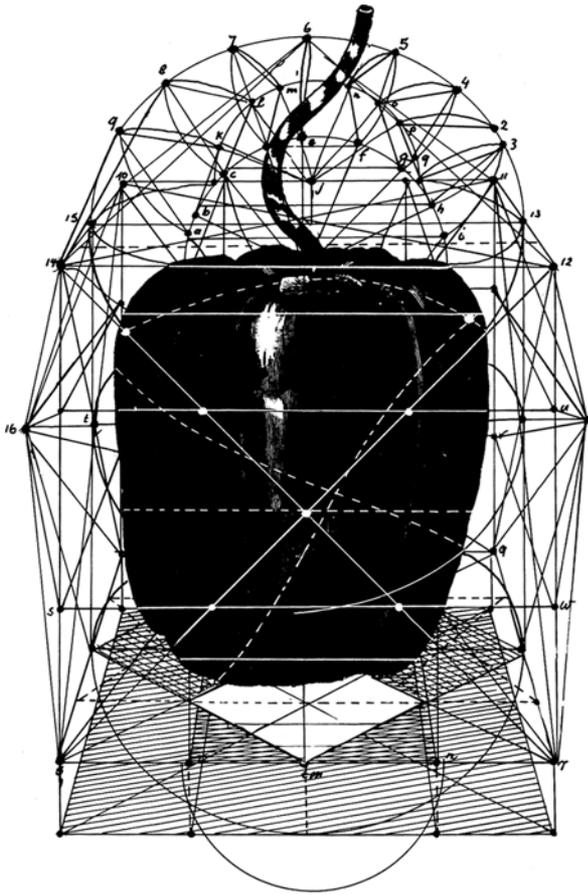
These are the "farmers" who are welcome in the land grant research labs. They bring grants and equipment to those labs, but, more importantly, they also bring a shared vision of assembly-line food production. In turn, they get research to implement that vision. These huge growers are more than clients of the land grant system—they are colleagues.

Genetically redesigned, mechanically planted, thinned and weeded, chemically readied and mechanically harvested and sorted, food products move out of the field and into the processing and marketing stages—untouched by human hands.

The agricultural colleges also are engaged in "selling" the consumer on products he neither wants or needs, and they are using tax money for food research and development that should be privately financed. There are many projects that analyze consumer behavior. Typically these involve consumer surveys to determine what influences the shopper's decision-making. If this research is useful to anyone, it is food marketers and advertisers—and reports on this research make clear that those firms are the primary recipients of the results.

The result of this research is not better food but "better looking" food. These public laboratories have researched and developed food cosmetics in an effort to confirm the consumer's preconceptions about food appearances. Chickens have been fed the plant compound Xanthophyll to give their skin "a pleasing yellow tinge," and several projects have been undertaken to develop spray-on coatings to enhance the appearance of apples, peaches, citrus and tomatoes. Other cosmetic research projects are underway at land grant colleges:

□ Iowa State University is conducting packaging studies which indicate that color stays bright longer when bacon is vacuum-packed or sealed in a package containing carbon dioxide in place of air, thus contributing to "more consumer appeal."



□ Scientists at South Carolina's agricultural experiment station have shown that red fluorescent light treatment can increase the red color in green, machine-packed tomatoes and can cause their texture and taste to be "similar to vine-ripened tomatoes."

□ Kansas State University Extension Service, noting that apples sell on the basis of appearance rather than nutrition, urged growers to have a beautiful product. To make the produce more appealing, mirrors and lights in supermarket produce cases were cited as effective selling techniques.

Convenience to the processor often outweighs concern for the consumer, both as a motive for and as an end result of such research. For example, University of Wisconsin researchers have developed a process of making mozzarella cheese in five-and-a-half minutes compared to the usual time of four hours. The flavor of the final product is reported to be "mild, but satisfactory for the normal uses." While this is relatively harmless, there is evidence that some aspects of food engineering at land grant colleges are directly counter to the interests of the consumer. For instance, when ethylene gas is used to ripen tomatoes, in addition to inferior taste, color and firmness, the amounts of vitamin A and vitamin C are known to decrease.

Even more insidious, there is strong evidence the DES, a growth hormone fed to cattle to make them grow fast-

er, causes cancer in man. Yet DES has added some \$2.9 million to the treasury of Iowa State University, where the use of the drug was discovered, developed, patented and promoted—all with tax dollars. Eli Lilly and Company, which was exclusively licensed by Iowa State to manufacture and sell the drug, has enjoyed profits on some \$60 million in DES sales to date.

More and more, chemicals are playing a role in the processing phase. Ohio State University reports that "chemical peeling of tomatoes with wetting agents and caustic soda reduces labor by 75 percent and increases product recovery." One wonders if the consumer will recover. Lovers of catfish might be distressed to know that this tasty meat now is being skinned chemically for commercial packaging.

