NUTRITION AND HUMAN NEEDS

HEARINGS

BEFORE THE

SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS

OF THE

UNITED STATES SENATE

NINETIETH CONGRESS

SECOND SESSION

ON

NUTRITION AND HUMAN NEEDS

PART 1—PROBLEMS AND PROSPECTS

WASHINGTON, D.C., DECEMBER 17, 18, 19, 1968

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NUTRITION AND HUMAN NEEDS

Part 1—Problems and Prospects

TUESDAY, DECEMBER 17, 1968

U.S. SENATE,
SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS,
Washington, D.C.

The committee met at 10:10 a.m., pursuant to call, in room 1202, New Senate Office Building, Senator George McGovern (chairman of the committee) presiding.

Present: Senators McGovern, Clark, Mondale, Hart, and Goodell.

Also present: William C. Smith, general counsel.

STATEMENT OF HON. GEORGE McGOVERN, A U.S. SENATOR FROM THE STATE OF SOUTH DAKOTA

The CHAIRMAN. The committee will be in order.

We begin this morning the first series of hearings of the Senate Select Committee on Nutrition and Human Needs. I would like to begin by quoting this committee's mandate as set forth in Senate Resolution 281, by which the Senate unanimously authorized establishment of the committee:

> * * * to study the food, medical, and other related basic needs among the people of the United States and to report back to the appropriate committees of the Senate and terminate its activities not later than June 30, 1969.

Quoting further:

> Such report may contain such recommendations as the committee finds necessary to establish a coordinated program or programs which will assure every United States resident adequate food, medical assistance, and other related basic necessities of life and health and shall in addition contain appropriate procedures for congressional consideration and oversight of such coordinated programs.

I order the full text of Senate Resolution 281 to be printed in the record at this point.

(S. Res. 281 follows:)

90TH CONGRESS
2D SESSION

S. RES. 281

[Report No. 1416]

IN THE SENATE OF THE UNITED STATES

APRIL 26, 1968

Mr. MCGOVERN (for himself, Mr. BAYH, Mr. BOGGS, Mr. BROOKE, Mr. BURDICK, Mr. CASE, Mr. CHURCH, Mr. CLARK, Mr. FONG, Mr. FULBRIGHT, Mr. GRUENING, Mr. HARRIS, Mr. HART, Mr. HARTKE, Mr. HATFIELD, Mr. INOUYE, Mr. JAVITS, Mr. KENNEDY of Massachusetts, Mr. KENNEDY of New York, Mr. KUCHEL, Mr. LONG of Missouri, Mr. MCGEE, Mr. MAGNUSON, Mr. MANSFIELD, Mr. METCALF, Mr. MONDALE, Mr. MORSE, Mr. MOSS, Mr. MURPHY, Mr. MUSKIE, Mr. NELSON, Mr. PELL, Mr. PERCY, Mr. PROUTY, Mr. RANDOLPH, Mr. RIBICOFF, Mr. SCOTT, Mr. TYDINGS, Mr. WILLIAMS of New Jersey, Mr. YARBOROUGH, and Mr. YOUNG of Ohio) submitted the following resolution; which was referred to the Committee on Labor and Public Welfare

JULY 17, 1968

Reported by Mr. CLARK, with amendments

JULY 30, 1968

Considered, amended, and agreed to; preamble agreed to

[Omit the part struck through and insert the part printed in italic]

RESOLUTION

Whereas it has been demonstrated that every American does not have the food, medical assistance, and other related necessities essential to life and health; and

Whereas surveys conducted by Government agencies and responsible groups of citizens show that, in spite of America's abundance of food, fiber, and other resources, our Federal food programs fail to reach many of the citizens lacking adequate quantities and/or quality of food, which may result in the lifetime impairment of children mentally and physi-

cally, and in unnecessary disease, suffering, and premature deaths among both young and adults; and

Whereas restricted use of programs authorized by Congress, reversion of funds, divisions of responsibility and authority within Congress and administrative agencies, unwise regulations and other obstacles impede and frustrate efforts to banish starvation and want for necessities among desperately disadvantaged poor within our Nation: Now, therefore, be it

Resolved, That the President, the Department of Health, Education, and Welfare, the Office of Economic Opportunity, the Department of Agriculture, the Bureau of Indian Affairs, and any and all other agencies with applicable authorities shall use to the fullest possible their authorities under the following existing laws, the Elementary and Secondary Education Act, the Johnson-O'Malley Act, section 32 of the Agricultural Act of 1935, the Agricultural Act of 1949, Emergency Food and Medical Services Amendment to the Economic Opportunity Act, the Food Stamp Act of 1964, the National School Lunch Act of 1946, and all other authorities for child aid, medical assistance, and relief programs, to meet immediately the food, medical, and other related basic needs of the Nation's poor to the fullest extent possible; and be it further

Resolved, That there is established a select committee of the Senate composed of three majority and two minority members of the Committee on Labor and Public Welfare,

three majority and two minority members of the Committee on Agriculture and Forestry, and two majority and one minority Members of the Senate appointed by the President of the Senate from other committees, to study the food, medical, and other related basic needs among the people of the United States and to report back to the appropriate committees of the Senate and terminate its activities not later than June 30, 1969. Such report may contain such recommendations as the Committee finds necessary to establish a coordinated program or programs which will assure every United States resident adequate food, medical assistance, and other related basic necessities of life and health and shall in addition contain appropriate procedures for congressional consideration and oversight of such coordinated programs.

The CHAIRMAN. I might say that Senator Joseph Clark of Pennsylvania, who is a member of this committee and may join us presently, started the major investigations into the problem of hunger in the United States with his Senate Poverty Subcommittee in April 1967 when they first visited the Mississippi Delta.

That was followed up by a visit to the same area by doctors sponsored by the Field Foundation in June 1967.

Those two investigations in turn stimulated the establishment of a citizens board of inquiry of prominent Americans and the publication of their very valuable report, "Hunger U.S.A."

There has been some question by some of the experts as to the accuracy of some parts of that report but I think on balance it serves an enormously important purpose in spotlighting the existence of widespread hunger in the United States.

This, in turn, was followed by the CBS documentary, "Hunger in America," an excellent study by a group of five women's organizations of the national school lunch program, called Their Daily Bread.

But through all these studies the existence of domestic hunger and malnutrition has been brought before the American people in a very, very dramatic and forceful manner in the past 18 months.

This committee will continue to inquire into the existence and extent of hunger and malnutrition. But more important, we must look beyond these reports.

The problem is not one of simply getting food into the stomachs of those we now know or determine in the future are hungry.

The task of fully meeting the nutrition and other basic needs of our people requires that this committee conduct an intensive and thorough study of the adequacies and shortcomings of our present efforts to meet those needs.

To this end the select committee will evaluate our food, nutrition, education, health, and welfare programs—particularly with respect to the delivery of services at the State and local level.

Beyond this—beyond the question of how we improve our current efforts, we will be asking new and tough questions and examining broader policy issues concerning the food and health and other basic needs of our people.

We will be asking for example:

What we know about the nutritional needs and deficiencies of the American people and how can we determine them;

How much lack of nutrition education, poor sanitation, and lack of health service contribute to malnutrition;

How much we know about the foods we are now growing, processing, marketing, and eating;

What the relationship is between our farm policy and our nutrition needs and food distribution programs;

Whether we should, as Japan does annually, have a periodic survey of our nutrition and health needs in order to assess our food and health policies.

We will be seeking to find a suitable way to supply a nutritionally adequate diet to people who haven't the funds to purchase it and asking whether this can be done through the private sector at a price that will yield a fair return to the producers and distributors.

We will be seeking ways to make nutrition education and essential health service available to those who need these services to become well nourished.

To answer these and other questions we will bring together in consultation with the committee and at public hearings the best minds in the country—experts and others from many disciplines.

We will go into local communities and talk with local officials and with those whom they serve as well as those who are not served.

At this point I would like to include in the record my statement released yesterday, December 16, 1968.

(The statement follows:)

STATEMENT OF SENATOR GEORGE MCGOVERN, OF SOUTH DAKOTA

The Senate Select Committee on Nutrition and Human Needs will begin hearings tomorrow. I have called this press conference because I think it important that the issue of hunger and malnutrition in America be put in perspective and because I want to give you some of my thoughts about the Committee, its purposes, and its activities.

Let me begin by quoting something I said in a speech on world hunger in the Senate back in September 1965:

"Even today, human hunger is a much more serious problem than is generally realized. Half a billion people suffer from inadequate quantities of food. Another billion subsist on improperly balanced diets, most notably a shortage of protein foods. Three million children die each year from diseases induced by malnutrition. Countless human beings go through life permanently crippled physically, mentally, and emotionally because of inadequate protein, vitamins, and minerals in their formative years. The ever present companions of malnutrition—lethargy, disease, and premature death—breed a vicious circle of listless human beings powerless to break out of their misery and yet capable of breeding more misery for their children and for generations yet unborn."

Change the figures—the billions to millions and millions to thousands and you have what is probably a fair description of the United States today.

Over the past two years there has been ample, if not scientific, documentation of hunger in America.

Starting with revelations of conditions in the Mississippi Delta by the Senate Poverty Subcommittee in April 1967 and the Field Foundation doctors in June; followed by the establishment of a Citizens Board of Inquiry and the publication of their highly valuable report "Hunger USA", and by CBS Reports' moving documentary "Hunger in America;" the existence of domestic hunger and malnutrition has been brought before the American people—brought before us dramatically and effectively.

Surely, the day is long since past in this country when any child should cry himself to sleep at night for want of enough food, or grow to adulthood, mentally and physically impaired for life for want of the right things to eat in early life, or lack of sufficient sustenance to do his work in school.

It is disgraceful that bold emergency action has yet not been taken by our government—a responsibility both past Administrations and the Congress must share—to get food to people we know are being premanently crippled or destroyed by malnutrition—on our Indian reservations, in Alaska, in the hollows of Appalachia, in Beaufort City, South Carolina, San Antonio, Texas, the Mississippi Delta and in our cities across the land. Nearly two years ago, Robert Kennedy described that misery as worse than he had seen in South America.

Next month we will have a new Administration in Washington, which includes Dr. Clifford M. Hardin, Chancellor of the University of Nebraska, the new Secretary of Agriculture and Lt. Governor Robert Finch of California, the new Secretary of HEW. They and the other members of the new Cabinet will have to cope with many pressing problems at home and abroad.

Nothing, however, deserves more immediate attention or higher priority than the task of assuring, at the very least, that no American young or old is hungry or malnourished.

I note that President-Elect Nixon stated last week that Dr. Hardin "has developed a worldwide reputation for his work in the field of agriculture, in fighting the problems of hunger and famine throughout the world."

I hope that Dr. Hardin and Lt. Governor Finch will place the problem of domestic hunger and malnutrition at the top of their agenda on January 20. I am sure they will want to work closely with our Committee and I look forward to working with them.

But the problem is not one of simply getting food into the stomachs of those we already know are hungry—which we can do on an emergency basis if we have the will. The task of fully meeting the nutrition and other basic needs of our people requires that we conduct an intensive and thorough study of the adequacies and shortcomings of our present efforts to meet those needs. To this end the Select Committee will evaluate our food, nutrition, education, health and welfare programs—particularly with respect to the delivery of services at the State and local level.

We know, for example, that many of the 22 commodities available under the Commodity Distribution Program never reach the families they are designed to help. I am not sure we know why. We know that thousands who are eligible to buy food stamps do not participate and that others who ought to be certified are ineligible under local rules. But, again, we don't know what the real roadblocks are. We know that 4 million impoverished schoolchildren do not get free and reduced price lunches. New USDA guidelines are designed to open up the program to enable others to eat lunches their classmates take for granted. But we will be asking how these guidelines are being carried out. We know that the levels of Aid to Dependent Children vary from $35 a family each month in Mississippi to $230 in New Jersey, and that while 8 million people receive public assistance and 6 million receive food assistance, we do not know the relationship between those services, the actual criteria for participation used, or the quality of administration at the local level. We do not know, either, the extent to which lack of knowledge of good nutrition—nutrition education—is responsible for malnutrition. Nor do we know the extent to which parasites, poor sanitation and unmet health needs make it impossible for people to assimilate and make use of food they eat.

We have lots of statistics. Any agency of government will tell the Congress how many people it is serving or how many lives its programs affect. But we need more than numbers. We need more than cost-benefit ratios and computer printouts. We need to know from the perspective of the consumer how well the people with whom he deals are serving his needs.

Beyond this—beyond the question of how we improve our current efforts, we will be asking new and tough questions and examining broader policy issues concerning the food and health and other basic needs of our people. We will be asking for example:

What we know about the nutritional needs and deficiencies of the American people and how can we determine them;

How much lack of nutrition education, poor sanitation and lack of health service contribute to malnutrition;

How much we know about the foods we are now growing, processing, marketing and eating;

What the relationship is between our farm policy and our nutrition needs and food distribution programs;

Whether we should, as Japan does annually, have a periodic survey of our nutrition and health needs in order to assess our food and health policies.

We will be seeking to find a suitable way to supply a nutritionally adequate diet to people who haven't the funds to purchase it and asking whether this can be done through the private sector at a price that will yield a fair return to the producers and distributors.

We will be seeking ways to make nutrition education and essential health services available to those who need these services to become well nourished.

To answer these and other questions we will bring together in consultation with the Committee and at public hearings the best minds in the country—experts and others from many disciplines. We will go into local communities and talk with local officials and with those whom they serve as well as those who are not served.

I close by returning again to something I said about world hunger in September 1965:

"I believe that we ought to declare an all-out war against hunger for the balance of this century. We should call on our farmers and our agricultural technicians to enlist for the duration in the war against want. We should announce to the world now that we have an unused food producing capacity which we are

willing and anxious to use to its fullest potential. Our Government should leave no doubt that we will bend every effort to see that no nation—friend or foe—starves while we permit land and surpluses to remain idle."

The American people responded to the world's hunger with the Food For Peace Program. In the knowledge that millions of our own citizens are hungry, it is my hope that this Senate Select Committee may open the way for a Food For Health Program designed to end hunger in America.

The CHAIRMAN. The witnesses which we have invited to testify today are each experts in the field of nutrition. But before we begin with Dr. Jean Mayer of the Harvard School of Public Health, I would like to give my colleagues an opportunity to make any opening statements they may wish.

Senator Mondale.

STATEMENT OF HON. WALTER F. MONDALE, A U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator MONDALE. I want to commend the chairman of this committee for his leadership in bringing us to the creation of this committee and the development of the testimony which we will hear today and the days to come.

I think this is a long overdue and fundamental study that should have occurred many, many years ago.

I would just like to add one point, if I might. I think at the outset of these hearings, especially a word of tribute should be paid to the role of Senator Robert Kennedy as well because he was one of those who first saw firsthand the ravages of malnutrition on the hungry children in Mississippi and elsewhere.

It was a sight which shook him deeply and personally. He, too, I think, provided much of the impetus which brought us to this point. He is not with us today but I think his leadership on this issue will be with us for a long time to come.

The CHAIRMAN. Senator Hart.

STATEMENT OF HON. PHILIP A. HART, A U.S. SENATOR FROM THE STATE OF MICHIGAN

Senator HART. Mr. Chairman, you have expressed well the purpose, and raising the question the week before Christmas is a good time to start. Because the Commission on Violence, of which I am a member, will be meeting tommorrow and Thursday, I shall be able to attend this select committee's hearings only today. This I regret and hope conflicts will not cause me to be absent on any other occasion.

The CHAIRMAN. We have a new member of the committee, Senator Goodell of New York. We are very pleased to welcome him to this committee.

STATEMENT OF HON. CHARLES GOODELL, A U.S. SENATOR FROM THE STATE OF NEW YORK

Senator GOODELL. Mr. Chairman, I wonder if I might save the time of the committee by putting a more complete statement in the record at this point.

(The document referred to follows:)

STATEMENT OF SENATOR CHARLES E. GOODELL

I am pleased to participate in the vitally important work of this Select Committee on Nutrition and Human Needs.

Hunger and malnutrition in America are reaching the proportions of a national disgrace. Over 10 million Americans are now living on diets having less than two thirds of the minimum nutrients required for good health. They are condemned to suffer from illness, reduced life expectancies and diminished energies.

Worst of all, a large proportion of those who are undernourished are children who without proper nutrition cannot grow into strong adults capable of leading productive, independent lives. There is startling medical evidence that children who are undernourished are prone to poor health, mental retardation and nervous disorders. When such children are sent to school, they may not be educable. And when they become adults, they may not be capable of holding down jobs, and thus will lead lives of continued poverty and welfare dependence. In short, it may be said that society is sentencing these children to living only half a life.

A variety of Federal programs now exist which are intended to meet the nutrition needs of the poor. But they are not working properly. The food distribution and food stamp programs reach less than one-fifth of the poor. Less than one-third of poor children who are in school benefit from the Federal school lunch programs. The existing Federal programs are also hobbled by a maze of technical restrictions—such as rules which make it impossible for poor families to buy food stamps in small quantities as they need them.

Inadequacies in programs are compounded by inadequacies in administration. The Federal food stamp and commodity distribution programs are often still carried out at the local level as a means of disposing of surplus farm products not meeting the nutritional needs of the poor. And the involvement of multiple Federal and local agencies with conflicting or overlapping responsibilities prevents the job from being carried out as effectively as it should be.

I have long been concerned with putting an end to malnutrition in this country.

In the House, I worked with Congressman Thomas S. Foley of Washington in a bi-partisan effort to uncover some of the shocking facts about hunger in the U.S.A. We urged the creation of a Hunger Commission to study the problem of malnutrition and report its findings to the nation. Our efforts led to hearings on hunger before the House Education and Labor Committee—and to the passage by the House on July 15 of this year of our proposed Hunger Commission.

The Senate has responded to the problem by creating this Select Committee on Hunger and Human Needs. The Committee can pursue the vital work of finding and presenting to the American people the real facts about the extent of hunger and malnutrition in this affluent nation. As a Senator, I am extremely pleased to participate in these hearings and continue my work on this urgent problem.

After this Committee has developed the facts it will be in a position to put forward new legislation to cope more effectively with the diet needs of undernourished Americans. The Committee can thus play a vital role in assuring that millions will no longer go hungry in this land of plenty.

Senator GOODELL. I have had a continuing interest in this particular problem of malnutrition in the United States.

