Closing the World Protein Gap

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Almost every evening most of us listen to the network news on television. It is one of our worst habits, but, like smokers who plan to make each puff our last, we keep on watching, program after program.

I watch for one reason: despite my dislike for old movies, I am convinced that one day the projector will earn a new reel; the news cannot go on being almost all bad. I tell myself: "Suppose the stock market should rally? What if the Yankees win two in a row? This trend can't last forever!"

With the advent of Apollo 11, I began to feel for the first time that the tide might be turning. After all, I told myself, only one thing is left in this country that really works, and that is the space program.

But even the space program has come under fire. People are saying it just costs too much money. They picture the program as an octopus that callously squeezes off federal funds that otherwise might be used to alleviate human suffering at home and abroad.

The critics contend that our astronauts will stretch their legs, plant our flag in the cosmic debris, and then fly home to conclude a journey of 500,000 miles—a journey mapped by 300,000 technicians, and fueled by both 24 billion in tax dollars and eight years of national effort. All this to bring back a sack of rocks hardly large enough to fill a wheelbarrow.

But the facts thus told do not tell the full story.

In his recent book, *The American Challenge,* the renowned French Economist Servain Shreiber concludes that, "The conquest of space has a great industrial impact on any nation or group of nations making the race. It requires technical skills far superior to those we (the French) now have, and thus serves as an incentive to progress. Because of the 'fall-out' from space research, American industry has been able to make important technological breakthroughs in refractory metals, computers, and equipment for working in vacuums."

For example, last week *The Wall Street Journal* reported that the new jumbo passenger jets scheduled to be in service late this year can thank the space program for gyroscopes and computers that enable them to fly a pinpoint course without human calculations on board, or electronic guidance from the ground.

Highway accidents have been reduced by as much as 90% where the pavement has been grooved on the basis of NASA research on aircraft runway skids.

Looking at the other side of the coin, the last moon shot would have been impossible without the wholehearted participation of American industry. Obviously, industry has made many important contributions to the total effort. Even the corn refining industry, which I represent, has helped in the program. We provide the starch used in the dehydrated foods that spacemen eat. A mock landing site set up at Ames Air Force Base two years ago used corn starch to simulate the surface of the moon. In the course of our research into the structure of starch granules, we have uncovered a new method for measuring optical rays—with important applications for space scientists.

This combination of government—private cooperation that is sending men to the moon—this blend of private enterprise and federal direction—can provide the mechanism for meeting with some tremendous challenges here on earth, as well.

I am speaking now, of course, about the war on hunger—a topic with which this audience is vitally concerned.

In coming years, world food supply may determine mankind's ability to live in peace. Empty stomachs breed revolution, and the world at present is grossly underfed. Thus, the ability of our industry, the food industry, to contribute better, more nutritionally balanced food will be one of the chief determinants in the race between the stork and the plow. If we can put it all together—government direction and private enterprise—we might just win this race, too.

No one knows for sure how much food will be needed, but it is generally considered a conservative estimate that if world population doubles as expected over the next three decades, the output of protein must be tripled just to reach a level considered adequate.

Despite significant improvement in crop varieties and development of the sea's resources, it appears that we will still be fighting an uphill battle for a long, long time. As population increases geometrically, our food supply only increases arithmetically.

It has been pointed out that the more advanced countries are indirectly responsible for this tragic problem of malnourishment in the less-developed countries. After all, we exported the public health and medical experts who wrought such dramatic reductions in disease, and cut death rates without cutting birth rates.

Thus, we are not only under an undeniable obligation to put science and technology to work to develop new sources of food for underdeveloped countries, but also to help them make better use of what they already have.

Experts on economic geography and nutrition generally agree that approximately two-thirds of the world's people either do not get enough to eat, or do not receive food of proper nutritional quality. The shortage of protein primarily accounts for this high percentage of malnourishment. This is true primarily because cereal grains, man's primary food source, are deficient in protein.

We are all well aware of recent progress in the development of additional protein supplies to meet current and near term requirements. Dramatic increases have been accomplished already in the supply of cereals and meat products.

In addition, considerable progress has been noted today in efforts to fortify existing cereals with amino acids such as lysine, tryptophan and methionine. An example I might point to is high lysine corn, which, I am pleased to say, the Corn Refiners Association helped to develop through financial grants.

Other efforts have produced new foods—extended milk, protein beverages, textured protein foods and cereal-protein concentrate combinations. Acceptance of these new high quality protein products is being tested in a dozen or more projects in protein poor areas of the world. Several of our Association's member companies are testing and marketing high protein products overseas, such as Cerealina, a cereal type food made from soy flour, corn starch and other ingredients.

On a recent trip to Denver, I was introduced to yet another possible source of protein—one that could possibly keep pace with the accelerating population trend in the less-developed countries of the world. D. M. Updegraff, head of the microbiology section at the Denver Research Institute, described to me the potential of using one-celled yeasts and bacteria to manufacture protein in tremendous quantities. These microorganisms, using such cheap raw materials as wood pulp, kerosene and ammonium sulfate, are capable of growing and synthesizing protein, hundreds, even thousands, of times as rapidly as beef cattle. The product of this low cost process would initially enrich animal and poultry feed. While much remains to be done to make single cell protein production a reality, Dr. Updegraff says a pilot plant has already been set up in California to produce food yeast from petroleum distillates.