At the same time, some of the research products are deceptively harmless—to the point of absurdity. At Cornell a critical issue has been how hard to squeeze a grapefruit in the supermarket:

Should you squeeze a product firmly or softly to determine its freshness, such as is commonly done with bread and some fruits? By using a universal testing machine, scientists have determined that a gentle squeeze, or more scientifically, a small deformation force, is much more precise in comparing textural differences than a firm squeeze or large deformation force.

Among other mind-boggling land grant college projects, Auburn and Penn State have used tax dollars to study "heat-retaining properties" of Astroturf; the University of Wisconsin has turned to camping for a research challenge; and Purdue has spent years and untold tax dollars on athletic turfs for football fields and golf courses. Except for agribusiness, land grant college research has been no bargain. Hard tomatoes and hard times is too much to pay.

The Extension Service (ES) is the outreach arm of the land grant college complex. Its mandate is to go among the people of rural America to help them "identify and solve their farm, home and community problems through use of research findings of the Department of Agriculture and the State Land Grant Colleges." As with the rest of the complex, the ES has hardly lived up to its mandate.

The focus of ES is primarily on "clients" who need it least, ignoring the obvious needs of the vast majority of rural Americans. The service devotes more than half of its total work to just one-quarter of the farmers in this country—those with sales of more than \$10,000 annually. That leaves 2.4 million farmers—75 percent of the total according to ES figures—without the attention that their need and numbers warrant. Included are hundreds of thousands of marginal farmers, with "net incomes insufficient for levels of living acceptable even for rural areas."

Three hundred thirty-one million dollars were avail-

able to the Extension Service in 1971. Like the other parts of the land grant complex, Extension has been preoccupied with efficiency and production—a focus that has contributed much to the largest producers. And while the rural poor get little attention from ES professionals, they receive band-aid assistance from highly-visible but marginally helpful programs like nutrition aids.

The poor get even less attention than appears on the surface. 4-H—that social club for youth—received \$72 million in 1971 and accounted for the largest allocation of extension agents' time—over one-third of the total. And with this time and money 4-H helps the rural poor by conducting litter clean-up days and awarding ribbons to everybody.

In 1955, a Special Needs Section was added to Extension legislation, setting aside a sum of money to assist disadvantaged areas. But Extension has failed to make use of it. Policy-making within ES fails to involve most rural people, and USDA has failed utterly to exercise its power to redirect the priorities and programs of the state extension services.

Who does the ES serve? Like their research and teaching colleagues in the land grant complex, extension agents walk hand in hand with agribusiness. To an alarming degree, extension agents are little more than salesmen. A recent article in *Farm Technology*, the magazine for county agents, offers this insight into corporate ties to Extension:

We are impressed with the fact that much time is spent working closely with industry agrifieldmen and other company representatives. Nearly all states reported that this type of cooperation is increasing.

A good example of this can be found in Arizona where weed specialists “hit the road” with the chemical company representatives and are involved in cooperative field tests and demonstrations.

Moreover, the Extension Service's historical and current affiliation with the American Farm Bureau Federation, the nation's largest, most powerful and affluent farm organization, casts a deep shadow over its claim that it can ever be part of the solution of the problems of rural America.

The civil rights record of ES comes close to being the worst in government. In three states suits have been brought against the Extension Service for overt and flagrant discrimination in hiring and service. Median income figures from 1970 show that white farm families averaged \$7,016 per year, while black farm families averaged \$3,037. Yet of all the rural poor, blacks can expect the least assistance from ES.

This is not the only case of institutional racism within the land grant complex. When the Morrill Act created land grant colleges in 1862, most of America's black

population was in slavery. After the Civil War, blacks were barred from admission both by custom and by law. In 1890 a second Morrill Act was passed to obtain more operating money for the colleges. This act also included a “separate but equal” provision authorizing the establishment of colleges for blacks. Seventeen southern and border states took advantage of this provision. But these black colleges have been less than full partners in the land grant complex. Resource allocations have been blatantly discriminatory. In 1971, of the \$76,800,000 in United States Department of Agriculture funds allocated to those 16 states with both white and black land grant colleges, 99.5 percent went to the white colleges, leaving only 0.5 percent for the black colleges. Less than one percent of the research money distributed by the Cooperative State Research Service in 1971 went to black land grant colleges. This disparity is not by accident, but by law.