I also pay tribute to the chairman of this subcommitte and to our colleague, Senator Clark, for the leadership they have given here, focusing on this very, very great problem.

I think, today in an affluent society, it is an absolute disgrace that we have over 10 million Americans living on a diet of less than two-thirds of the minimum nutrients required for good health.

Last spring a group of us organized in the House of Representatives a coalition on hunger on a bipartisan basis. We had over 80 Members of Congress participating.

We had several demands: some of them were for immediate action, to make existing programs, designed to get assistance to those who are malnourished, to work better.

Secondly, to set up a national commission on hunger comparable to the Commission on Civil Disorders to bring out the full facts and

to focus attention on this problem so that we can have long-term solutions.

We did not get the Commission on Hunger although it passed the House of Representatives.

This committee therefore, this select committee, has the primary responsibility.

I know we are going to carry a great deal of concern and responsibility because there are so many Federal programs existing, yet less than one-third of the poor children get any benefit from our school lunch program.

With over 18 million children participating, less than one-third of the poor children participate.

We have existing programs hobbled by a maze of technical restrictions. One of the most serious concerns that I have, much as I favor the food stamp program, is that when we move into a county with a food stamp program we discontinue the commodity distribution program.

It takes a considerable period of time to get the food stamp program underway in these counties and many of the poor find it difficult, if not impossible, to participate in the food stamp program.

I am delighted to be able to join this subcommittee and my esteemed colleagues and I look forward to these meetings.

The CHAIRMAN. Thank you, Senator Goodell.

Senator Clark, before you came in I drew attention to the fact that you really are the father of these hearings and the fact of the whole investigation into the hunger and malnutrition in the United States because the whole thing began with your investigation in Mississippi along with Senator Kennedy and Senator Nelson and others in April 1967.

We are delighted to have you here this morning. We will be happy to hear from you.

STATEMENT OF HON. JOSEPH S. CLARK, A U.S. SENATOR FROM THE STATE OF PENNSYLVANIA

Senator CLARK. Thank you very much, Senator McGovern.

I don't feel much inclined to accept at face value the very kind words as I bow out of the Senate. This is pretty much a team performance. Under the auspices of your counsel, Bill Smith, the Subcommittee on Manpower, Employment, and Poverty did start the ball rolling with a trip to the Mississippi Delta in the spring of 1967.

The late Senator Robert Kennedy I think did more than any of the rest of us to publicize the conditions that we found there. But I must say that Senator Javits and Senator George Murphy were also very much shocked at what we found and contributed a great deal to what subsequently occurred.

When we got back to Washington, Senator Kennedy, who really had a sense of mission about this, and I went to see Secretary Freeman and attempted to arouse his keen interest in doing something.

I think the Secretary was keenly interested but I suppose I can now say it better since I am not going to be here for a while, the vast agricultural bureaucracy leaves something to be desired when the time comes to get something done.

And you as the chairman of the old food-for-peace drive were in the forefront of this whole business, food for peace all over the world.

It was your leadership and your resolution under which we are now acting that got this whole program going.

I think there should be noted for the record the very real contribution that Senator Hart and Senator Mondale and Senator Goodell, particularly when he was in the House, have contributed.

I would like to state as my "swan song" that this is just a team effort and I regret very much I can't stay with you, the people in Pennsylvania having decided otherwise.

But I wish you well. I think you have a fine committee. I know that you will pursue zealously the steps of the investigation and marking up whatever bills need to be submitted.

I am delighted that you are heading this.

The CHAIRMAN. Thank you very much, Senator Clark. It just so happens it was almost 8 years ago this very day, I think 8 years ago yesterday, that the late President Kennedy announced that he was creating the Office of Food for Peace.

Shortly after he was inaugurated his very first Executive order on January 23, as I recall it, authorized an increase in the food programs in West Virginia.

The second Executive order of his administration officially created the Office of Food for Peace to narrow the gap between the abundance here at home, as he put it, and near starvation abroad.

I think it is typical of the late President that he moved first to deal with the problems of hunger and malnutrition here at home.

Certainly we associate that, Senator, with the late Senator Robert Kennedy. No one can recall his name without also recalling hungry children in Mississippi and elsewhere in the country.

Our first witness today is a very distinguished nutritionist, Dr. Jean Mayer, professor of nutrition at Harvard University.

I wish to call Dr. Mayer at this time. We will be pleased to hear your statement. You may proceed in any way you wish.

STATEMENT OF DR. JEAN MAYER, PROFESSOR OF NUTRITION, HARVARD UNIVERSITY

Dr. MAYER. Thank you, sir. I will not read my statement but summarize it and emphasize certain points.

First of all, I would like to say how pleased all of us nutritionists are that these hearings are taking place in the U.S. Senate; we are delighted to see this distinguished body concerned over the problems of malnutrition.

As I am going to engage in a lover's quarrel with our country on some of its nutritional and social programs I would like to point out first that if there is any science that can be termed an "American science" it has been nutrition.

The term "American science" or "English science" or "German science" does not make very much sense but inasmuch as it does we can say that there is no country on earth which has contributed as much to our general knowledge of nutrition as has the United States.

For that matter it was in this country, at the end of the 19th century that Atwater first became concerned with the social application of nutrition.

The fundamental work on the need for protein and need for specific amino acids, proteins, was done at one of my old alma maters, Yale, by Ostorn and Mendel.

The vitamin story was very largely started at Johns Hopkins by Professor McCollum, and the massive application of nutritional science to problems of agricultural production and to human problems was really started in the United States.

Inasmuch as I am going to disagree with quite a bit of what our Department of Agriculture has been doing, I would like to point out that it has been the great pioneer in agricultural extension programs, which have been copied all over the world, that it has been the pioneer in having a human nutrition unit within its planning component, and that it has been the pioneer in recommending enrichment of cereals and various other nutritional measures.

To get to the substance of this hearing, I think it can be said that there is little doubt that there is a substantial proportion, perhaps as much as 10 percent, of our population which is malnourished and that there is widespread ignorance as regards the problem of nutrition in our country.

Basically, I would like to speak about three areas: The problem of malnutrition of the poor; the problem of ignorance of malnutrition by a very large part of our population, poor and rich; and the problem of nutrition and degenerative disease. We should not forget that the problems of malnutrition are not only purely economic but that a great deal of our present health problems are due to nutrition even among the rich; with the present emphasis of American medicine on curative rather than on preventive medicine I am sorry to say that little is done about that aspect.

Senator McGovern has already reminded us of the various ways in which the existence of malnutrition has been brought forcibly to the attention of the American people by such documents as "Hunger U.S.A.," such films as the "CBS Reports," and by hearings such as those before this committee.

Anyone who is really interested in the problem of malnutrition at home and who has read the nutritional journals could have seen there was a good deal of malnutrition simply from the existing surveys which had been done before.

I think that is a melancholy thing to have to say about us nutritionists that basically it is nonnutritionists that have brought to the fore and to the consciousness of the U.S. people many of the problems that nutritionists should have howled about.

I have had the privilege this year of being Phi Beta Kappa scholar for the year 1968 and as a result have been traveling to a number of colleges and universities.

I think a great deal of the disaffection for natural sciences that I have seen among college students stems from the fact that we as scientists have not done our job in making sure that the ethical implications of science were brought to the attention of the young and of the Nation in general.

In the case of nutrition this has now been done. The general areas of malnutrition are beginning to be known, though specific knowledge is still missing. I think it was unfortunate but perfectly honest on his part that the Surgeon General of the United States had to make the

statement last year that we do not know the extent of malnutrition in the United States.

We still do not know it although the Government is now beginning to accumulate data which I gather are going to be presented before your committee in January. These, I understand, will substantiate the fact that the rather dramatic statements made in "Hunger U.S.A.," and in the CBS report, were in fact somewhat short of the truth as regards the situation in many areas.

Still at present I think we can make statements as to where there is malnutrition in the United States and I think basically they are five main areas which we should remember.

First of all, the unemployed or partly employed rural poor. Many of these are in the Deep South, in particular cotton workers that have been displaced by changes in crop from cotton to corn and by the use of new machinery; but a great many of these rural poor who are malnourished are not in the Deep South but are in areas like Appalachia.

A second area or group is migrant workers. There is good documentation that these are groups not only suffering from malnutrition but from many infectious diseases such as tuberculosis, and from illiteracy among the children.

The Eastern stream is made up mostly of Negroes and Puerto Ricans. The Western stream is mostly Mexican.

A third group is Indians in the Southwest and elsewhere. There is a great deal of difference between tribes and reservations but there are a number of important tribes and groups who are badly fed and I think it is worthwhile to remember that the life expectancy of the Indians on our reservation is still only of the order of 42, which is about 15 years at least less than the National average.

A fourth group is the very poor in the big cities who again are unequally treated depending on the cities and the States. Many are not on welfare payments. Many are not receiving any benefit from nutritional programs.

All too often and, I am sorry to say, in my own State of Massachusetts, in the poor core of large cities the school lunch program does not exist or exists only for high schools but not for elementary schools; usually, the much wealthier children in the suburbs are receiving the benefit of the school lunch programs.

The explanations are that the schools were not built for food distribution, have no cafeteria or kitchen, and so on.

The example of Boston is one which I know particularly well and which will serve as an illustration. It so happens that the first school lunch programs anywhere in the Nation were started by Ellen Richards in Boston, Mass., in 1895–1900, in the schools many of which are still used now.

The city of Boston has not built an elementary school with a cafeteria since 1900, but the school lunch program could still be used. The main excuse that has been given for not having an active school lunch program—in the elementary schools now is that the schools are not fitted with a cafeteria—the fact is that they never were in the early days of the school lunch program and it worked anyway. A common rationale is that food ought to be the responsibility of the parents suggesting an attitude of moral condemnation of poverty.

As an extreme example which I mention to show that callousness about the poor is not something which is limited to one area of the country, one member of a school committee in Boston explained a few years ago that feeding wealthy children in the suburbs put them in no danger of pauperization: inasmuch as they were not dependent on the school lunches it did them no harm morally; by contrast, feeding poor children in the city would get them used to being fed by the government and would sap their initiative.

The last area of malnutrition which should be mentioned is that in certain areas in Alaska the Indians and Eskimos appear to be in a precarious state as well.

Now, how can we cope with these problems? I think the major consideration which we should keep in mind is that we cannot continue to have the nutritional policy of this Nation be an indirect consequence of such programs as price support, subsidies, and be based essentially on purely economic considerations.

Our policy of price support and subsidies was essentially put together in the thirties at a time when 25 percent or more of the population of the United States were farmers and where furthermore, the poor rural areas were among the most desperately poor.

The program has been patched up but it has never really been rethought; we are now in a situation where the great majority of the subsidies are going to farmers which by no stretch of the imagination could be considered as poor.

Only a very small part of this subsidy money, perhaps no more than 5 percent, goes to farmers who are basically what I would call the rural poor in danger of malnutrition.

Now I am not completely naive about economics. I don't think that subsidization can be abolished and completely revamped from one day to the next. But I do say that we cannot have our children, we cannot have the poor of the Nation fed on a basis which is essentially one of convenience for the disposal of surplus commodities, surplus foods.

There is a basic conflict of interest in a moral sense in having the same agency be involved in the disposal of surpluses and in setting up the programs by which the children of the Nation are going to be fed in school lunch programs and by which the poor of the Nation are going to be fed.

Furthermore, the problem at present is that in many ways because our surpluses are dictated by economic consideration we are indefinitely producing the wrong surpluses in terms of having them as the basis for intelligent nutritional programs here and abroad.

I think we put the cart before the horse. I think we have to set up national guidelines as regards nutritional programs, be they of the poor, be they of the children, be they of the military, and then worry about the economic structure which is going to allow us to do the best job for feeding these particular groups and, indeed, for feeding the Nation in general.

The second area which I mentioned which deserves your interest is that of nutrition education.

The ignorance of our people as regards the caloric value and nutrient value of foods, as well as nutrient requirements, is in many ways appalling.

It prevents us as a nation from having the type of good nutrition we ought to have.

It also allows quack organizations to make a great deal of money peddling door-to-door dietary supplements which escape Federal regulation because they do not circulate openly along the channels of interstate trade. It enables people to peddle quack reducing diets, faddist foods, and so forth.

This represents an enormous amount of money. According to the best estimate it represents the better part of a billion dollars which ought to be available to American people for legitimate health care and for sound nutrition.

Now I think it is important to realize that while we do have techniques for nutrition education, while the agricultural extension program has worked well in the past, at least among the middle-class farmers, there is no sure recipe at present for teaching adults, who have never had any exposure to human biology, how to feed themselves well.

I think the idea of doing better than ad hoc programs of educational this or that unrelated to the general educational programs of our Nation is an absolute necessity.

Many States, I think most States, have as a requirement for graduation from high school a course in American history on the justified basis that people cannot vote intelligently on decisions that concern the life of the country if they don't know where we come from, how our institutions have evolved, and how the decisionmaking process works.

I think that, similarly, we will not have decent health education, we will not have decent nutrition education until we have a course in high school on human biology or human physiology, including human nutrition, which will serve as a basis for our citizens to make those daily decisions concerning their food, concerning their health care, which in effect are the basis for the health of the Nation as a whole.

The first diagnosis that anything is wrong is done by the patient, himself. The first therapeutic measures are taken when the patient goes to the hospital, goes to see the doctor, or for that matter makes the right choices in the supermarkets.

It is unreasonable to expect our citizens to make those right choices unless they have been taught solid information on human biology in school.

Finally, even though this is perhaps outside of the framework of the hearings or the main emphasis in the beginning, I would like to point out that malnutrition is not something which only happens to the poor and to those we consider to be the ignorant.

In the past 20 years, we have as a nation quadrupled our expenditures on health, by which I mean doctors' bills, prescription drugs, and hospital costs.

Taking into account the growth of our population, we are spending three times as much money on health than we did in 1948. Health is now the third largest consumer of manpower in the country and this is constantly growing.

Yet at the same time, we are the only nation member of the World Health Organization which has shown no increase in adult life expectancy, particularly of our men, in the past 20 years.

Basically, all of our advances in medicine have been nullified by the ever-increasing toll of cardiovascular disease which is by far the major health problem and the major cause of death in this country as a whole.

We don't know everything about prevention of cardiovascular disease by a long shot but we know a great deal and we are basically not acting on it.

As a nation we are very excited when this or that well-known surgeon takes the heart of one person and puts it in another at very great cost, very great difficulties. This is admirable virtuosity and very important research but from the health impact on the Nation it is presently negligible.

Yet we know enough to make a tremendous impact on the health of the Nation. Basically, what we do know is that a diet of very high fat content, and high in saturated fats, particularly in very inactive individuals, raises the cholesterol and with the rising cholesterol there is a tremendous rise in cardiac mortality.

We also know that physical exercise is essential in terms of weight control. It has been shown that it is very difficult for most people to regulate their weight if they are inactive because appetite only works as a regulating mechanism provided people are active enough.

Exercise is important in terms of lowering cholesterol and blood pressure and it is very important in terms of creating what we call collateral circulation in the heart, the creation of additional channels through which the blood can go if the main coronary is occluded; there are accessory contributing factors to heart disease such as cigarette smoking, excess salt in the diet, and so on.

Basically, we have done little so far about what we know to be wrong in the diet of the American people and, in particular, the very high level of saturated fats.

It has been difficult to get the proper labeling measures enacted so that there will be a real premium for manufacturers in having more polyunsaturated fat and less saturated fat in foods.

We have had a number of presidential fitness committees which have been farces so far. They have been led by the wrong sort of people. They have achieved very little.

They have not been sufficiently preoccupied with establishing the sort of yardstick we need in terms of what the actual fitness of American youngsters is, or with methods of how to measure the impact of whatever program is being done.

We have done very little about availability of facilities for exercise, particularly for adults, and, obviously, the best way to do it would be to combine those for schools and for adults.

We have been content with statements and very few measures even though the cost to the Nation of, say, coronaries can easily be in the order of tens of billions of dollars.

I think that if and when we decide to have a national nutrition policy we should certainly concentrate first on what is an outrage, the fact that so many millions of our citizens are receiving in a very inadequate diet because essentially they can't have adequate foods; but we should also remember that we have major nutrition problems for our Nation as a whole.

As a second order of priority we should look into these.

At the same time, as we set up a national nutrition policy, I think it is very important, as Senator McGovern pointed out, to have a continuing evaluation of what we are doing.

The only way to monitor the programs that include nutrition is to monitor the food that actually gets into people and the nutritional status or the functional status of individuals.

Just monitoring the amount of money spent, the number of counties involved, the number of programs going on, the number of employees of the Department of Agriculture, although those are important in terms of internal accounting they are not the type of monitoring that we need to have.

I have not gone into any sort of detail of measures, food stamps, commodities, and other programs which I think will be advisable because I thought my job as the first speaker was to try to give a very general framework on the problems of nutrition as I see them, as they face the Nation, and not at this point to get into any particular detail on any particular program.

I will stop here.

(The prepared statement of Dr. Mayer follows:)

PREPARED STATEMENT OF DR. JEAN MAYER, PROFESSOR OF NUTRITION, HARVARD UNIVERSITY

I feel honored to be asked to appear before this body, and to be the first witness to be so asked. I am sure that I speak for all U.S. nutritionists when I say how pleased we are that the United States Senate, and the members of this Committee in particular, recognize the importance of sound nutrition for the welfare of our people and are interested in the improvement of the national diet. Because I do have the privilege of being the first witness to testify, I see myself as responsible for giving this Committee a broad picture of our nutritional problems rather than a detailed analysis of any single aspect.

We have too long been content to repeat that "we are the best fed country on earth." While we have good reasons to be proud of our agricultural production records and of the work of our public health and extension nutritionists, three major considerations militate against excessive complacency on our part:

First, a considerable number of published studies document the fact that a large number of our people, situated economically in the lowest fifth of the nation, are too poor to feed themselves properly under the conditins in which they live. The existence of this type of malnutrition has been dramatized lately by various reports and television programs. Government surveys (HEW) are bringing in controlled facts on statistically valid stratified samples which are confirming and reinforcing many of the pictures produced by these hearings and reportings. I understand that this evidence will be presented to you soon. It appears that present corrective governmental measures are inadequate in many areas and under various conditions to deal effectively with malnutrition due to poverty.