All of these research breakthroughs hold great promise. But, speaking realistically, they have only brought us to

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the threshold of a much larger problem. In the not too distant future, the torch will pass from the geneticist and the cereal chemist to the social scientist, the businessman and the statesman.

We are beginning to see that the technical problems in reducing food deficits are minor compared to the problem of gaining acceptability—the economic, sociological and marketing problems with food.

Today in most of the less-developed world, average income is about 30 cents per day, not cash income, but in value of consumption per head. It is unlikely that people with income this low will make good customers for virtually any manufactured product. The new products introduced in South America, for example, have improved the nutritional level of the upper and middle classes, but not those in direst need.

If we are to make a real dent in reaching the two billion people of the world who presently do not get enough to eat, we are going to have to improve on our existing government and private food aid programs.

I don't mean this to be critical, but such gallant efforts as the Food for Peace Act of 1966 are simply not doing the job. In particular, Food for Peace has served to channel food aid to already advanced and developing countries, but has been less successful with less-developed nations.

This trend may be due, at least in part, to some policy contradictions in the Food for Peace Act itself. The Act's attempt to increase sales of commodities for dollars means increasing exports to those nations which already have the dollars—the developed countries—sometimes at the expense of less-developed purchasers.

Secondly, the Act requires increased self-help on the part of recipient nations. Self-help has been from the beginning a dangerously ambiguous term. If self-help means, for example, that the Government of India should relax its restrictions on private ownership of companies doing business in India, there can be no quarrel; but if self-help means that the Indian farmer is to lift himself from the 14th Century to the 20th, it is absurd. Self-help should mean that the less-developed nation must make an all-out effort to increase agricultural productivity, but it must recognize that it can do very little without private investment.

The solution to feeding people in the less-developed countries appears to me to involve more than government shipment of surplus commodities; it is also a problem of attracting private initiative and investment. The difficulties are obvious: hassles with local bureaucracies, little opportunity for immediate profit, too long a pay out period for investment, high risk of business loss through unforeseen circumstances, excessive cost of initial research and development, and so on.

It's a lot simpler to tell the corporate treasurer to invest in some Treasury bills and collect his 6% every 90 days.

But I believe that business, in particular, agribusiness, is willing to take the gamble. After all, quite a few businessmen took the gamble some eight years ago to commit their resources to our space effort. They have seen how that national commitment has blossomed to the mutual benefit of government and industry. Solving the monumental problems of hunger and diet in less-developed countries may be no more formidable an assignment.

The key, of course, is the Agency for International Development and its programs involving private enterprise. Two years ago A.I.D. set up an Office of Private Resources to strengthen the environment for private investment in less-developed countries. The Office's goal was to draw private U.S. organizations and companies into the government's assistance process by providing pre-investment assistance to U.S. companies looking for opportunities abroad. Its investment insurance programs reduce such political risks as currency inconvertibility, expropriation, war and insurrection. It puts up "seed money" with a variety of financing plans, including direct dollar loans and "extended risk" guarantees of private loans.

The private enterprise program at A.I.D. is getting results. Direct investments by U.S. firms in less-developed countries increased almost 50% from calendar year 1967 to calendar year 1968, and this was in spite of Johnson administration controls on foreign investment. This year, investment in less-developed countries is expected to reach over two billion dollars. Among the current projects of great promise is a grant to the Agribusiness Council to screen and financially support U.S. companies looking for investment opportunities in food marketing, processing and distribution in less-developed areas.

Recently, A.I.D. officials and a number of members of Congress proposed a reorientation for the Office of Private Resources. Experience has shown that some of the particular needs of investing in less-developed countries could better be met through a quasi-public corporation. They recommended that an Overseas Private Investment Corporation be established to further broaden private participation in the war on hunger and other assistance programs. The new corporation would assume those activities I outlined a moment ago.

While the Overseas Private Investment Corporation would operate as a Federal agency under the policy guidance of the Secretary of State, it would be sustained by selling investments from its portfolio to private investors. This self-generating financial arrangement would free it from the uncertain fortunes of the foreign aid appropriations process.

One of the announced goals of the proposed corporation is to condition foreign assistance on the commercial soundness of an investment project. In the words of the proposal, OPIC would concentrate its aid on projects which "would ensure both a demonstrably high economic return to the American investor and that the project was related to the development of the country in which it was located."

This recognition that businessmen and investors are entitled to a reasonable return as well as recovery of their investment is particularly gratifying to me. At the same time it should reduce foreign fears of U.S. economic domination.

Hearings are now in progress on legislation to establish this specialized corporation to enlist private investment in less-developed countries.

Each of us has had some experience with raising venture capital, and I know that it is one thing to achieve an agreement on the need for investment and quite another to put cash down on the table. The Overseas Private Investment Corporation seems to me to be a realistic way of getting dollars and expertise flowing into the hungry nations of the world.

If the protein gap is to be closed, it will take continued cooperation between business and government—the kind that has characterized the race to the moon.

The new technology that enables us to travel one-half million miles in space is bound to contribute to the ageless problem of producing enough food to meet mankind's needs.

Apollo 11 illuminates how far we have come, and the limits of the mind on just how far we can go. We must make this a first step, as the noted anthropologist Margaret Mead says, "Not into space alone, but into the disciplined and courageous use of enhanced powers for man."

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