### **Making Research Policy**

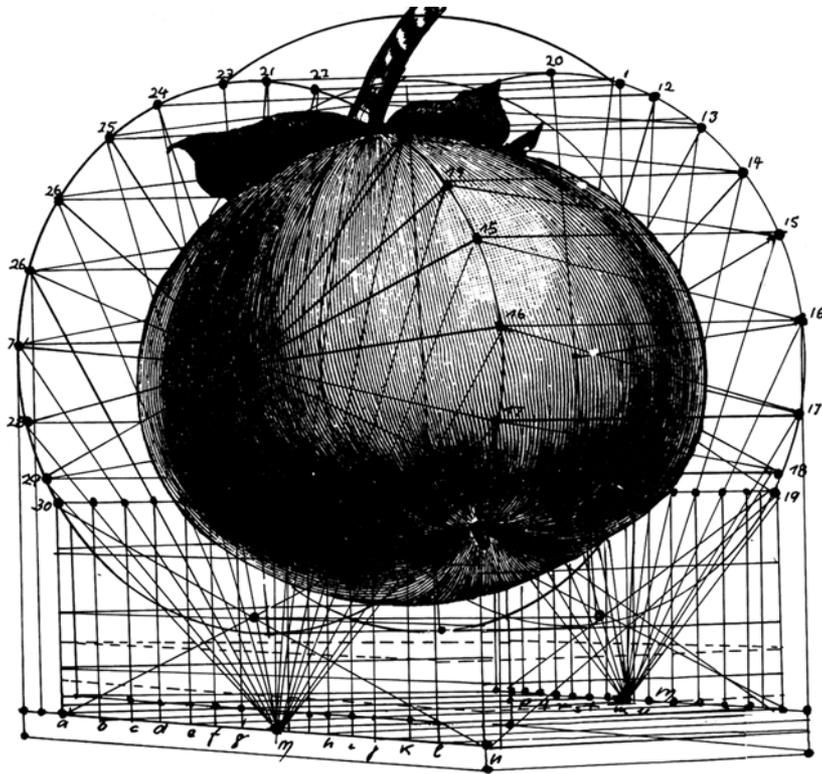
Land grant policy is the product of a closed community. The administrators, academics and scientists, along with USDA officials and corporate executives, have locked themselves into an inbred and even incestuous complex, and they are incapable of thinking beyond their self-interest and traditional concepts of agricultural research.

The short range research policy of the land grant system is the product of the annual budgeting process and the substance of that research budget is determined by the Agricultural Research Policy Advisory Committee (ARP-AC), which reports directly to the Secretary of Agriculture. Its members are the agricultural research establishment taken from USDA and the land grant community.

The National Association of State Universities and Land Grant Colleges is the home of the land grant establishment. Their particular corner in the Association is the Division of Agriculture, composed of all deans of agriculture, all heads of state experiment stations and all deans of extension. With eight members on the 24-man ARPAC board, NASULGC's Agricultural Division plays a major role in the determination of research priorities and budgets. The division also represents the land grant college complex before Congress on budget matters.

The top rung on the advisory ladder is USDA's National Agricultural Research Advisory Committee. This 11-member structure currently includes representatives from the Del Monte Corporation, the Crown Zellerbach Corporation, AGWAY, Peavey Company Flour Mills, the industry-sponsored Nutrition Foundation and the American Farm Bureau Federation.

Most national advisory structures are dominated by



land grant scientists and officials, but whenever an “outsider” is selected, chances are overwhelming that the person will come from industry. A series of national task forces, formed from 1965-1969 to prepare a national program of agricultural research, were classic examples of this pattern. Out of 32 task forces, 17 listed advisory committees containing non-USDA, non-land grant people. All but one of the outside slots on those 17 committees were filled with representatives of industry, including General Foods on the rice committee, U.S. Sugar on sugar, Quaker Oats on wheat, Pioneer Corn on corn, Liggitt & Myers on tobacco, Procter & Gamble on soybeans and Ralston Purina on dairy. Only on the “soil and land use” task force was there an adviser representing an interest other than industrial, but even there, the National Wildlife Federation was carefully balanced by an adviser from International Minerals and Chemical Corporation.

### Agribusiness Links to Land Grant Campuses

The giant agribusiness corporations and the land grant complex are linked in an extensive interlocking web. Corporate executives sit on boards of trustees, purchase research from experiment stations and colleges, hire land grant academics as private consultants, advise and are advised by land grant officials: they go to Washington to help a college or an experiment station get more public money for its work, publish and distribute the writings of academics, provide scholarships and other educational support, invite land grant participation in their industrial conferences and sponsor foundations that extend both grants and recognition to the land grant community.

Money is the catalyst for this tight web of relationships. It is not that a huge sum of money is given—industry gave only \$12 million directly to state agricultural experiment stations for research in 1969. Rather it is that enough money is given to influence research done with public funds.

Corporate money goes to meet corporate needs and whims, and these needs and whims largely determine the research program of land grant colleges. A small grant for specific research is just good business. The grant is tax deductible either as an education contribution or, if the research is directly related to the work of the corporation, as a necessary business expense. Not only is the product wrapped and delivered to the corporation, but with it comes the college’s stamp of legitimacy and maybe even an endorsement by the scientist who conducted the research. If it is a new product, the corporation can expect to be licensed, perhaps exclusively, as the producer and marketer. Everything considered, it amounts to a hefty return on a meager investment.