Second, a great many of our people are uninformed about nutrition, put themselves on inadequate diets, and are frequently the prey of food faddists and quacks. This is true, in particular, of adolescents, old people, and sufferers of chronic conditions such as arthritis or overweight.

Third, the national diet is extremely high in saturated fats. Together with the physical inactivity characteristic for our adult males (and unfortunately, of a growing number of our young people) and the obesity so prevalent in our population (and again, as our studies have shown, so directly related to physical inactivity), this high fat diet is probably largely responsible for the pandemic and coronaries and other cardiovascular diseases which are afflicting our land and nullifying the effect of medical advances at least as regards our national life expectancy.

Let us look at these three areas in more detail.

1. MALNUTRITION AND POVERTY

Government and university studies have shown repeatedly that a great many of our people have highly inadequate intakes of a number of nutrients. Anemia and growth retardation are frequent among the poor as are accidents of pregnancy. In general, it appears that we have five main areas of malnutrition:

(*a*) Unemployed or partly employed poor: Many of these are in the Deep South—in particular, ex-cotton workers displaced by changes in crops from cotton to corn and by the use of new machinery. It has perhaps not been pointed out enough that many are in other areas, such as Appalachia.

(*b*) Migrant workers: The Eastern "stream" is mostly made up of Negroes and Puerto-Ricans, the Western "stream" is mostly Mexican. Both contain many ill-fed children and adults.

(*c*) Indians in the Southwest and elsewhere: There appear to be great differences between tribes and between reservations, but a substantial proportion of our Indian citizens appear to be in a poor state of nutrition and of health.

(*d*) The very poor in big cities: Many very poor individuals and families are not receiving welfare payments; many are not in areas or groups included in nutrition programs. Some cities have no school lunches or have school lunches only for certain grades. Some poor people who have migrated from other areas (e.g. Puerto Rico, the rural South or border states) try to reconstitute in Northern Cities, at very high cost, the often inadequate diet to which they were used.

(*e*) The nutritional situation of certain Indians and Eskimos in Alaska appears to be bad or at least precarious. Data available to me are inadequate for judgment.

How can we cope with these problems?

I believe that an expanded program of free food stamps, commodities and supplementary nutritional programs, such as day-care and school meals, could if conducted on a large enough scale, have a considerable impact on malnutrition due to poverty. In advocating the removal of payments on food stamps and commodities, at least for the very poor, I am not blind to the need for responsible accounting. At the same time I want to point out that reluctance on the part of the Secretary of Agriculture to use his full authority and remove price tags for the very poor and the indifference of many officials at the local level have been greater problems in the past than difficulties of control. Social welfare agents should be less involved in control, more in welfare (the reverse may be true for law enforcement agencies). I would suggest that the licensing, by federal standards, of voluntary associations and groups, could be a way to create responsible bodies which could undertake to distribute free food stamps and commodities, conceivably with some financial help. Possible abuses could be checked by the Internal Revenue Service; the Department of Agriculture would retain responsibility at the federal and state level for the programs.

Greater incentives may have to be given cities so that they will expand their school lunch programs (and day-care feeding programs) to all children. At present these are fragmentary. For example, I am ashamed to have to report that in my own city of Boston (where school lunches were invented), the enormous majority of our elementary schools do not have a school lunch program. Children in the wealthy suburbs are subsidized and have such a program, while children in the urban core, whose parents or only parent work all day, are often reduced to buying a soft drink and a doughnut, do without such a program (or are subsidized by their teacher).

All these programs ought to be monitored in terms of actual intake of food by people, and nutritional status of recipient groups, not just in terms of money spent.

Finally, I want to emphasize that *we cannot continue to have our surpluses (and indirectly our subsidies policy) dictate our nutrition programs.* We have inherited from the thirties (when economists believed that the Depression—and its attendant miseries—derived from agricultural "overproduction", when a quarter of the population were farmers, and when the farmers were the poor) a system of subsidies which though they have been frequently altered since, are by no means directed at producing the type of "surpluses" which would be most useful for feeding programs. As a result, our children and our poor are often fed whatever tends to accumulate as a result of these economic policies, rather than the types of food they really need. (Some of our surpluses, e.g. butter, are often equally unusable for foreign relief as well). It is high time that we reverse this policy; we should determine *on nutritional grounds, not on economic grounds* the foods required by our feeding programs and then go ahead and produce them. If we have to have surpluses, at least let us have the *right* surpluses.

2. NUTRITION EDUCATION

The ignorance of our people as regards the caloric value and the nutrient content of foods as well as the nutritional requirements, is appalling. This ignorance is responsible for some of the malnutrition we see in this country. It also makes the fortune of quacks who prey on our people and, in spite of the efforts of federal authorities, make fortunes selling useless "dietary supplements", quack "reducing" diets and faddist books, etc. Hundreds of millions of dollars thus become unavailable for sound nutrition and legitimate health expenditures.

In the long run, I am convinced that we shall not be able to avoid the increasing flood of nutritional (and health) quackery which threatens the nutritional status of many of our fellow citizens until states adopt a requirement for a course in Human Physiology (including Nutrition) before graduation from high school (similar to the requirement for an American History course which many states have set). Meanwhile, I believe that we are failing to make use of a great national asset by not utilizing the competence of the Agricultural Extension Service more fully for Nutrition and Home Economics education among the rural poor. There is no fundamental reason why the service could not be extended to work in urban areas as well. (Or it could serve as a nucleus for the creation of a similar service—with a different sociological orientation—under the aegis of the Department of Housing and Urban Development.)

We can also hope that the Public Health Service, through appropriate measures, will encourage the development of better nutrition teaching in the medical, dental, and nursing schools; and that fluoridation of the water supply will be universally accepted.

3. NUTRITION AND DEGENERATIVE DISEASES

In the course of the past 20 years we have as a Nation quadrupled our health expenditures (tripled *per capita*). Health is now the third largest user of manpower. Yet during that period, our life expectancy at 20 has not increased and our position has tumbled, particularly for men (we are now, I believe, 37th). The main reason for our poor showing is our growing mortality from cardiovascular diseases. This is in turn related to our diet—extremely high in saturated fats; to our lack of physical activity—adult males are now almost immobile in urban areas, children do less and less; to the prevalence of obesity—itself probably largely due to the fact that as shown in our laboratory, the "minimum" appetitie of inactive subjects is higher than their energy expenditure so that people who exercise very little are more likely to get fat. We need to do much more for the nation's fitness. Children need a daily program of exercise rather than the bi-weekly exposure they now get. Greater effort must be put into these children who need it most, instead of concentrating exclusively on athletes; sports and games which can be practiced through life must be taught rather than simply team games played in schools. And we must increase enormously the facilities available to adults for exercise (presumably, in part by having facilities which can be used both by the schools and the community). Exercise improves weight control, maintains vessels elastic, can create collateral circulation to replace partly occluded arteries, and may lower cholesterol and blood pressure. When it is realized that exercise facilities are not simply "recreation", but fill an urgent health need relating to our main cause of death, we may hope that federal support for the construction of such facilities will be forthcoming. (Certainly, the achievements to date of the various presidential fitness committees have been meager.)

We can and we should facilitate changes in the national diet which will lower the total fat content of the diet and shift as much as possible of the dietary fat from "saturated" fats to "polyunsaturated" fats. Such changes have been shown to lower blood cholesterol and the risk of coronaries. In particular, we should encourage the precise labeling of the content of the various fatty acids in various oils and fats. Together with proper nutrition education this should reward manufacturers who have, in fact, produced more healthful fats. We should encourage the development of leaner meat and enormously increase our catch and our consumption of fish. Finally, last but not least we should put more emphasis on preventive cardiovascular medicine which can save (and keep healthy) millions of Americans (even if we continue to admire feats of surgical virtuosity which prolong the life of a few.

Whether we are dealing with the problems of the poor or the problems of the rich, we have to readjust our priorities before effective action can be taken.

The CHAIRMAN. Thank you very much, Dr. Mayer.

I would like to begin by asking you if nutrition is a science?

Do we really know what constitutes an adequate intake of food, the types of food?

Is there general agreement in the profession on matters of that kind?

The reason I ask that is that I read the report, as I know other members of the committee did, this "Hunger U.S.A." study, with great interest, because it made some very sweeping indictments of our present nutritional situation in the United States.

Shortly after that report here, Dr. Pollack, who is a recognized nutritionist, took vigorous exception to the whole basis of the report.

I remember, for example, he scoffed at the notion that because Mexican-Americans are small one could assume that this is the result of bad diets.

He turned it the other way around as I recall. Because they are small they don't need much to eat.

You and Dr. Latham and others took Dr. Pollack apart on the analysis of what constitutes a sound diet.

I think Dr. Pollack said that people with the heaviest starch and fat intake need less protein than people who are short on starch and fats.

But all these things are somewhat bewildering to me. It leads to the question of whether the field of nutrition is as exact a science as we thought it was.

I wonder if you will comment in general on that question.

Dr. MAYER. First of all, as a nutritionist I am obviously not going to say that we know everything we ought to know about nutrition if only because I have a large laboratory to maintain and I am continuing to apply for grants to explore a great many of the areas which we know we don't know.

Seriously speaking, obviously nutrition is a young science which essentially started in the 20th century and there is a great deal we don't know.

But there is a great deal we do know. The explosion of knowledge in nutrition I think is unparalleled in any other science except perhaps in atomic physics.

Basically we do know, we believe, what the requirements are for health for the average male, female, or child.

I, for instance, and I am citing myself as an example—other witnesses I am sure had comparable experience—have been involved in requirements committee work for the World Health and the Food and Agriculture Organization of the United Nations on requirements for calories, for proteins, for various nutrients.

I have been involved as an adviser to the U.S. Army on problems of nutrition where diets have to be devised for troops under various field conditions.

I have been involved in committees dealing with space programs for NASA where we have been trying to devise diets which will maintain astronauts in good health for 1 or 2 or 3 years for the trip to Mars.

We have not at this point any difficulty, I think, in devising the

type of diets, the amount of nutrients, proteins, vitamins, minerals, fats, which is needed to maintain health under these various conditions.

We may have some disagreement as to how long you can go if one nutrient is short of the minimum requirement without seeing any actual impairment of health because our methods of determining what some people call subclinical malnutrition, a term I don't like very much, are not accurate.

We know when a diet is bad, we know when a diet is good. In between, we are not always sure as to what particular point a diet will begin to be unsafe if you want to go as low as you can.

But basically those are not the sort of considerations that need to concern us so much here. We are not trying to maintain American men, women, and children at the absolute borderline diet which will be compatible with health.

We obviously want them to be fed well enough with enough of a margin of safety so that we shall know we are not going to run into trouble on that account.

Our knowledge is precise enough to be quantitative. We can put actual numbers on human needs, as regard proteins, calories, vitamins, and minerals.

In fact, I would say nutrition is the only area where we can actually quantify human needs. There are many other human needs for clothing, for housing, for all sorts of social needs which cannot be described qualitatively.

In nutrition we can make quantitative recommendations. In fact, this was used some years ago by the International Labor Office who thought this was the only way by which a minimum salary could be established on an international basis.

If one agreed on what proportion of income should go to food for a family of five, say, 25 percent or any arbitrary amount, inasmuch as we know what constitutes a good diet, inasmuch as we can then go in a given area and find out what is its minimum price, one could then have the basis for a reasonable definition of a minimum salary all over the world.

So this is really an area in which we know well the needs.

Now as regards controversy among nutritionists, in the case of Dr. Pollack I did write a review of his review of "Hunger U.S.A."

This is the only time in my life I felt moved to take violent public issue in almost polemical terms with a colleague, but I felt outraged both as a person and as a scientist about the statements which were made in his review which was published, for reasons which have never been clear to me, by the Institute of Defense Analysis. Incidentally, publishing this type of review is not what I think that institute is for.

The CHAIRMAN. Why do you think it was done, Dr. Mayer? Do you have any explanation?

I have been curious, I think members of the committee have, too, about the motivation of this study. I notice you suggested in your statement that the committee ought to be interested in the motivation.

Why do you say that?

Dr. MAYER. I think one of the problems of our society, Senator McGovern, is that we are a very technological society.

The base of our functioning is a technological one. As a result of this there tends to exist a class of people who are by no means useless

but who end up being the constant intermediaries between government and science.

They are often ex-scientists or borderline scientists, or scholars, and they sort of hop in and out of universities and government as experts of what the British call "Two-Clubmanship."

I think there is a lack of channels whereby people in positions such as members of this committee can actually go directly to those individuals who are responsible for the development of our knowledge.

They tend instead to go through a series of intermediaries whose knowledge is sometimes inaccurate and sometimes obsolete and whose loyalities are not always clear; such people remind me a little bit of Bernard Shaw's definition of a teacher, as a man among children and a child among men.

They tend to be government people among scholars and scholars among government people.

I will not speculate as to the motivations of Dr. Pollack in this particular connection but I will say that I was horrified at some of the statements that were made. One problem, as you remember, was that he shrugged off the fact that a great many of the babies of Mexican-Americans were small, smaller than 5 pounds, on the ground that Mexican-Americans are small and, therefore, it is not surprising that their babies are small.

This is the sort of statement which is plausible but which happens not to be true. The babies of well-fed Mexican-Americans are the same size as other babies.

In fact, a most striking phenomenon throughout the whole world are that babies of well-fed couples of various ethnic backgrounds tend to be pretty much the same size and there is then an evolution of the size of the children as they grow so that they end up being different sizes as adults.

But this does not affect the size of the babies. We don't know in many cases what the normal or desirable size of Mexican-Americans, Japanese-Americans, and so on, is to be.

What we do know is that in every case where those traditionally small groups have had the opportunity to have good diets the average size has increased considerably.

That their eventually final size is going to be the same as that of other ethnic groups we don't know, but certainly in the case of babies we do know that babies of well-fed Mexican-American women are the same size as other babies.

Dr. Birch is going to speak on that issue with a great deal of authority. It is one of his areas of special competence.

I was also horrified at the statement that if you eat enough starch you need less proteins. As far as I can see, this is a misunderstanding of the reverse proposition which is that if you don't have enough food, then the fact that this food is or is not protein is not terribly important.

You know, if you don't have enough food to start with, then you burn your protein as though it was fat or sugar in order to get the energy, and the protein doesn't do you the good that protein ought to do.

The reverse is not true. Eating too much starch does not in any way obviate the need for protein. Once you have enough calories, you

still need protein for growth and for maintenance and excessive intake of starch by no means decreases the amount of protein that is needed.

I think that the errors you have cited in Dr. Pollack's report would be considered errors by all nutritionists that I know and I think all the succeeding members of the expert groups you will call will agree that those were grievous errors of fact in Dr. Pollack's report. I just didn't mean to argue on details when as you pointed out in your introduction, Mr. Chairman, the general fact that we have a large-scale problem of malnutrition is what matters and we should get on with it.

I may add that the data that Dr. Schaefer and his group are going to present to this committee which are data obtained by Government teams and university teams, which do not suffer from the weaknesses of the "Hunger U.S.A." report which admittedly is an ad hoc job, are going to completely vindicate, as I understand, the conclusions of the "Hunger U.S.A." report.

In fact, I think it is surprising to see the extent of the malnutrition which the surveys are going to show.

The CHAIRMAN. Dr. Mayer, in that connection, assuming that we do have a fairly good knowledge of what constitutes an adequate diet, basic nutrients, what is your opinion of our present knowledge of the techniques we are using to secure an understanding of the extent of malnutrition in this country?

Even on that point, while I quite agree with you because it is the general opinion in the country now that we have a lot of malnutrition and hunger, the report "Hunger U.S.A." talks about 10 million Americans suffering from hunger and malnutrition, the Secretary of Agriculture and others have said that is ridiculous, that there is nobody in the United States that is really hungry except people who are too ignorant to take advantage of the food programs.

Some of the Members of Congress have scoffed at the notion that there is anything of significance in the way of hunger and malnutrition in their States.

What do you think about our present knowledge and our way of testing the extent of malnutrition in this country?

Dr. MAYER. First of all, I have to admit, and this is a point I alluded to earlier, that it is unforunate that nutritionists in this country, and I include myself among the people who have failed in this regard, are spending more time worrying about malnutrition in other countries than we have in our own country.

We do have data, not just the data of the "Hunger U.S.A." and similar documents, but there are a great many studies that are made almost every day on this or that aspect of nutrition among this or that group which should document the fact that malnutrition is very widespread.

I have been nutrition editor of a number of journals, Post-Graduate Medicine, American Journal of Physiology, the American Journal of Public Health, and I see passing on my desk manuscripts almost daily which pertain to this or that aspect of malnutrition and there is very little doubt that from all parts of the country there are reports of malnutrition.

For instance, iron-deficiency anemia, largely the result of insufficient intake, is extremely widespread. Of the order of 10, 20, 30 percent of the youngsters in some areas.

The Headstart programs have revealed a great deal of malnutrition, much more than people had recognized.

I have been very much involved in the antipoverty work in my area. I am a director of the antipoverty agency of Boston. I have been chairman of the health committee and I have been involved in setting up medical examinations for thousands of youngsters from some of the poor areas of Boston and have reports from the rest of the State.

There is very little doubt that many small children are in much, much poorer shape in much larger number than any of us suspected before these studies were made.

You know, what is really lacking is a focus to bring all those facts together, to document the extent of malnutrition, but the evidence has really been there all along.

The estimate of numbers is difficult, whether we are dealing with 10 million, whether we are dealing with 20 million people, ill-fed, depends to a certain extent on the criteria.

But the undeniable fact is that all the nutrition literature that we have, that is piling up every day, shows that we are dealing with many millions of people and I think it becomes really a matter of detail as to whether this is 10, 15, or 20.

To think that one is only dealing with a few individuals who are too lazy or too ignorant to go to the county seat and get food stamps is really completely and totally unreasonable.

It is unreasonable, first of all, in terms of what we do know about the income of a great many Americans. Basically, many of them are devoid of any income at various points and sometimes for long periods.

It is absurd in terms of what we know about illiteracy of many Americans, and certainly I don't want to only allude to, say, our Negro fellow citizens in the South but the situation, say, among almost entirely white counties in Appalachia is no better in terms of health and in many ways in terms of literacy.

It is absurd in terms of availability of services, the fact that counties have to make choices between programs, they can choose in many cases not to have any program. And even in areas where I think the good will of the public officials is reasonably good, the difficulty for people to actually get to the areas where the food is, to make proper application, to have the money when it is needed, is such that it presents an insuperable barrier to a great many people getting a decent diet.

It is too easy to absolve our conscience by blaming the poor. I think it is also too easy to name certain programs as handouts.

At the risk of antagonizing a great many people, I am not impressed with the fact that the food stamp program is different in its moral implications than, say, Government subsidy for not growing a certain crop.

I think Government subsidies may be necessary but I think the sooner we get out of expressing moral judgment as to what programs are morally good, and what programs are morally bad and look at the problems of who is well fed and who is poorly fed, what we are going to do about it, the better off we will be.

The CHAIRMAN. Thank you very much.

I have a number of other questions but I want to defer to some of the other members of the committee. Senator Hart.

Senator HART. Professor, you appreciate you are lecturing people who are butchers and bakers but not scientists. It might be helpful, Mr. Chairman, that we have some definitions and distinctions.

How do you distinguish between hunger and malnutrition or is there a distinction?

Dr. MAYER. Yes, I think there is a distinction. I think to a certain extent even though it has been extremely useful to use words which have a great emotional impact to wake people up to the problem, I think there comes a point when enough people are aware of the problem where it is very important to specify clearly what we are talking about because otherwise, those words get into the way.

I think hunger really should refer to lack of a sufficient amount of food. I think malnutrition should refer to the consumption of the wrong sort of food.

Hunger, in that sense is, if you want, synonymous to undernutrition or in extreme cases, starvation.

Malnutrition really refers to eating the wrong type of food.

I believe that in this country we do have some problem of hunger or undernutrition but we have a much greater problem of malnutrition.

Senator HART. When you talk about ill-fed people, whom are you talking about?

Dr. MAYER. When I talk about ill-fed people I really was covering both hunger and malnutrition.

Senator HART. Is an adequate diet the equivalent of adequate nutritional intake?

Dr. MAYER. Yes. Adequate diet, to me, is the same thing. I think a good diet and adequate diet basically are the same thing.

Our knowledge is not that good that we can make that sort of decision.

Senator HART. How do you define nutrition?

Dr. MAYER. Nutrition is the science of foods and their utilization in the body.

It has taken on at various times a wider meaning to cover not just the individual but the community as well.

Senator HART. And the consequences on human beings of malnutrition—how does it manifest itself chiefly?

Dr. MAYER. There are various ways of separating those signs. One is a matter of degree and urgency. First of all, we have functional disabilities, people just don't function as well in terms of performance physically and sometimes in terms of intellectual performance as well.

At a more advanced stage, examination shows that the reserves of the body in various nutrients are very low even though clinical observation may not yet show anatomical disorders.

At the further stage, one can see various deficiency signs and symptoms.

For instance vitamin A deficiency goes from low intake to low blood levels to poor accommodation to light to night-blindness to more serious ocular pathology all the way to blindness.

Vitamin B goes from low intake to low blood and urine values to fatigue and discomfort to various neural disorders and edema to beri-beri, heart disease and so on.

Various segments of the population are not equally affected by improper food. Adult men and women, for instance, can stand deprivation of food or the right food without permanent consequences much longer than small children, children in general, adolescents, old people, pregnant and lactating women; small children will die rapidly as they are very susceptible to malnutrition, pregnant women and lactating women will abort and stop making milk. Old people who are incidentally one of the most vulnerable groups in the Nation, because they are poor, because they lack teeth, because they are often less educated than younger people, because they have usually one or more chronic diseases which is essentially incurable and make them more open to quack suggestions and finally because they are isolated and often live alone, are particularly a vulnerable group.

Senator HART. One last question.

This bears on the kind of statistics that we hope we are going to develop.

Do you have any estimate of how many people who live in this country and suffer from malnutrition are not poor?

Are we talking about mostly poor people and a handful of rich or almost everybody, or what?

Dr. MAYER. I think there are degrees of urgency. I think in terms of malnutrition as defined in terms of deficiencies, the main sufferers are the very poor. But we do also have a great many people who are not poor but ill-informed.

For instance, we have a great many adolescents, particularly a great many adolescent girls, who are subjected to all sorts of pressure and quackery and put themselves on reducing diets of their own devices which very often result in anemia, and their lack of basic education makes them particularly open to this sort of quackery.

We do have a great many of our aged who are not rich but not necessarily very poor, but who divert a great deal of their income to the wrong sort of food, again often because they are subjected to the wrong sort of propaganda.

I think I would have to say that we have no estimate as to numbers except to say that they are very, very numerous.

Senator HART. Thank you.

The CHAIRMAN. Senator Mondale.

Senator MONDALE. Thank you.

Senator McGovern asked earlier whether you thought there were data that would help us better understand and settle the issue of the extent of malnutrition and hunger in this country.

As I understood your answer, there are pieces and bits of data that are available on the basis of studies through OEO, doctors, teachers, and others, which could be pulled together to establish what you believe to be a serious condition of malnutrition in this country, but this data has not come to the attention of policymakers at the national level because of a lack of focus.

Could you describe that? I believe one of the really profound problems at the Federal level is that we often seem to be the last to know.

I can recall in 1967 when these doctors reported firsthand observations that many top, responsible leaders in the Government, U.S. Public Health Service, Surgeon General, Secretary of Agriculture, and others, either thought there was not the same extent of malnutrition testified to or just expressed public dismay at its existence.

Dr. MAYER. Let me say to the national policymakers here that I think they have no reason to blame themselves for not knowing what has not been brought to their attention by the professionals who should have done so. Not enough attention has been focused on malnutrition by the medical profession. Important though nutrition is, both in the case of the poor or in the case of the rich, in terms of prevention of coronary disease, it has been all too often ignored by our doctors.

By and large, nutrition is still not taught or properly taught in the medical schools of this country. Most medical schools have no nutritionists as such.

There is no awareness of the need for a systemmatic teaching of nutrition: When a professor of obstetrics talks about the care of pregnant women he will say something about nutrition; when a professor of pediatrics will talk about babies, he talks about malnutrition. But there is usually no overall, coordinated study of the subject.

A department of nutrition, when it exists, is usually in schools of public health, agriculture, in home economics, but not in medical schools.

Policymakers are used to hearing about health problems through the medical profession and the lack of interest of the medical profession in nutrition is certainly one of the major reasons why policymakers have not heard more about the problems of malnutrition.

Now, what I am talking about are, for instance, studies on anemia. I take this example because yesterday I was looking at a paper submitted by medical research workers in Detroit on the hemoglobin levels of babies.

I think arbitrarily the distinction between what they call anemic babies and nonanemic babies was put at 10 grams of hemoglobin. Ten grams for babies is not a high level.

The reason they took that distinction is that they were dealing with an entire population which is low in hemoglobin.

This was a paper in a very poor area in Detroit and they just adjusted their criterion of normality so that they would end up with 20 percent of the children characterized as abnormal rather than 80 or 90 percent.

Now, this was not a bad paper but it was fairly characteristic of the weaknesses of many of our studies: there was no discussion as to why everybody was so low, what are the factors that led to this. Instead an arbitrary criterion was set up, sort of ad hoc, and a comparison was initiated between babies who were worse off with babies who are better off nutritionally.

Senator MONDALE. Would it be relatively easy to establish some fairly widely accepted criteria?

Dr. MAYER. Yes.

Senator MONDALE. To establish an ongoing national indicator that would let us know the extent of malnutrition and the extent to which we are making progress and what age groups, money groups and the rest, so that we could put to rest what I am sure will be the central part of this debate when we make recommendations, and that is all of the experts don't know what they are talking about, that there is not that much hunger and it will be their figures against our figures.

Dr. MAYER. We do have criteria that can be applied.

First of all, heights and weights for children. Obviously, in each group, there are genetic determinants. There are some children whose height and weight will be less than others even if they are well fed, but as a group when you find an entire group in the Nation whose heights and weights are well below the standards which have been developed for well-fed Boston or well-fed Iowa children, to take two of the well-known States, there is a suspicion that malnutrition is the cause. When, on top of it, we know that these children come from poverty environments, then we have reason to think that this retardation in growth and height is due to malnutrition.

There are various things which go with growth. Malnourished girls menstruate late. The level of hemoglobin is another criteria. A very important criteria is the level of mortality of small children. I am not speaking about level of mortality of immediate newborn, which is usually not related to malnutrition but is often related to other factors, such as sanitation. In all economically developed nations—the mortality of children after the age of 2 months is only a fraction of the neonatal mortality.

It is well known, by contrast that in all areas where malnutrition takes place, the mortality of small children as compared to well-fed babies is high. There are data available on all these points now.

Senator MONDALE. These are data and criteria agreed upon by most responsible nutritionists?

Dr. MAYER. Yes.

Senator MONDALE. And data available in bits and patches in this study and that study. There is no national data that would tell us the level of malnutrition or hunger.

Dr. MAYER. There is no national data. In all public schools, since the end of the 19th century, practically every boy and girl is weighed and measured once a year in schools. Nothing happens to the records. They are piling up all over the nation. They have been piling up for years. And basically they are never made use of.

At worst, if there is an extreme case of growth retardation, then somebody will get the school doctor to take a look at that child. But in terms of material for statistical study, it never has been used. It is a little ritual that the schools engage in. It is an enormous source of data which is not used.

The surveys that Dr. Schaefer's group is doing will have a better statistical analysis than what has been done in the past. I agree that they are not necessarily perfect, but they are much better than what is available; they are going to give us more reliable statistical data on the extent of malnutrition at least in the States in which they are done.

One weakness of the whole operation is that it is going to be very much slower with the level of support currently ascribed to the surveys than all of us would like. The surveys are somewhat easier to organize in States which have quite a bit of clinical and nutritional resources than in those which don't, even though the States that don't have such resources would perhaps most need to be surveyed first.

We have the intellectual leadership, and we could find the manpower whereby we could keep track of malnutrition in this country on a year-by-year basis. I really can't emphasize enough something which I think all of you agree on, which is that we should not have

action programs without having a base survey of what the situation was and without having actual monitoring of what the program achieves. Conversely, we should be ready to have action programs whenever the situation revealed by a national nutrition survey warrants it.

Senator MONDALE. The way to get action programs is to make the human problem visible. The irony of this hunger hearing is that there has been hunger in our land from the beginning and there are millions of Americans suffering from malnutrition, some of them dying of hunger, many of them, perhaps millions of them being spent both in body and mind, and no one knew it around here.

Hopefully, something will flow from this realization and from these hearings. Virtually every human problem, whether it is education, health, hunger, employment, employment not so much as the other because there is national data, suffers from the fact it is a private sector among few specialists. The data we do have are based on inputs, how much food do we have in the country, not how many people are well fed, how many schools do we have, not how many children have good educations.

Some of us are proposing the creation of a council of social advisers to develop data to the extent that it is possible, to do a better job in understanding and making visible human problems in our country and perhaps uncovering some clues as to what can be done about them.

One other question, if I might. You indicated several age groups you thought that were particularly susceptible to permanent damage from malnutrition. If you were forced to begin first with the most serious age group, where would you begin?

Dr. MAYER. It may well be that the most serious age group is the most difficult to reach. It is the small children after they have stopped being breast-fed babies and before they are in school. It is relatively easy to organize a good school lunch program, very much better than any we have at present in this country.

The health departments, even though they don't always reach universally in crowded slums or in fairly spread-out rural areas, have traditionally tried to reach pregnant and lactating women. But in between, between the time when breast feeding ceases to be an adequate source of food and the time when the small child goes to school, there is a no-man's land which is an area of high mortality among the ill-fed children and when the children are difficult to reach.

Senator MONDALE. May I interrupt you there, because the truth of it is that most of our feeding programs directed to children, whether Headstart to the extent that they have food components, school lunch programs and the rest, pick up at best around age 5. As I understand it, most of the growth, the health structure of the child, is already determined by then, and in terms of the growth of the brain and its capacity to understand in the child who has suffered from malnutrition, it is irreversible, as I understand.

At age 4, I understand 90 percent of the brain has developed and there is not much you can do about it afterward. The feeding programs across the board are the most obviously inadequate. We greet the child, if at all, at that point, when probably most of his problems are irreversible. Do you agree with that?

Dr. MAYER. Yes, I do. I think it will require imagination to do a good job in that area; but then we are the Nation that invented the agricultural extension programs and invented the role of the home economist in those programs. The program has worked very well for middle class or rural, middle-class farmers. It has never worked terribly well for the very poor, the rural poor within the rural areas. But with some determination, inventiveness and additional resources, such a program should work for the rural poor.

Of course, there is no equivalent in the city. I would suggest that one of the things that we need at present is an extension of the extension programs, refocusing them on the very poor in the rural area, and extending the competence to the cities.

An enormous majority of our people are now urban. The enormous majority of the poorly fed people are now in urban or quasi-urban areas. Yet we have not adapted the machinery which we invented basically 30 or 40 years ago to deal with our new problems.

This is an area where I think a great deal of impact could be made, particularly if we couple the instruction with the means to do something about it. Let us say we couple an extended food-stamp program with instruction on how to use the food stamps instead of having, as too often happens, instruction in one county and food stamps in the other. Then we would do very much better than we are doing now.

I mentioned in my statement that I recognize that we need checks and controls on any program. But I felt that we very often get our priorities mixed. The people dealing with welfare in our country are spending an enormous amount of time checking on frauds in welfare instead of doing the welfare job.

I think the Internal Revenue Service is an agency which is equipped to deal with fraud. I think they should extend their competence if necessary in that area. I think we should use welfare agents as instruction agents in terms of their primary training and their primary vocation.

Senator MONDALE. Some of them said we ought to give the job to the draft board. If they could find the hungry as well as they do those who are eligible for the draft in the community, we are well along to the solution.

Senator HART (presiding). Senator Goodell.

Senator GOODELL. Dr. Mayer, you suggested, as I understand it, that we should have a national nutrition policy. I think you have also made it very clear, I believe, that one of our major problems in reference to nutrition in this country, in terms of agricultural policy primarily, is that in some cases it is just a fallout from agricultural plusses that are available in the market.

Would you have this national nutritional policy administered by a special agency of some kind, or do you feel we can continue administration of these programs through the Department of Agriculture?

Dr. MAYER. The Department of Agriculture has the food. It also has personnel that reaches in a great many areas, though not so much in the cities.

I think, that the programs of food distribution have suffered from the fact that local people who administer it are not basically interested in the nutritional status of the people they deal with. They don't necessarily have the competence to do it, and in some areas suffer from the

same prejudices which afflict the majority of the people of the particular socioeconomic group they happen to come from.

I hesitate to dissociate the failings of the program from the failings of the personnel in the organization in the Department of Agriculture.

I will make an amendatory statement, but one which I think is correct, that is that with brilliant exception—and you will have some of these brilliant exceptions before your committee as witnesses—the general quality of the Department of Agriculture is not what it used to be in research, in social preoccupations, and in many of the things that we are interested in.

The Department of Agriculture in the thirties and during the war was perhaps in many ways the most original, the most vigorous, and the best run of our Government departments and included in its personnal an extraordinary collection of first-rate pioneers. As a nutritionist interested in the agricultural programs, it seems to me that I have seen the quality both technically and in terms of motivation of the agricultural programs decline over the years.

Now this need not be so. I hesitate to say what would happen if we had the sort of Department of Agriculture that we should have, but I think that basically there might still be a conflict of interest in that as long as the Department of Agriculture is going to be primarily concerned with general economic policy on a more or less ad hoc basis there is the danger that nutritional programs will play second fiddle to economic considerations.

So I think that at the very least there ought to be a council of nutritional advisers, a body who sets up general policy and is not responsible to the Secretary of Agriculture or, indeed, to any one secretary. If this body had to be responsible to one secretary, then the Secretary of Health, Education, and Welfare would be more appropriate than the Secretary of Agriculture. But I think that basically one could envisage something like the Council of Scientific Advisers, the Council of Economic Advisers; namely, an independent group which is responsible to the President and can look into the nutrition programs in the various Departments.

We think of Agriculture which produces and stores food. We think of Health, Education, and Welfare which is concerned with the health of the Nation. But there are other Departments involved. I have been on an advisory committee that has been looking into the nutritional policies of the Department of Defense. The cost, incidentally, of the feeding of people in our Defense Establishment is less accurately known than one would think it should be. There appears to be an uncertainty, of the order of plus or minus a half billion dollars, which is a lot of money.

But still one is dealing there with a program which may cost us about $3 to $4 billion. It is a very large component of the budget of the Department of Defense.

The Indians we have mentioned are a very poorly fed group. They are the responsibility of the Department of Interior.

Obviously any organization which involves the policy of so many departments, ought to be responsible to the President rather than to any one secretary. The execution could still be in Agriculture if the policy was set by an independent body, responsible to the President.

Senator GOODELL. I would agree with that. I think we have to find

some way to break out of the traditions of the past here with reference to our nutritional policy. It is conceivable that this can be done within the Department of Agriculture. The Department of Agriculture has been primarily concerned with the welfare of the farmers.

You mentioned the Extension Service. It is primarily concerned with helping the farmers to improve their productive methods. It is not concerned with reaching the poor in an area. I am not sure that we could transform it suddenly into a roving poverty agent in rural communities.

You have suggested the fact of policy of selected surpluses stimulated by the Government, surpluses of the types of commodities which are most appropriate for feeding the hungry and the undernourished in our country. Is that correct?

Mr. MAYER. Yes. We agree that while we do have a problem of caring for undernutrition or hunger, the main problem is one of the quality of the diet, the malnutrition and shortage of protein. The nature of the available surpluses is therefore of paramount importance.

Let us take one example. We have in this country the machinery to produce chickens. We can produce an enormous amount of chickens. If we have surplus cereals and surplus of soybeans they can be transformed into, say, canned chicken. In many ways we would be better off with large surpluses of canned chicken than with enormous surpluses of corn and soybeans which are not directly usable by a great many of our citizens.

Our programs abroad, the food-for-peace campaign, have often been hampered by the fact that one of the great tragedies of the world is that the majority of the world's people are farmers who don't produce enough food to feed themselves properly. Our method of dealing with this problem in the past has often been to make available very large amounts of free cereals, which is what those people were in fact making at such a low cost that they could not buy fertilizers and the agricultural implements needed to improve their producing capacity.

Had we had better surpluses, let us say surpluses like canned chicken or canned anything with a high protein content, we could have used those without competing in many ways with the existing production of those countries and done a much more intelligent program of actual help.