There is a long list of satisfied, corporate customers. Prime contributors are chemical, drug and oil corporations. Again and again the same names appear—American Cyanamid, Chevron, Dow Chemical, Esso, Eli Lilly, Geigy, FMC-Niagra, IMC Corporation, Shell, Stauffer, Union Carbide and The Upjohn Company are just a few of the giants that gave research grants to each of three colleges checked (University of Florida, North Carolina State University and Purdue University). Chemical, drug and oil companies invested \$227,158 in research at Florida’s Institute of Food and Agricultural Science, for example, accounting for 54 percent of research sponsored there by private industry in 1970.

## Land Grant Research Foundations

At least 23 land grant colleges have established foundations to handle grants and contracts coming into their institutions for research. These quasi-public foundations are curious mechanisms, handling large sums of money from a wide array of private and public donors, but under practically no burden of public disclosure.

A funding source can give money to a private research foundation, which then funnels the money to a public university to conduct research. By this shell game, industry-financed research can be undertaken without obligation to make public the terms of the agreement. The foundation need not report to anyone the names of corporations that are making research grants, the amounts of those grants, the purpose of those grants or the terms under which the grants are made.

These foundations also handle patents for the colleges. When a corporation invests in research through a foundation, it is done normally with the understanding that the corporation will have first shot at a license on any patented process or product resulting from the research. On research patents that do not result from corporate grants, the procedure for licensing is just as cozy. At Purdue University, for example, a list is drawn of "responsible" companies that might have an interest in the process or product developed, and the companies are approached one by one until there is a taker.

Because of these complex and tangled funding procedures it is often difficult to discover exactly what the land grant complex is doing. For example, most agricultural experiment stations offer an annual report in compliance with the Hatch Act disclosure provisions, but these reports are less than enlightening. Some do not list all research projects, but merely list highlights. Most do not include money figures with the individual projects, and very few reveal the source of the money. Instead they contain only a very general financial breakdown, listing state, federal and "other" funds received and expended. Few offer any breakdown of industry contributions, naming the industry, the contribution and the project funded; and none of the reports contain any element of project continuity to show the total tax investment over the years in a particular investigation.

Data are not supplied uniformly, are not collected in a central location and either are not reported or reported in a form that cannot be easily obtained or understood. Even more significant is the fact that many fundamental questions go unasked and fundamental facts go unreported.

The land grant college complex has been able to get by with a minimum of public disclosure—and with a minimum of public accountability. Millions of tax dollars annually are being spent by an agricultural complex that effectively operates in the dark. The farmer, the con-

sumer, the rural poor and others with a direct interest in the work of the land grant complex can get no adequate picture of its work.

Congress is no help; it does not take the time to probe the system, to understand it in detail and to direct its work in the public interest. It is here that the public might expect some serious questions of research focus—and some assertion of public rather than private interests. But it just does not happen. Congress has relinquished its responsibility and authority to single-minded officials at USDA and within the land grant community. Like spokesmen of the military-industrial complex, these officials and their allies come to the Capitol at appropriations time to assure a docile Congress that its investment in agricultural hardware is buying "progress" and that rural pacification is proceeding nicely.

There is nothing inevitable about the growth of agribusiness in rural America. While this country enjoys an abundance of relatively cheap food, it is not more food, not cheaper food and certainly not better food than that which can be produced by a system of family agriculture. And more than food rolls off the agribusiness assembly line—including rural refugees, boarded-up businesses, deserted churches, abandoned towns, broiling urban ghettos and dozens of other tragic social and cultural costs.

The solution to the problems of rural America is not a return to the hand plow. Rather, land grant colleges researchers must get out of the comfortable chairs of corporate board rooms and get back to serving the independent producer and the common man of rural America. It means returning to the historic mission of taking the technological revolution to all who need it, rather than smugly assuming that they will be unable to keep pace. Instead of adopting the morally bankrupt posture that millions of people must "inevitably" be squeezed out of agriculture and out of rural America, land grant colleges must turn their thoughts, energies and resources to the task of keeping people on the farm, in the small towns and out of cities. It means turning from the erroneous assumption that big is good, that what serves Ralston Purina serves rural America. It means research for the consumer rather than for the processor. In short, it means putting the research focus on people first—not as a trickle-down afterthought.

It is the objective of the Task Force on the Land Grant College Complex to provoke a public response that will help realign that complex with the public interest. In a recent speech concerned with reordering agricultural research priorities, Dr. Ned Bayley, Director of Science and Education for the USDA said that, "the first giant steps are open discussion and full recognition of the need." The Task Force report has recognized the need and is prompting an open discussion. The time for action is at hand. □