I think in this country we ought to have surpluses that are at least the right surpluses dictated by nutritional considerations. I am not at all convinced that if we did have a nutritional policy which really fed properly 10, whatever number of millions of people which we need to feed, we would not to a certain extent solve by means of traditional economics many of the problems of price support.

In other words, if we pay people to produce what our people actually need, instead of paying them not to produce it or to produce the wrong things, we may end up basically getting rid of a great many of the needs for price support. In effect, it may over the long run not cost us anything in fiscal terms to feed our people very much better with enormous health and indirectly enormous economic advantages.

Senator GOODELL. Do we not also have enormous potential for converting present surpluses into fortified, highly nutritious, palatable foods for the undernourished in this country?

Dr. MAYER. Yes.

Senator GOODELL. Two commodities you mentioned, corn and soybeans——

Dr. MAYER. This is true. I think we are going to go into an era of new foods. I would hate to think that we would go into food for the poor and produce food, however nutritious, which would be specifically designed for people who don't have much money. We may have to do this in certain areas abroad where there are urgent needs, where we have decided to intervene and where we can do it more cheaply and more practically this way.

But the resources of our country are such that we can in effect feed our young, our poor, our sick, our aged, with traditional foods or the foods that are available to other Americans, without specifically producing food for the poor.

On the other hand, I think we will see great revolutions in food production, and I think the food habits of our people are changing. I think the food industry is showing much more imagination. And I think we will see more nutritious and better foods produced.

Senator GOODELL. I don't think the Nation's technology will necessarily end up in foods for the poor. I think it would have general application. As is the case now, we have all sorts of fortified foods, and the general public has utilized them.

Let me ask you a question with reference to your statement about life expectancy. If I understood you correctly, male life expectancy in this country has remained at a stable level for the last 20 years. I take it the female life expectancy has increased somewhat.

Dr. MAYER. It has increased by a fraction of 1 year. Basically we have done very poorly. Life expectancy at age 20, the duration of life that adults may hope to live to, has basically not changed in 20 years. In other countries it has increased very decisively. The life expectancy of our males is particularly poor. We have a difference in life expectancy between men and women of about 7 or 8 years.

This is not an obligatory biological fact. This is an American fact. In the countries which have the longest life expectancy, such as the Scandinavian countries, Israel, New Zealand, the difference in life expectancy is only 2 or 3 years.

Senator GOODELL. Would you say nutrition is an aspect of that difference?

Dr. MAYER. Yes.

Senator GOODELL. There have been studies done between male and female diets in this country.

Dr. MAYER. The problem is not so much one of difference between diets as one of difference between the effects of similar diets on men and women. Nutrition is a basic factor in the development of heart disease. Women are very much less susceptible to heart disease, at least before menopause, than are men. So with the same food habits and the same cholesterol levels, men are much more likely to have fatal heart and coronary disease between the ages of 40 and 60 than do women.

Senator GOODELL. Our life expectancy is at a relatively high level compared to the rest of the world, is it not?

Dr. MAYER. It used to be. It used to be seventh or eighth in the world, about 20 years ago. We are now 37th for men in life expectancy at age 20. For women we are about 21. We have constantly slipped to

the point where we have been passed, in effect, by practically every European country except Spain and Portugal, and passed by Japan and I believe by some South American countries.

When you analyze why this has been so, while there is an increase in coronaries throughout the developed world, the increase in cardiovascular disease has been much more rapid in this country and much more alarming than it has been elsewhere.

Senator GOODELL. You consider nutrition is a prime factor in this, producing this situation in this country?

Dr. MAYER. I think the two prime factors are the type of diet we eat and the lack of physical exercise. I think we are the most physically inactive country, particularly our men, on the face of the earth. I think this makes us particularly vulnerable to the high-fat diets which we end up with more and more.

Senator GOODELL. I would like to cover one other point, because I agree with my colleague, Senator Mondale, that it is critically important.

We held our hearings for 3 weeks last spring. There were a number of references made to selective studies being done in specific areas. Are there not spot studies that cover just limited areas that will give us a picture of what kind of problems of malnutrition we have in this country?

Dr. MAYER. I think there is very little doubt that if one has limited personnel and money at his disposal, as obviously anyone who is going to deal with the problem would have to have, it makes more sense to do studies in areas where we have indirect reasons for believing that malnutrition is more prevalent.

Senator GOODELL. Have none of these been done?

Dr. MAYER. There have been a number of these studies. For instance, there have been some studies on migrant workers that come to mind as a good example of one such group where one could anticipate malnutrition. Indeed, it has been found among them in large amounts. There are available studies, for instance, on the Eastern stream showing the state of malnutrition, poor state of health in general of, say, migrant workers.

Senator GOODELL. I understood, and I will check into this, in answer to our inquiries last spring there were statements made by various Federal agencies, HEW, the Institute of Health, and some others who were doing selective studies in Texas, Oklahoma, and various other places.

You are not aware that any results of these have been published yet?

Dr. MAYER. I think you are going to have Dr. Schaefer before your group. I would hate to steal his thunder. I have not seen the results, but I have talked to colleagues who have seen them.

It seems that the results are showing a rather appalling number of malnourished children and adults, particularly, I think, in the area of San Antonio, Tex., one of the areas which were surveyed. The average for the children was at the 16 percentile for growth, which means that these children were very much lower in height and weight than the average American child.

I understand that some cases of kwashiorkor and clinical malnutrition were found among the people surveyed—who were in the lowest

economic quarter. This is something that one rarely finds in developed countries. You find such cases in hospitals, but not in the stratified samples.

Again, I think it would be better to have Dr. Schaefer develop that.

The CHAIRMAN. I will say that Dr. Schaefer is going to testify before this committee sometime after mid-January, at which time he will report on the survey which HEW has conducted. They will have completed the survey of Texas by mid-January and parts of Louisiana, Kentucky, Michigan, and New York. So I think he will be in a position to give us an up-to-date report on the survey.

Did I understand you to say, Dr. Mayer, that you regard the HEW survey as the type of thing that we need to be doing nationwide in all of the States? I got called away momentarily. I wasn't sure whether you had commented on that.

Dr. MAYER. Yes. I think that we need to have perhaps modification of the techniques of surveys as they are being conducted. Basically the particular branch that Dr. Schaefer heads has been dealing with surveys of military personnel and their families in the country with which the United States is allied.

The purposes of the surveys, as they have been conducted in foreign countries in the past, are not really the same as those that we are involved in. We are not so much involved in defining the average state of nutrition of the country. We are not so much interested in the average state of nutrition of Americans as we are in finding those Americans who are ill fed so that we can do something about it.

So the whole emphasis is different, and I think the techniques will have to be modified accordingly. I think that it will probably be necessary to do careful surveys on various special groups, rather than on the population as a whole. At the same time we should have a much wider type of monitoring of what goes on, say, among children in this country throughout the country than we have at present.

In other words, I think we should push health departments, school systems, and so on, to be much more competent and be much more interested in nutrition than they have been in the past and have them assume the general monitoring that needs to be done, while using Dr. Schaefer's unit for specific checks and spot surveys.

With all these reservations I think to get reliable statistical results we should expand the resources of Dr. Schaefer's group so as to have as many surveys as possible in areas where we suspect there is malnutrition.

Senator GOODELL. Let me ask you a very direct and specific question, Dr. Mayer. As a nutritionist, would you say that we now can state unequivocally as a medical fact that lack of certain nutrients, particularly proteins, for the first 4 years of life, can and does cause mental retardation in children?

Dr. MAYER. I think we don't know as much as we should on this very important area. Quite a bit of work has been done. We already have some good information. The pioneer in this field was an extremely competent Mexican clinical nutritionist by the name of Cravioto who did some very good studies showing that there was a kind of irreversible deterioration of intelligence as measured by special IQ tests in children who were poorly fed, badly fed, at the beginning of their lives.

I think that to say that this period, say the first 6 months, is the most critical, the next period, 6 months to 2 years, less critical, and from then on, 2 years to 4 years, less critical, is probably generally true. We need much more information in terms of what particular functions may be compromised at such and such an age. After all, intelligence has a great many components, reasoning power, memory, and so on. One may injure different types of functions at different ages.

We do have experimental data on animals showing that if they are subjected to poor nutrition during the period when cells multiply and when the nuclei of the cells accumulates nucleic acid—which is the major component of the cell around which the cell becomes organized and the guardian of the characteristics of the cell—you have irreversible damage. The period when the number of cells increases is probably the most critical. The second phase, when you have an increase in nucleic acid but no division is less critical, but still very important. The enlargement of the brain without further multiplication of the cells and without increase in nucleic acid which follows these two phases is probably a less critical area. Damage is probably most irreversible during the first phase, less so during the second, less so during the third. From the age of 6 the brain may be much more resistant. Now I would point out that we do have two different problems, both of which are important.

Malnutrition at a very early age may cause irreversible damage to the growth of the brain.

On the other hand, if you have poorly fed children, they are going to be very poor learners at school. We also know that if certain things are not learned early, they may never be learned. Thus malnutrition may irreversibly injure children intellectually much later, even though it may not damage the brain. The children will be prevented from working well, because they are hungry; they will waste their time in school and not learn what they ought to learn at that particular stage

Senator GOODELL. It seems likely from what we know, that we are committing young infants in American society to, in effect, a half life because they are not getting enough nutrients in these early years. Isn't that correct?

Dr. MAYER. Yes.

Senator GOODELL. Irreversible in many cases?

Dr. MAYER. Yes.

Senator GOODELL. Let me conclude with one point that you mentioned, and I appreciate your elaborating a little bit. You talked about the labeling of polyunsaturated fats and saturated fats.

Do you have any specific recommendations here as to legislation?

Dr. MAYER. Yes. I think that manufacturers by and large would cooperate in changing the composition of the American diet if they had some incentive for doing so. In a great many areas, they are in a position to effect such a change; production of fats for cooking, all the prepared foods of various sorts, from sausages to television dinners, to practically any sort of precooked convenience food are under their control. They can improve these foods if, in effect, they can get some credit for it.

If they can point out on the label that this food contains so much percent of fat as polyunsaturated fat—at present there are restrictions on what they can put on the label—I think they would be encouraged to change the fat composition of their foods.

I think an impartial body which has obviously as its prime objective the health of the American people ought to be constituted to tell the Food and Drug essentially what, as a general policy should be allowed and not allowed on labels in critical areas such as this.

Senator GOODELL. You say, in effect, that one aspect of these areas would be to influence the Food and Drug Administration on the regulation. There are regulations now that seek the development of label and development of new fortified foods in these areas.

Dr. MAYER. Yes.

The CHAIRMAN. Dr. Mayer, do you think in view of the introduction of large numbers of new kinds of synthetic foods, highly processed and packaged foods, which presents the consumer certain conveniences but also a greater range of choices, which make it more difficult to purchase the basic diet, that we have fallen into a situation where large numbers of Americans, even those with the income to buy a good nutritious diet, are actually, in fact, spending a lot of their food budget on less nutritious foods?

Dr. MAYER. Yes, I think they do, and I think there is also a tendency of people of be sufficiently misinformed so as to compose for themselves a diet which is unreasonable. For instance, somehow the American people have been convinced that meat contains no calories, that meat is all protein, and that if you want to be on a reducing diet, you can't eat another potato because it is full of calories—when it may contain only 100 calories—but that you can eat a second slice of beef—which may contain 250 calories—because somehow meat is protein and protein is thinning.

This sort of misconception is extremely widespread. Better information should start in medical schools, nursing schools, schools of physical education, where it is not now taught, and a much greater effort at informing the public as to what the real facts are should be made.

There is also the fact that some of the new technology may change, the vitamin content, mineral content of food. For instance, it is quite possible that say, packing orange juice in cardboard containers, which may or may not be impermeable to oxygen, may slowly reduce its vitamin C content. Unless there is a constant monitoring, claims can be made or are made honestly for foods which are no longer supported.

In other words, I think we need much more surveillance than we have had in the past of what is in the food, what people actually eat and what the major problems of nutrition education ought to be, simply because the change in food habits is much more rapid than it used to be.

The CHAIRMAN. The Food and Drug Administration has a mandate to look at the purity of our foods. But is there any agency of the Government that has any responsibility to deal with the problem of the nutritional value of foods that are put on the market?

Dr. MAYER. The Department of Agriculture has tried to keep up. They have established food composition tables, that work is an analytical effort; their "human nutrition" activities have some power to change food habits by tasty new foods, they also try to do so through their efforts of nutrition education.

However, in the sense that the Department of Agriculture cannot be really directly involved in medical problems, that they have no

physicians on their staff, they are seriously hampered. By contrast, Health, Education, and Welfare is responsible for treatment of deficiency diseases but not for foods. This means that the whole thing is cut in small fragments within the Federal Government.

Outside the Federal Government the Food and Nutrition Board of the National Research Council tries to bring together people of various fields and meets twice a year to come to some general advice to the Government on food. It was an extremely useful body during the Second World War and immediately after.

Its usefulness has been less until recently. It is under a new chairman, Dr. Hegsted, who I think will appear before you in January. We all hope that, with a new leadership, the Board can be revivified into a much more useful body than it has been in the immediate past. Even then the Board does not have the reach and the power that a real overall coordinating agency should have. At best it gives competent and useful advice.

The CHAIRMAN. You, in commenting on Senator Goodell's question, made reference to the possibility of labeling the fat contents of food. But beyond that is it feasible to think in terms of a consumer code of some kind, in which the nutritional value of foods could be defined so that the average consumer, even though he is not an expert on nutritional problems, would know the nutritional value of the foods that he is buying?

Dr. MAYER. I think that is ultimately desirable. Ultimately the role of agriculture and the role of the food industry is to provide good nutrition to our people. At present, it is often more a matter of happenstance than of design. I think that at some point, instead of proceeding with small piecemeal measures to achieve that end, we ought to take a good general look at the overall way in which our people are fed, both in terms of production, in terms of processing, and in terms of distribution.

I think that one important step would be considerably more labeling as to what is in the food, what is not in the food, than there is at present. I am not speaking of more regulations. I am speaking of more information.

The CHAIRMAN. One final question, Dr. Mayer. How much does the Federal Government, to your knowledge, know about the nutritional value of the commodities that are being distributed under the commodity program or through our school lunch program? Is any effort being made, for example, to fortify those foods, to increase the nutritional value?

It has been my understanding that we do that with some of our foods that we send abroad. In the food-for-peace program we had fortification of the flour and cornmeal and other products with the deliberate intent of improving its nutritional value. Is anything like that done in terms of our domestic food programs where the Government would have the controlling voice?

Dr. MAYER. Not really. Therein lies the real difficulty.

For instance, let us take the school lunch program. The school lunch program is an offspring of the surplus program. We have surpluses of milk. We have surpluses of butter fat. There is a profound reluctance in shifting our school lunch program to the use of other (polyunsaturated) fats, even though it has been shown, for instance, in an analysis

done among our dead in Korea that there was already a great deal of arteriosclerosis among our 20-year-olds.

We have a lot of children in this country who do have problems of weight control. In the Boston area 20 percent of our children can be labeled as "obese." They ought to be on skim milk rather than on whole milk in their food programs. But, again, the food program doesn't deal—the school lunch program does not deal with what is desirable nutritionally. It deals with the fact that we have "too much" whole milk, and we are not going to make it easier for the schools to get skim milk when we do have those surpluses.

Generally speaking, ideally what we ought to do is to have monitoring of the nutritional state of children in a given area. Then we ought to design the school lunch program to give them what they miss. In some cases this can be done with foods. In other cases where it is difficult, it should be done by fortifying foods.

We can provide vitamin A by giving them more eggs, or more liver, or more green vegetables, or we may fortify skim milk. Or we may give them vitamin pills. If they are deficient in vitamin A, the first thing to do is to make sure they get vitamin A.

Senator GOODELL. I think all of us are concerned about the long-run solutions. We are also very much concerned in the interim period with the situation which is really unacceptable in a country as affluent as ours. That is why I lean to this idea that at least in the interim period we can fortify many of the foods that are available to those who are suffering most from malnutrition.

I understand that we can produce a tasteless powder out of fish, fish protein, that we could mix with flour or a variety of other commodities that would give a great deal more nutrition to these younsters who need it. We seem to have some reluctance because we are preparing food for the poor.

It doesn't seem to me that that need be the necessary end result of our technology.

Dr. MAYER. I think you are right. I think we must remember also that if we do introduce a new preparation such as this, and we certainly can produce excellent soups and various other foods, making use of such mixtures, it is very necessary to also have the type of home economics extension whereby people are going to be taught to make these palatable and pleasant dishes with such preparations.

It is not enough to print a recipe on the box which may very well go, for all we know, to an area where literacy is very low and where the cooking techniques are not very good. It is necessary to have an organization which will demonstrate how to use these foods, where enough helpers will go into the houses to help people to make such foods.

In other words, I think, again that in order to make the best use of new foods, we need to have an extension of our extension program. We need to train a lot of neighborhood aides, both in the country and in the cities, to be agents of change and dissemination. They will be people familiar with the community because they are part of the community.

I think if we have an organization of that sort, then we can introduce new foods successfully.

Senator GOODELL. You keep coming back to this, and I think that is fine. But we are talking about changing the viewpoint of all these people and educating them. Again, we are on a longer run program.

It seems to me you can adapt the eating patterns on which certain people subsist. If they prefer cornmeal cakes or something of this nature, then we put some fortified food in them.

Dr. MAYER. We have. This has been done. Certainly, flour should be enriched. Cornmeal should be enriched. Anything which is reasonable and easily done certainly ought to be done.

I am sorry I did not react positively before. I almost took it as a matter of course that if we are going to use commodities which lend themselves to easy enrichment, those should be enriched. I think skim milk should be enriched with vitamin A. Corn flour should be enriched with various vitamins and with some minerals in an area where they are deficient. I think enrichment should be a matter of course.

Senator GOODELL. Thank you.

Senator HART. Do you want to take a flier at this? Is the behavior of a child who suffers from malnutrition, both his personality and his learning factor, is that child's performance different than the performance of a child who is hungry?

Dr. MAYER. Yes. There is a tendency for a child who is hungry to appear restless and very difficult. There is a tendency for a child who has been malnourished for a long period to be completely apathetic.

I remember in 1944 when we liberated Europe, it was very striking as one passed small towns to see the behavior of children at recess. Instead of the ebullient activity that characterizes such children, particularly boys, the children would just go and huddle like little old people and hardly move, not at all showing any particular activity and reactivity to what went on.

A child who is hungry rather than malnourished can be irascible and in a bad mood rather than show this depression; if he has been hungry for a very long time however it becomes difficult to deferentiate his behavior from that of the malnourished child.

Senator HART. Which of the two categories would be the slower learner?

Dr. MAYER. I think we have very little data on this. We can say that when children are hungry, their attention span is very low. Their hunger as such, lack of calories, seems to produce less irreversible damage to the body in general than an unbalanced diet. In the extreme forms, for instance, lack of calories is known as "marasmus," which is a pompous name for semistarvation. Lack of protein with enough calories is known as "kwashiorkor," a Ghanaian name which has become universal.

There is much more irreversible damage to the body, the liver, intestines, pancreas, organs generally in kwashiorkor than there is in marasmus.

I think one of your next witnesses, Dr. Latham, has had enormous experience on differentiation between kwashiorkor and marasmus and can answer your questions quite well.

(The following letter was subsequently received for the record:)

DECEMBER 18, 1968.

Senator CHARLES E. GOODELL,
U.S. Senate,
Washington, D.C.

DEAR SENATOR GOODELL: I very much enjoyed having the opportunity to testify before the U.S. Senate Committee on Human Needs and am writing to Chairman McGovern to tell him so also. However, thinking about my testimony I felt uneasy on one small point:

I believe that you and I needlessly appeared to disagree on the matter of fortification of foods simply on a point of semantics or perhaps because I did not understand immediately your question. I completely agree with you that whenever a staple food can be used as a carrier for fortification to correct an established nutritional deficiency, it should be done. In some cases there may be some question as to what the best carrier food is or whether there are alternate ways of immediately improving the diet with respect to missing nutrients. As a general rule, however, fortification has proven to be a rapid, safe, and inexpensive way to provide missing nutrients without having to wait for changes in income, the improvement of food habits due to nutrition education, or other necessary but slow procedures. Whenever a nutritional deficiency is recognized as being of sufficient prevalence to warrant action, fortification should be immediately considered for it is generally the quickest way of remedying the situation.

I am also cognizant of the gigantic potentialities for the creation of altogether new foods based on new technologies (structural proteins made from soybean, new advances in taste and olfaction, etc.). The space program has been helpful in accelerating the feasibility of such projects. Industry is now spending considerable money and personnel time in the development of such foods. I believe that the time is near when there will be foods tailored to the taste of many of our citizens and planned so as to be nutritionally adequate. These new foods can be introduced through commercial channels and in government feeding programs, starting in particular with national defense personnel. This will eventually be highly useful. Fortification, however, is practicable now in many instances and should receive early consideration.

Sincerely yours,

JEAN MAYER, *Professor.*

The CHAIRMAN. Dr. Mayer, we appreciate your testimony this morning. We kept you here quite a while.

I am very anxious that the foundation on which the committee make its recommendations later on be as solid as possible. So we want to proceed deliberately and carefully with every witness.

We do want to thank you for your patience and your great help to the committee this morning.

I would like to ask Dr. Latham and Dr. Birch if it might be possible for you gentlemen to come back at 2 o'clock this afternoon. If so, the committee will stand in recess until 2 o'clock this afternoon.

(Whereupon, at 12:25 p.m., the committee recessed, to reconvene at 2 p.m., the same day.)

AFTERNOON SESSION

(The committee reconvened at 2:10 p.m., Senator George McGovern, chairman of the committee, presiding.)

The CHAIRMAN. The committee will be in order.

We will call now to the witness table Dr. Michael C. Latham. Dr. Latham is professor of international nutrition at Cornell University. Dr. Latham.

STATEMENT OF DR. MICHAEL C. LATHAM, PROFESSOR OF INTERNATIONAL NUTRITION, CORNELL UNIVERSITY, ITHACA, N.Y.

Dr. LATHAM. Mr. Chairman, first I would like to say that I feel very honored to be invited to provide testimony before this Select Committee on Nutrition and Human Needs.

I think this morning a lot of ground was covered and, although I prepared a statement, I won't go through the whole thing in the interests of both time and of allowing time here for discussion and questions.

The public in the United States has over the years been aware of and concerned with serious problems of hunger and malnutrition in Asia, Africa, and Latin America, and all the developing countries of the world, but it did come as a shock in 1968 when the written report "Hunger U.S.A." and also the CBS program "Hunger in America" jolted the American people into realizing that in this country similar problems exist.

These reports had a right to shock the Nation. I think perhaps the medical profession, nutritionists, and the Government had reason to be shamed.

Perhaps the greatest contribution that these reports have made is that they have shown that we do not know the dimensions of the problems of hunger and malnutrition in the United States. There is the paradox of the hungry poor in this very wealthy Nation. We also have the paradox that we know far more about the scope of malnutrition in many other countries than in the United States, for while we have been studying the possible role of vitamin B_6 deficiency on urinary stones in Thailand and the nucleic acids in the liver of the mouse, we have not investigated the problem of pre-school-age malnutrition in our own backyards.

Although the United States has conducted detailed nutrition surveys in many developing countries in four continents, there has been no comparable survey carried out in the United States.

Credit must go to "Hunger U.S.A." for awakening the public and to some extent the medical profession to a very important problem, but it was, in fact, the Senate subcommittee hearings in Mississippi in 1967 that stimulated the formation of the citizens' board of inquiry to make this study. It is also most important to record, as has been mentioned earlier, that this Government had already made plans and they are currently being implemented to conduct nutrition surveys in several States.

The States selected for these surveys, as far as I am aware, are Texas, Louisiana, Kentucky, New York, Michigan, and Massachusetts. These surveys are being conducted on lines similar to those that the U.S. Interdepartmental Committee on Nutrition for National Defense (or ICNND) has conducted in many countries.

Recently at the invitation of the field director I had the privilege of witnessing the New York survey team in action in Tioga County. I was impressed by the way the survey is being conducted and am confident that these surveys will produce much needed evidence on which to base programs in the future. They will not, of course, provide all the information that is necessary and certainly on some grounds the method in which they are being conducted can be criticized, but

they will provide important information that I think this Senate committee should receive and the results will provide the data that Senator Mondale was asking for this morning.

What the "Hunger U.S.A." report did for those who read such documents or who read summaries of them, the CBS program "Hunger in America" did for those who get their information from their TV sets. Again the CBS program, though a serious piece of reportage was not a scientific report and because of the nature of the medium was largely anecdotal.

However, for me, a physician who has dealt with a great deal of kwashiorkor and nutritional marasmus in Africa, it was certainly eye opening to sit in a comfortable U.S. home and to see cases of these extremely serious nutritional diseases displayed in Texas and Arizona.

This unscientific program stirred emotions in both scientists and the public. As an academic whose work involves mainly international nutrition activities, this program awoke in me a resolve that in the future my work and that of my colleagues and students should also include attention to nutrition problems in the United States.

I was going to deal at some length with Dr. Pollack's critical review, but this has been discussed at some length this morning.

I have dealt at some length with the two "hunger" reports because they have been widely publicized and also because they appear in the Senate committee print I have referred to earlier, and also because they tend to have divided the medical and nutritional community.

I think that some of the disagreements have resulted from the rigid position that even professionals tend to take either with the concerned or with the establishment. Other difficulties have arisen over semantics and terminology, especially with relation to the meaning of the words—"starvation," "hunger," and "malnutrition," points that were discussed this morning. These are terms that have no clear boundaries and no clear dividing lines.

"Starvation" if we defined it as perishing from a lack of food is probably rare in the United States. I also found it rare in 8 years of working in east Africa in Tanzania, a country in which the average per capita income is 64 U.S. dollars a year.

"Hunger," if we define it as an uneasy sensation caused by a lack of food, can only be judged rather subjectively. If large numbers of witnesses say that they are hungry then either they are hungry or they are perjuring themselves as witnesses. If people are rummaging about in garbage heaps to find food, as witnesses have stated, then this probably is good evidence of hunger. It seems to me likely that hunger does exist in the rural south, in northern ghettos, in Appalachia, on Indian reservations, among the families of migrant workers, and in other pockets of poverty in this wealthy Nation. This again produces a paradox of a nation in which vast numbers of dieters are buying low calorie foods while others go hungry for a very different reason.

The term "malnutrition" can be defined literally as bad nutrition or more scientifically as a condition in which the intake of nutrients is not conducive to good health. We do not know the scope of the problem of malnutrition in the United States, but we do know something of its nature. There is no doubt that malnutrition exists in every State of the Union, some of it mild and some serious.

On the subject of malnutrition I tend to think of malnutrition as being of two rather different types. The type of malnutrition which is definitely due to a lack of food and which occurs mainly in poor people and the malnutrition which is perhaps more often caused by excess of food or excess of certain types of food, such as cardiovascular disease and obesity which were referred to this morning.

I intend to address my remarks mainly to the former of these two which I thought was the main concern of this committee; that is, the type of malnutrition due to a lack of food and which goes hand in hand with the culture of poverty.

You as a committee are no doubt anxious to get from witnesses an answer to the question, "How much malnutrition is there in the United States?" On July 12, 1967, Dr. William Stewart, Surgeon General of the United States, in answer to a question put to him by the Senate Subcommittee on Employment, Manpower, and Poverty, stated categorically, "We do not know the extent of malnutrition anywhere in the United States." This I am afraid in 1968 is a sorry fact, but it is true.

How then are we to judge the extent of malnutrition? I think that here we need to be absolutely clear, because those who wish to claim that there is little or no malnutrition in the United States tend to quote mortality statistics. Children, even in developing countries where malnutrition is very common, are seldom recorded as having died of malnutrition.

A malnourished child nearly always dies of an infection but of an infection that would not have proved fatal had the child been well nourished. Mortality statistics therefore tend to conceal deaths in which malnutrition has been the real cause.

Now we know that the figures for infant mortality in the United States are worse than in many other countries. For example, in 1965 infant mortality (the number of deaths under 1 year of age per thousand live births) was 12.4 in Sweden and 24.7 in the United States.

There are a number of explanations for this and I believe that malnutrition is definitely one of them. The infant mortality among black Americans is about 42 per 1,000 as compared with 22 per 1,000 for whites. Even in my own State of New York the infant mortality rate among blacks is almost twice as high as among whites.

These deaths and those among older pre-school children are recorded as being due to gastroenteritis, to pneumonia, to prematurity, and to many other causes. Few are recorded as being due to malnutrition.

But the fact that in a particular instance gastroenteritis kills one baby and in the same outbreak another child survives is not that the organism attacking the one child is more virulent than that attacking the other child. The reason is more likely to be that poor nutrition has lowered the ability of the one child to withstand the infection.

There is now very good evidence to show that there is an important relationship between nutrition and infection. I would ask you therefore to look critically at mortality figures that might be presented as evidence before you. Do not accept that malnutrition is not a serious cause of mortality in a particular county or State just because statistics do not record deaths as being due to malnutrition.

Another factor here is that nutrition teaching in medical schools in the United States is inadequate and does not train physicians adequately in the recognition and diagnosis of malnutrition.

There is no doubt that intestinal parasites are found in many children particularly in the Southern States and that these parasites can have a serious effect on nutritional status. This is particularly the case with hookworm infection which can be a serious cause of iron deficiency anemia. Other intestinal parasites can cause signs and symptoms but are not usually important causes of severe malnutrition. When considering the effects of intestinal parasites, again the diet of the subject is crucial. That is to say a moderate infection with hookworms would not cause anemia in a child on a good diet but will in a child on a diet marginal in its iron content.

If parasites are an important cause of malnutrition in the United States, then it is time that measures were taken both to provide adequate diets to the children involved, and also to rid them of the parasites and to prevent reinfection.

In developing countries the most important widespread form of malnutrition today is what is called protein-calorie malnutrition of young children. This includes the extreme conditions of kwashiorkor in which the main deficiency is protein and nutritional marasmus in which there is partial starvation.

But where these diseases have been studied we find that for every one case of these classical syndromes there are 99 or sometimes 999 children who suffer from mild or moderate degrees of protein-calorie malnutrition.

Kwashiorkor and nutrional marasmus form just the small exposed part of the iceberg that constitutes protein-calorie malnutrition. Therefore when we see on our television screens, or hear from our colleagues, of the existence of a case or two of these serious diseases, we know that there are probably hundreds of undiagnosed cases of mild protein-calorie malnutrition at large in the community.

Mild or moderate protein-calorie malnutrition leads to poor growth including low weight and height for age, to wasted muscles, to a lowered resistance to infection, and also to apathy and listlessness. For many years we have known that young survivors of protein-calorie malnutrition never reach their full potential of physical growth. Many remain stunted all their lives.

These physical results of malnutrition are indeed important, but what is far more serious is the recent evidence to suggest that children who have suffered malnutrition early in life fail also to reach their full intellectual potential.

Animal experiments, some of them conducted in our laboratories at Cornell, have clearly shown that nutritional deprivation, of a kind similar to protein-calorie malnutrition in children, has a permanent effect on the mentality of the survivors.

Numerous studies in humans have also shown a close association between early malnutrition and subsequent poor psychological development. Because malnutrition occurs most frequently in households where there is poverty, ignorance, crowding, poorly educated parents and lack of intellectual stimulation, it has been difficult to prove that malnutrition per se is the actual cause of poor mental development.

I am currently involved in a research project in Bogotá, Colombia, in which we are investigating the role of malnutrition as opposed to these other factors in subsequent retarded mental development in young children. This problem, which is of such great importance to

developing countries, may also have relevance to the United States.

Having touched on some of the problems of malnutrition, let me make a few suggestions as to what we should be doing about it in the United States.

First, I would stress again the need for more facts because good planning is difficult if we do not have the problem adequately defined. The nutrition surveys now underway are long overdue and they will provide most useful data, but when they are complete there will still be a need for many more studies.

What is required is not fundamental esoteric basic research but research into practical problems. In much of this I believe that investigation can be combined with action programs. There is a need, for example, to investigate the nutrition knowledge of the poor, to provide nutrition education using a variety of means and to evaluate the results of each method. In this way a Federal or State or locally supported action program could be evaluated by a university nutrition department, and could be improved year after year.

There has been a tendency to separate malnutrition and hunger both from other health problems and also from other factors which are a part of the culture of poverty. This is illogical because the hungry and the malnourished are usually the poor and the underprivileged. They are those at high risk of disease, those who find it difficult to get a job and those who are poorly educated.

There is no doubt that programs to improve nutrition should include or be allied with economic measures, attention to health, provision of job opportunities, and improved education as well as specific attention to malnutrition.

I have been extensively involved with the United Nations agencies in what has come to be called coordinated applied nutrition programs which have as their objective the improvement of nutritional status. In all these programs we try to aim at a multifaceted approach involving many disciplines besides health and nutrition. I believe that modified programs of this sort are applicable in those counties in the United States where malnutrition is an important problem. These too should be multifaceted and cut across departmental and agency boundaries.

Although we do not have good figures on certain kinds of malnutrition in the United States, all surveys have shown a high amount of untreated dental caries and high infant mortality rates sometimes associated with low birth weights and increased prematurity. The dental and medical professions are not in a position to meet these needs in these two areas of health care. We have found, for example, and know that there is a tremendous amount of dental caries. We know about high mortality rates. We know that this is particularly true in infants. Already we are draining the developing countries of physicians to man our city hospitals.

The chances are that if you are taken to a hospital in New York City, having been felled by an automobile, you will be seen in the casualty department by an Asian or Latin American, and not by an American, physician.

As we have not got the medical manpower, we need to train new cadres of workers who can take care of these problems. In many developing countries and in certain industrial countries such as New Zealand, Britain, and the Soviet Union persons who are not physicians

or dentists undertake under controlled conditions procedures which in the United States are customarily undertaken only by a physician or a dentist.

For example, in New Zealand a corps of what might be called dental assistants have been trained to take care of simple dental problems of schoolchildren. It is quite possible to teach persons to fill tooth cavities and to recognize more serious conditions without a full training as dentists.

Similarly many countries that have better infant mortality records than the United States make extensive use of nurses well trained in obstetrics that are called midwives, a term which tends to have a bad connotation in the United States. It would also be possible to train medical assistants who could provide immunizations and undertake other simple medical procedures at a reduced cost to the community.

These grades of staff often work better at community level and are more acceptable to the public than are fully trained professionals and could be most effective. Suggestions of this kind would doubtless be opposed by the AMA and the ADA which are among the Nation's most powerful trade unions.

I feel strongly however that if we are to solve the health problems of the Nation we need to train paramedical personnel and authorize them to carry out certain procedures which are now the prerogative of doctors and dentists.

I would like to touch briefly on certain demographic factors which I think are related to nutrition. I do not think that one can separate nutritional status from family size in the United States any more than one can in India. Undoubtedly a family that is desperately poor is going to find it more difficult to feed adequately 12 children than two children.

So any program designed to improve nutritional status should include attention to family planning. In this respect we should remember that mortality risks are higher in infants born to very young mothers. In many cases these are unwed mothers, and the children are unwanted. There are about 250,000 illegitimate births in the United States each year. Those infants benefiting from aid-to-dependent children are in many cases likely to be the welfare mothers of the next generation. A massive program to insure availability of all types of family planning to the poor, including the teenage poor, is essential and could be a factor in improving nutritional status.

I would like to draw to your attention the fact that the American Public Health Association has recently called for the passage of legislation to legalize abortions. I support the legalization of abortions and do not believe it will cause moral decay. The legalizing of abortions, as well as lowering the numbers of unwanted children, would also largely eliminate the over 1 million illegal abortions that take place in the United States each year. If we use all means to prevent unwanted children from being born, the United States will have contributed to reducing malnutrition, to lowering infant mortality rates, and to reducing the extent of welfare needs.

The present food programs for the poor are inadequate. Important steps have been taken in the past several months to improve the situation. The number of counties covered has increased and there have been improvements in the food stamp program. There are,

however, still some Americans in need of food who through some fault of the system are not being provided an adequate diet. In many parts of the country the school lunch programs operate for the benefit of the middle class and not for the poor.

When I was at Harvard we found that federally supported school lunch programs in the Greater Boston area existed in many areas where the mean income was fairly high but not in many of the schools in poverty areas. The direct distribution program of food commodities has been improved over the years and now provides a variety of foods which allows with some supplementation a reasonably good diet.

In many instances the food commodity program is run in a manner to make it most convenient for the bureaucracy and least convenient for the poor. For example, supplies have to be collected once monthly. This creates for the poor first a problem of transporting a month's supply of food and secondly of storing it often in inadequate and cramped quarters.

It seems to me that this is done entirely for the convenience of those running the programs when there is no reason why the food shouldn't be collected once a week or even twice a week in smaller amounts. This is just one example of the inadequacies of a system which is meant to be helping the poor and hungry people. Faults lie at Federal, State, and local levels and in some cases in the attitudes and in the actions of the poor themselves.

I can't help feeling that the U.S. Department of Agriculture has done an imperfect job in its food distribution program and that it has an underlying philosophy that is in conflict with what needs to be done in respect to these programs. A department which has as its main aim the improvement of agriculture and the lot of the farmer suffers a conflict of interests when its second duty is to feed the poor. I believe that either a radical reorganization of these programs within the Department is necessary or that responsibility for domestic food programs be shifted to some other agency of the Government.

There is a need for greatly improved health and nutrition services for the poor. We need an enlightened medicare type of program for children. Those who oppose "giveaway" health and food programs where there is a father or mother who could work would have the children punished for the sins of the parents. They forget also that they are helping to compound a problem which they themselves do not like.

My philosophy is to provide this generation of children every opportunity to be better members of society than their parents. Allied to medical care is a need for improved public health services including health education. In this respect nutrition education is vital and is made doubly difficult because it often has to combat the false information put out by food faddists and in some cases to counter commercial advertising.

In my testimony before you I have tried to indicate what my views are both on the type and possible extent of malnutrition in the United States and to provide my ideas of what needs to be done in the future. I would like to stress, however, that though I have cataloged the woes of this society and have harped on the needs, I am still impressed and gladdened by what has already been done.

The country is moving ahead and as much has been done in the last 5 years as in the previous 25. There are many excellent programs in operation, there are many dedicated men and women both in public service and in the private sector devoting their energy to the human needs of the poor. They deserve our praise and our thanks, and I hope that the evidence I have presented will not be taken as in any way sniping at them.

The quickening interest in the subject of hunger and malnutrition in America is a healthy event. What is most alarming to me is not the disagreement on this important issue nor that it results in hot debate, but that it tends to create a polarization of views, that there tends in all groups of sociey to be a division of those who fall in the camp of the "concerned" who are genuinely shocked that malnutrition and hunger exist in their country and who wish to sound an alarum and castigate the Government for its lack of action. There is the camp of the "establishment" who feel that the Government is doing all it can do and who anyway believe that basically the poor are poor because they are "no goods," or because they won't work or because they are lazy.

In conclusion I would just like to quote very briefly from a paper that I recently wrote which was widely disseminated among my colleagues. I said:

It is important that nutritionists be, and are seen to be, among the concerned citizens. Let us not as a professional group take a stance in relation to this problem similar to that taken by the A.M.A. in relation to Medicare. Let us show that we have some sense of social responsibility. For as John Donne wrote 300 years ago, "Any man's death diminishes me because I am involved in Mankinde and therefore never send to know for whom the bell tolls; it tolls for thee."

The CHAIRMAN. Your prepared statement will be inserted in the record at this point.

(The prepared statement of Dr. Latham follows:)

PREPARED STATEMENT OF DR. MICHAEL C. LATHAM, PROFESSOR OF INTERNATIONAL NUTRITION, CORNELL UNIVERSITY, ITHACA, N.Y.

MALNUTRITION IN THE U.S.A.

The public in the United States have been aware over the years of serious problems of hunger and malnutrition in Asia, Africa and Latin America. In 1968 the written report entitled "Hunger U.S.A." and the television program "Hunger in America" jolted the American people into a realization that perhaps similar problems existed in their own country. "Hunger U.S.A." was a report by the Citizens' Board of Inquiry into hunger and malnutrition in the United States and "Hunger in America" was a hour long C.B.S. show. These reports pricked the conscience of the nation; they did this not with a sharp well honed instrument but with a tool irregular and coarse, but neverthless penetrating.

Although the public had a right to be shocked, the health profession and the government had a reason to be shamed. Perhaps the greatest contribution that these reports have made is that they have shown that we do not know the dimensions of the problems of hunger and malnutrition in the United States. There is the paradox of the hungry poor in a land of plenty and the paradox that we know more about the scope of malnutrition in many developing countries than in the United States.

The two "hunger" reports that I have referred to have been the subject of much debate and considerable criticism. In this respect Dr. Herbert Pollack produced in June 1968 a paper entitled "Hunger U.S.A. 1968—a critical review." This document issued by the Institute for Defense Analysis received wide publicity and is included in the Committete Print of the Senate Subcommittee on

Employment, Manpower and Poverty. There have been attacks on these reports by many others including a particularly bitter one by the Secretary of Agriculture, Mr. Orville Freeman. Why is there all this disagreement? What is the truth of the matter?

Firstly it is essential to realize that the written report "Hunger U.S.A." was not a scientific study of hunger and malnutrition. The committee making the report did not use statistical sampling techniques, they did not themselves carry out research on the causes of the misery they saw, and they did not verify the many horrifying stories they were told. Much of the evidence they presented was obtained from the testimony of witnesses and was therefore somewhat subjective. They also reviewed the published evidence on the subject of hunger and malnutrition in the United States. The Citizens' Board of Inquiry should perhaps have made it quite clear in their foreword that their report was not a scientific one but this should have been obvious and it was, after all, published as a brightly covered paperback and not in a medical journal.

The report was both interesting and important. It brought under one cover a review of the work that had been documented to indicate that malnutrition was a problem, it showed that the basic federal food program was unsympathetic to the needs of the poor, and it pointed to evidence that malnutrition and hunger did exist in this most wealthy of nations. Although there are many grounds on which the report can be criticized (and there were a number of inaccuracies in it) there is no doubt that it served a useful purpose. It brought to public attention an issue which should be discussed, investigated and dealt with, and it exposed the past failure to deal adequately with the problem.

Perhaps the most important result of the debate that followed the publication of the report was the realization that while we have been studying the possible role of vitamin B_6 deficiency on urinary stones in Thailand and the nucleic acids in the liver of the mouse, we have not investigated the problem of pre-school-age malnutrition in our own back yards. Although the United States has conducted detailed nutrition surveys in many developing countries in four continents, there has been no comparable survey carried out in the United States.

Credit must be given to "Hunger U.S.A." for awakening the public and to some extent the medical profession to an important problem, but it was, in fact, the Senate Subcommittee hearings in Mississippi in 1967 that stimulated the formation of the Citizens' Board of Inquiry. It is also most important to record that plans had already been made by the government to conduct nutrition surveys in several states, a decision which is currently being implemented. The states selected for these surveys are, I believe, Texas, Louisiana, Kentucky, New York, Michigan and Massachusetts. These surveys are being conducted on lines similar to those that the U.S. Interdepartmental Committee on Nutrition for National Defense (or ICNND) has conducted in many countries. Recently at the invitation of the Field Director I had the privilege of witnessing the New York survey team in action in Tioga County. I was impressed by the way the survey is being conducted. I feel confident that these surveys will produce much needed evidence on which to base programs in the future. They will not, of course, provide all the information that is necessary because this is not possible in a cross-sectional rapid survey such as that being undertaken. I feel certain that this Senate Committee is aware that these surveys are being undertaken and that members will in due course receive reports of results as they become available. It is important that you do so.

What the "Hunger U.S.A." report did for those who read such documents or who rely on newspaper summaries, the C.B.S. program "Hunger in America" did for those who get their information from their T.V. sets. Again the C.B.S. program, though a serious piece of reportage was not a scientific report and because of the nature of the medium was largely anecdotal. However for this witness, a physician who has dealt with a great deal of kwashiorkor and nutritional marasmus in Africa, it was eye-opening to sit in a comfortable U.S. home and to see cases of these extremely serious nutritional diseases displayed in Texas and Arizona. This unscientific program stirred my emotions. As an academic whose work involves mainly international nutritional activities, this program awoke in me a resolve that in the future my work and that of my colleagues and students should also include attention to nutrition problems in the United States.

Dr. Pollack's very critical review of "Hunger U.S.A." has bewildered me. In the first place what were the motives that led the Institute for Defense Analyses to obtain a review? Why did the Institute wish to condemn the report and why did a respected physician like Dr. Pollack take on the task? Even if

there was a feeling that the Citizens' Board had produced a rather emotional and unscientific document, could anyone question or doubt that the members were trying to do good? If a critical report had to be made one wonders why it was so badly produced and so full of inaccuracies. Why did Dr. Pollack in his presentation harpingly look at the report from the point of view of the federal food programs? Was there some influence by the industrial-military complex and the department of agriculture in seeking this report? I respectfully suggest that this committee might seek answers to these questions.

Although he does not say so, Dr. Pollack seems to agree throughout his polemic that a problem of hunger and malnutrition does exist but that extra food is not the way of solving it. In some of the instances he cites he is correct but it does not make it any less serious a problem for the United States that serious malnutrition exists because of ignorance or because of parasites rather than because of a shortage of food. Dr. Pollack's gross errors regarding protein requirements, his failure to see the possible nutritional significance of the low birth weights of Mexican Americans, and his selective use of vital statistics to indicate falsely that they give no cause for alarm are especially surprising.

I have dealt at some length with the two "hunger" reports and with Dr. Pollack's critique because these have been widely publicized and because they appear in the Senate Committee Print I have referred to earlier, and also because they have divided the medical and nutritional community.

Some of the disagreements have resulted from the rigid position that even professionals tend to take either with the concerned or with the establishment. Other difficulties have arisen over semantics and terminology especially with relation to the meaning of the words starvation, hunger and malnutrition. These are terms which have no clear boundaries and no clear dividing lines.

Starvation if we defined it as perishing from a lack of food is probably rare in the United States. I also found it rare in years of medical work in Tanzania, a country in which the average per caput income is 64 U.S. dollars a year.

Hunger if we define it as uneasy sensation caused by a lack of food can only be judged rather subjectively. If large numbers of witnesses say that they are hungry then either they are hungry or they are perjuring themselves as witnesses. If people are rummaging about in garbage heaps to find food, as witnesses have stated, then this probably is good evidence of hunger. It seems to me likely that hunger does exist in the rural south, in northern ghettos, in Appalachia. on Indian reservations, among the families of migrant workers, and in other pockets of poverty in this wealthy nation. This again produces a paradox of a nation in which vast numbers of dieters are buying low calorie foods while others go hungry for a very different reason.

The term malnutrition can be defined literally as bad nutrition or more scientifically as a condition in which the intake of nutrients is not conducive to good health. We do not know the scope of the problem of malnutrition in the United States but we do know something of its nature. There is no doubt that malnutrition exists in every state of the union, some of it mild and some serious.

Now when considering these terms there are some hungry persons who do not have malnutrition but clearly many do. There are many others who are not hungry but are malnourished. When the United Nations agencies have dramatically talked of half the population of the world being hungry, they have stretched this term to include what can be called "hidden hunger." By this we mean the hunger of the body or of certain parts of the body for particular nutrients that are in short supply in the diet. This "hidden hunger" is equivalent to malnutrition.

You as a committee are no doubt anxious to get from witnesses an answer to the question, how much malnutrition is there in the United States. On July 12, 1967 Dr. William Stewart, Surgeon General of the United States, in answer to a question put to him by the Senate Subcommittee on Employment, Manpower and Poverty stated categorically, "We do not know the extent of malnutrition anywhere in the United States." This in 1968 is a sorry fact but it is true.

The only study into this problem in which I have in any way been involved, and then only tangentially in the planning, was an investigation of the nutritional status of children in the fourth, fifth and sixth grades of two schools in the Roxbury area of Boston. The results of this study have been reported in detail in the Journal of the American Dietetic Association (53, 226–242, 1968). This indicated poor meal patterns and low scores for consumption of several "protective" foods with poorer scores among black than among white children.

Medical examinations showed much dental pathology, low weight for age especially among boys and lower in the white than in the black children, 22 percent of children had hemoglobins below 14 grams per 100 milliliters which would be regarded by some as evidence of anemia, 20 percent had low excretions of thiamine and there were some unusually low serum proteins found but these were not fully reported. This study showed that evidence of malnutrition was common in children attending schools in a poor area of a northern city. It should be remembered that malnutrition is usually much more prevalent among children in their preschool years than in school children.

A group at Cornell University Medical Center has recently conducted a study of anemia in young children in New York City. They found that over 21 per cent of black children had severe anemia as compared with 11 per cent of Puerto Ricans and 2 per cent of white children.

I have received personal reports of evidence of serious protein deficiency from a pediatrician in the Tuft's Missippi Delta Health Center, from a research worker in Memphis, Tennessee and from a public health physician in New Orleans.

How are we to judge the extent of malnutrition? I think that here we need to be absolutely clear, because those who wish to claim that there is little or no malnutrition in the United States tend to quote mortality statistics. Children, even in developing countries where malnutrition is very common, are seldom recorded as having died of malnutrition. A malnourished child nearly always dies of an infectiion but of an infectiion that would not have proved fatal had the child been well nourished. Mortality statistics therefore tend to conceal deaths in which malnutrition has been the real cause. Now we know that the figures for infant mortality in the United States are worse than in many other countries. For example in 1965 infant mortality (the number of deaths under one year of age per thousand live births) was 12.4 in Sweden and 24.7 in the United States. There are a number of explanations for this and I believe that malnutrition is one of them. The infant mortality among black Americans is about 42 per 1000 as compared with 22 per 1000 for whites. Even in my own state of New York the infant mortality rate among blacks is almost twice as high as among whites.

These deaths and those among older pre-school children are recorded as being due to gastro-enteritis, to pneumonia, to prematurity and to many other causes. Few are recorded as being due to malnutrition. But the fact that in a particular instance gastro-enteritis kills one baby and in the same outbreak another child survives is not that the organism attacking the one child is more virulent than that attacking the other child. The reason is more likely to be that poor nutrition has lowered the ability of the one child to withstand the infection. There is now very good evidence to show that there is an important relationship between nutrition and infection. I would ask you therefore to look critically at mortality figures that might be presented as evidence before you. Do not accept that malnutrition is not a serious cause of mortality in a particular county or state just because statistics do not record deaths as being due to malnutrition. Another factor here is that nutrition teaching in medical schools in the United States is inadequate and does not train physicians adequately in the recognition and diagnosis of malnutrition.

Dr. Pollack in his review stressed the fact that much of the malnutrition in the United States is secondary to an infection with intestinal worms and not to a poor diet. There is no doubt that intestinal parasites are found in many children particularly in the southern states and that these parasites can have a serious effect on nutritional status. This is particularly the case with hookworm infection which can be a serious cause of iron deficiency anemia. Other intestinal parasites can cause signs and symptoms but are not usually important causes of severe malnutrition. When considering the effects of intestinal parasites, again the diet of the subject is crucial. That is to say a moderate infection with hookworms would not cause anemia in a child on a good diet but will in a child on a diet marginal in its iron content. Therefore improved diets will undoubtedly reduce the effects of parasitosis. However we have learned in developing countries that nutrition programs should include steps to prevent infections by immunizations and other means and to get rid of parasites by treatment and by sanitation. If parasites are an important cause of malnutrition in the United States, then it is time that measures were taken both to provide adequate diets to the children involved, and also to rid them of the parasites and to prevent re-infection.

In developing countries the most important widespread form of malnutrition today is what is called protein-calorie malnutrition of young children. This includes the extreme conditions of kwashiorkor in which the main deficiency is protein and nutritional marasmus in which there is partial starvation. But where these diseases have been studied we find that for every one case of these classical syndromes there are 99 or sometimes 999 children who suffer from mild or moderate degrees of protein-calorie malnutrition. Kwashiorkor and nutritional marasmus form just the small exposed part of the iceberg that constitutes protein-calorie malnutrition. Therefore when we see on our television screens, or hear from our colleagues, of the existence of a case or two of these serious diseases, we know that there are probably hundrels of undiagosed cases of mild protein-calorie malnutrition at large in the community.

Mild or moderate protein-calorie malnutrition leads to poor growth including low weight and height for age, to wasted muscles, to a lowered resistance to infection, and also to apathy and listlessness. For many years we have known that young survivors of protein-calorie malnutrition never reach their full potential of physical growth. Many remain stunted all their lives. These physical results of malnutrition are indeed important, but what is far more serious is the recent evidence to suggest that children who have suffered malnutrition early in life fail also to reach their full intellectual potential. Animal experiments, some of them conducted in our laboratories at Cornell, have clearly shown that nutritional deprivation, of a kind similar to protein-calorie malnutrition in children, has a permanent effect on the mentality of the survivors. Numerous studies in humans have also shown a close association between early malnutrition and subsequent poor psychological development. Because malnutrition occurs most frequently in households where there is poverty, ignorance, crowding, poorly educated parents and lack of intellectual stimulation, it has been difficult to prove that malnutrition is the actual cause of poor mental developmen. I am currently involved in a research project in Bogota, Colombia in which we are investigating the role of malnutrition as opposed to these other factors in subsequent retarded mental development in young children. This problem, which is of such great importance to developing countries, may also have relevance to the United States.

Having touched on some of the problems of malnutrition, let me make a few suggestions as to what we should be doing about it in the United States.

First I would stress again the need for more facts because good planning is difficult if we do not have the problem adequately defined. The nutrition surveys now under way are long overdue and they will provide most useful data, but when they are complete there will still be a need for many more studies. What is required is not fundamental esoteric basic research but research into practical problems. In much of this I believe that investigation can be combined with action programs. There is a need for example to investigate the nutrition knowledge of the poor, to provide nutrition education using a variety of means and to evaluate the results of each method. In this way a Federal or State or locally supported action program could be evaluated by a university nutrition department, and could be improved year after year.

There is a tendency to separate malnutrition and hunger both from other health problems and also from other factors which are a part of the culture of poverty. This is illogical because the hungry and the malnourished are usually the poor and the underpriviledged. They are those at high risk of disease, those who find it difficult to get a job and those who are poorly educated. There is no doubt that programs to improve nutrition should include or be allied with economic measures, attention to health, provision of job opportunities and improved education as well as specific attention to malnutrition. I have been extensively involved with the United Nations Agencies in what has come to be called co-ordinated applied nutrition programs which have as their objective the improvement of nutritional status. All these programs aim to be multi-faceted involving many disciplines besides health and nutrition. I believe that modified programs of this sort are applicable in those counties in the United States where malnutrition is an important problem. These too should be multi-faceted and cut across departmental and agency boundaries.

Although we do not have good figures on certain kinds of malnutrition in the United States, all surveys have shown a high amount of untreated dental caries and high infant mortality rates sometimes associated with low birth weights and increased prematurity. The dental and medical professions are not in a position to meet these needs in these two areas of health care. Already we are draining the developing countries of physicians to man our city hospitals. The chances

are that if you are taken to a hospital in New York City, having been felled by an automobile, you will be seen in the casualty department by an Asian or Latin American, and not by an American, physician. As we have not got the medical manpower, we need to train new cadres of workers who can take care of these problems. In many developing countries and in certain industrial countries such as New Zealand, Britain and the Soviet Union persons who are not physicians or dentists undertake under controlled conditions procedures which in the United States are customarily undertaken only by a physician or a dentist. For example in New Zealand a corps of dental assistants have been trained to take care of simple school dental problems. It is possible to teach persons to fill tooth cavities and to recognize more serious conditions without a full training as dentists. Similarly many countries that have better infant mortality records than the United States make extensive use of well trained midwives. It would be possible to train medical assistants who could provide immunizations and undertake other simple medical procedures at a reduced cost to the community. These grades of staff often work better at a community level and are more acceptable to the public than are fully trained professionals. Suggestions of this kind would doubtless be opposed by the A.M.A. and the A.D.A. which are among the nation's most powerful trade unions. I feel strongly however that if we are to solve the health problems of the nation we need to train para-medical personnel and authorize them to carry out certain procedures which are now the prerogative of doctors and dentists.

I would like also to touch briefly on demographic factors in relation to nutrition. I do not think that one can separate nutritional status from family size in the United States any more than one can in India. Undoubtedly a family that is desperately poor is going to find it more difficult to feed adequately twelve children than two children. Any program designed to improve nutritional status should include family planning. In this respect we should remember that mortality risks are higher in infants born to very young mothers. In many cases these are unwed mothers and the children are unwanted. There are about 250,000 illegitimate (or better out-of-wedlock) births in the United States each year. Those infants benefiting from aid to dependent children are in many cases likely to be the welfare mothers of the next generation. A massive program to ensure availability of all types of family planning to the poor, including the teen-age poor, is essential and could be a factor in improving nutritional status. I would like to draw to your attention the fact that the American Public Health Association, a large and distinguished body of public health physicians and other health workers, recently called for the passage of legislation to legalize abortions. The legalizing of abortions as well as lowering the numbers of unwanted children would also largely eliminate the over one million illegal abortions that take place in this country each year. I support the legalizing of abortions and do not believe it will cause moral decay. If we use all means to prevent unwanted children from being born, the United States will have contributed to reducing malnutrition and to lowering infant mortality rates. We will also have reduced the extent of welfare needs.

The present food programs for the poor are inadequate. Important steps have been taken in the past several months to improve the situation. The number of counties covered has increased and there have been improvements in the food stamp program. There are still some Americans in need of food who through some fault of the system are not being provided an adequate diet. In many parts of the country the school lunch programs operate for the benefit of the middle class and not for the poor. When I was at Harvard we found that federally supported school lunch programs in the greater Boston area existed in many areas where the mean income was fairly high but not in many of the schools in poverty areas. The Direct Distribution Program of food commodities has been improved over the years and now provides a variety of foods which allows with some supplementation a reasonably good diet. However in many instances the program is run in a manner to make it most convenient for the bureaucracy and least convenient for the poor. For example supplies have to be collected once monthly. This creates for the poor first a problem of transporting a month's supply of food and secondly of storing it often in cramped quarters. Why is it not possible that delivery be taken weekly or even twice weekly? Faults lie at Federal, State and local levels and in some cases in the attitudes and in the actions of the poor themselves. I cannot help feeling however that the U.S. Department of Agriculture has done an imperfect job in its food distribution program and that it has an underlying philosophy that is in conflict with what needs to be done in respect to these programs. A department which has as its main aim the improvement of agriculture and the

lot of the farmer suffers a conflict of interests when its second duty is to feed the poor. I believe that either a radical reorganization of these programs within the Department is necessary or that responsibility for domestic food programs be shifted to some other agency of the government.

There is a need for greatly improved health and nutrition services for the poor. We need an enlightened Medicare type of program for children. Those who oppose "give-away" health and food programs where there is a father or mother who could work would have the children punished for the sins of the parents. They forget also that they are helping to compound a problem which they themselves do not like. My philosophy is to provide this generation of children every opportunity to be better members of society than their parents. Allied to medical care is a need for improved public health services including health education. In this respect nutrition education is vital and is made doubly difficult because it often has to combat the false information put out by food faddists and in some cases to counter commercial advertising.

In my testimony before you I have tried to indicate what my views are both on the type and possible extent of malnutrition in the United States and to provide my ideas of what needs to be done in the future. I would like to stress however that though I have catalogued the woes of this society and have harped on the needs, I am still impressed and gladdened by what has already been done The country is moving ahead and as much has been done in the last five years as in the previous twenty-five. There are many excellent programs in operation, there are many dedicated men and women both in public service and in the private sector devoting their energy to the human needs of the poor. They deserve our praise and our thanks, and I hope that the evidence I have presented will not be taken as in any way sniping at them.

The quickening interest in the subject of hunger and malnutrition in America is a healthy event. What is alarming to me is not the disagreement on this important issue nor that it results in hot debate, but that it tends to create a polarization of views. There is the camp of the "concerned" who are genuinely shocked that malnutrition and hunger exist in their country and who wish to sound an alarum and castigate the government. There is the camp of the "establishment" who feel that the government is doing all it can do and who anyway believe that basically the poor are poor because they are "no goods," or because they are lazy, or because they become malnourished as a result of wasting their money

In conclusion let me quote from a paper I recently wrote and which was widely disseminated among my colleagues. I said:

"It is important that nutritionists be, and are seen to be, among the concerned citizens. Let us not as a professional group take a stance in relation to this problem similar to that taken by the A.M.A. in relationto acerMied—
lem similar to that taken by the A.M.A. in relation to Medicare. Let us show that we have some sense of social responsibility. For as John Donne wrote 300 years ago, 'Any man's death diminishes me because I am involved in Mankinde and therefore never send to know for whom the bell tolls; it tolls for thee.'"

The CHAIRMAN. Thank you very much, Dr. Latham.

As you know, our committee is charged under the resolution that created the committee that we make a report no later than June 30 for legislation or administrative changes that might improve our existing food distribution programs, or create new programs to deal with the problems of malnutrition.

As Senator Mondale said this morning, the weight that those recommendations carry will depend to a great extent on how well we document the record of an existence of hunger and malnutrition in the United States, and also the scope and seriousness of that problem.

Recognizing that what you said is doubtless true, that we really don't know the extent of hunger and malnutrition in the United States because of the absence of scientific surveys, nevertheless, you and your colleagues for many years have doubtless been perusing the reports and the spot checks and studies that have been completed on that subject, and on the basis of what you now think you know could you give us some general idea of your judgment of the extent of serious hunger and malnutrition in the United States.

Are we talking about 5 to 10 or 15 million people? Are we talking about several hundred thousand? What, in your judgment, is the extent of this problem in terms of numbers of Americans?

Dr. LATHAM. I wouldn't like to put a figure on it, but I would say that the number is very large. There it depends on which aspects of malnutrition are called serious and where you draw the line. Certainly diseases such as anemia which are clearly deficiencies are very, very prevalent and there are probably far more than 10 million people involved. Dental caries, which is less definitely a disease of malnutrition, but in which nutrition plays an important part, is of course almost universal.

When talking about malnutrition in the sense that it is causing poor physical and possibly poor mental growth, I am thinking of a broader type of malnutrition in which protein and calorie deficiencies are involved, and here one is basing judgment on growth and development.

In this particular area it is difficult, as I have indicated, to separate out, especially in the field of mental development, the nutritional variable from certain genetic, cultural, and social variables. All may play a role in intellectual development.

But again looking at infant mortality rates, looking at physical growth and development, looking at the reports (mentioned by Dr. Pollack) of these large numbers of Mexican-American children with birth weights under 5 pounds; all this is an indication that malnutrition of all these kinds is extremely widespread, and I think that to say, as the "Hunger U.S.A." report did, that 10 million people are involved in malnutrition in the United States is not an exaggeration, and that there might well be more.

Again, when defining this it would depend on how serious the type of malnutrition we are going to count as being serious malnutrition in the United States.

The CHAIRMAN. You mentioned in your statement that the United States has lagged behind other countries in the conduct of nutrition surveys, that in some cases American foreign aid funds had financed nutritional studies abroad that are better than anything we have here in the United States.

I talked with an official of the Department of Health, Education, and Welfare the other day who told me that in Japan for a number of years they have been conducting an annual nutritional survey where they measure the volume of food and the types of food that they think are necessary in the coming year to give all of their citizens an adequate diet, and then on the basis of that survey they try to set their agricultural production patterns and export and import levels.

I don't know whether you are aware of that or not, but I would be interested in any comment you could make either on the Japanese effort or any other countries that you think are particularly notable in dealing with this problem, and your further view as to whether you think something on that order ought to be done either on an annual basis or periodic basis here in the United States.

Dr. LATHAM. I think it is absolutely true to say that we don't have as much information on the extent of malnutrition in the United States as in many developing countries, and that in many of the developing countries this knowledge has come through the work of U.S. teams.

With regard to keeping a check and a tally on this, I think it would

be an excellent recommendation if the surveys currently being undertaken were not a one-shot affair and then forgotten about. I think that a cross-sectional study such as is being done—that is, going into a community and looking at the nutritional status and then describing it—is important. I think it is equally important that programs then be undertaken in those areas where malnutrition is shown to exist and that surveys be repeated to see the effectiveness of these programs. This evaluation needs to be continuous.

There have been in the United States some similar types of study to the type of thing that you are describing in Japan. For example the Department of Agriculture does monitor food intakes. But in a country in which there is a great diversity from the top to the bottom the results tend to show how much food is available and how much gets consumed, but don't show the difference between those who are taking far too much and those who are taking far too little. They don't, for example, tell how much of the food that is disappearing from the shelves gets eaten by the 60 million dogs and cats in the United States as opposed to the people.

So there are probably much better ways of doing this than by producing national food balance sheets. I think in some places maybe the monitoring of the situation hasn't been better done but many countries have come to realize that nutrition is not just an agricultural problem but a multidisciplinary problem, and that some organization, some committee, some setup should exist to coordinate the work of several departments. There is a need for some high-level authority responsible to the President or to the Congress, because this problem of malnutrition crosses so many different boundaries. In various United Nations documents that I have worked on we have recommended to nearly all governments that some sort of high-level interdepartmental, interministerial (whatever you would like to call it) committee with authority above Cabinet level be set up which can keep an eye on what various departments are doing, and also make recommendations on what should be done. This proposed committee can have technical advisory committees which are providing advice on how to implement programs.

I am not sure what the best framework would be for fighting malnutrition within the United States but I do think that there is a need for this kind of thing and I think that this is something that your committee could look into and make recommendations about. There certainly should be some sort of coordinating body of this kind.

The CHAIRMAN. Dr. Latham, from what you know, has the nutritional survey that the Department of Health, Education, and Welfare now has underway followed roughly the lines you would like to see such a survey taking? It is my understanding that they are proceeding on a State-by-State basis, and have picked selected States in various parts of the country, and are moving ahead doing it somewhat in depth in each State.

Dr. LATHAM. Yes. I think that they are doing a very good job. I am not certain how the States were selected and I think perhaps they were partly picked on the basis of where there was enough nutrition know-how and where some existing nutrition setup in the particular State was both able and willing to sign a contract to do the particular survey. I think that some of the States where a survey really should

have been done have not been chosen. I am not absolutely certain of the reasons for selection. I think it must be faced that this is a rapid cross-sectional type of survey. The survey is undertaken in only those counties which have a certain percentage of people in the lower income brackets. The survey team arrives in a particular county or area to conduct its survey in a school and the members of certain households having been randomly picked come to be examined. Even though they have apparently found two cases of kwashiorkor, in Texas, there is a tendency using this method to miss cases. For example if a parent or parents only bring three of their children along and say the fourth one has not been brought bcause he is ill at home, it may be that this child is ill at home because of malnutrition, and is not picked up in the survey.

I don't know if they have a mechanism for remedying this but clearly this kind of survey is not ideal. It will however provide much needed information. I think there should be some kind of ongoing monitoring of the situation so that we can see what effect action programs have in the future.

As far as I know there are no plans to go back and resurvey. There are only the plans to get this particular information here and now in 1968 and 1969. I think that these surveys or their findings should lead to action and that the action then should be monitored, should be evaluated so that we know whether we are doing a good job or not, whether the programs are solving the problem.

The CHAIRMAN. You mentioned in your statement the desirability of setting up cadres of paramedical, paradental people to assist in providing care to needy families.

It occurred to me that we have been using for a number of years voluntary agencies in our overseas food programs. All the major church groups have participated rather extensively in the operation of those programs abroad.

Do you think with reference to nutrition education, and also assistance on the distribution of commodities, assistance in making the food stamps known and available to needy families, assistance in school lunch programs, that we might take a look at the possibility of private voluntary agencies carrying out ventures of that kind in the United States?

Dr. LATHAM. Yes, I think voluntary agencies could make a useful contribution to many of these programs. In the United States perhaps there is more difficulty in this regard, because these programs—for instance, the school lunches—have a very rigid structure of committees and organizations that are responsible for them. Those responsible might resent any interference from some outside agency.

Yet there is something grossly wrong with many of these programs, and I am sure they could benefit from voluntary agency assistance although I think this might sometimes be difficult to implement. But there is a real need for improvement of some kind.

The CHAIRMAN. Just one final question before I turn to Senator Goodell.

Much of the really painful impact of hunger and malnutrition falls on infants, as you and Dr. Mayer have both pointed out. What is your opinion of some kind of a family allowance system for poor families?

You mentioned the family with 10 or 12 children, which has a much different problem than the family with one or two. A good many countries, particularly western countries, have gone over to a system of family allowances not only to meet the food problem but the basic health and housing problems.

Do you think this is a feasible alternative for the United States?

Dr. LATHAM. Yes, I certainly think that the programs should do all that they can to help the young children because from a nutritional point of view these are the most vulnerable as far as malnutrition is concerned.

With regard to the mechanism of how this is done my philosophy is that irrespective of what one's attitude is to the parents, all that is possible should be done to try and help these children. I think that by so doing we are going to help solve the problems of the next generation, and that every possible attention should therefore be given to young children.

I think perhaps in this respect, as well as family allowances which I would certainly go along with, that we should put a great deal more stress on preschool children. Programs should go down below the Head-start age to provide both intellectual stimulation and also improved feeding to younger preschool-age children.

In many places in the world they now have established what are called nutrition rehabilitation centers. These cater to children with mild degrees of malnutrition. The children don't leave their homes to sleep out of the homes, but are taken to the center for a certain length of time each day. They receive intellectual stimulation as well as feeding. The mothers are encouraged to come for 1 or 2 days a week and receive health education and nutrition education. Similar programs utilize auxiliaries who are sent into the homes.

I think there is a great need to concentrate more effort on this very difficult section of the population, the preschool children. In many other countries there has been much more government action with regard to providing day-care centers where attention is paid both to nutrition and to intellectual stimulation. This is an area in which the United States is far behind some other countries. If more attention could be provided to this it would have an effect not only on the nutritional status but also on the intellectual development and the health of these children.

The CHAIRMAN. Thank you very much.

Senator Goodell.

Senator GOODELL. Thank you, Mr. Chairman.

Thank you, Dr. Latham, for your excellent presentation. We have a situation, apparently, where we are not going to be able to document specific figures as to the extent of malnutrition that exists in the United States. I take it from your overall statement that you feel it is substantial, is a major problem and something should be done about it as soon as possible.

Dr. LATHAM. Yes. I think that there is a large problem of malnutrition even though we don't know the exact extent of it, and that various action programs are necessary. I think it would be a poor excuse to wait until all the information is in before taking any action.

Senator GOODELL. That was my next point.

Dr. LATHAM. I think that it is important that when taking action

we should not do this in the dark but should be measuring the effects of that action. I think that for very many years, for example, we have had nutrition education and health education programs but the evaluation tends to be based on how many people go out to a community and how many attend these sessions. No information is obtained as to whether this in fact has changed any attitudes or any health practices or nutrition practices.

I think it is absolutely essential that we have action programs tied to reasonably sound evaluation because otherwise we are going to go on and on having programs that might be contributing very little, whereas, in fact some other kind of program might contribute far more. Evaluation of programs is of great importance.

Senator GOODELL. You mentioned in your statement the Roxbury study and you mentioned, in general, Cornell's having done a study in New York City showing over 21 percent of the black children with anemia and 11 percent of Puerto Ricans and 2 percent of white children. What extent of New York City was covered by this study?

Dr. LATHAM. This was quite a small study in which I wasn't personally involved. The investigators took a sample of people attending some of the medical centers in poorer parts of New York City.

This gave an indication of the amount of anemia that existed in the so-called well children attending centers in a particular city. It also showed the tremendous differential of the extent of anemia in different sections of the community.

Senator GOODELL. Do you know enough about the study to know whether it is statistically valid for that type of child in New York City?

Dr. LATHAM. It was statistically valid for attenders at a so-called well child clinic. It wasn't statistically valid for a whole community.

Senator GOODELL. Do you feel that this infant mortality rate of 24.7 per thousand in the United States has a major input of nutritional problems? Is nutrition a major cause of this high infant mortality rate?

Dr. LATHAM. I think it is difficult to put an actual figure on how much of this is due to malnutrition and how much to other causes.

As I said earlier, in statistical presentations, one tends to get deaths being recorded as due to many other causes and very seldom as due to malnutrition. But undoubtedly children die because they are premature (prematurity is defined as a birth weight of under 5½ pounds). We know that the birth weight is affected by the nutritional state of the mother, so that those deaths due to prematurity are almost certainly in some cases connected with malnutrition.

I am certain that what we should be concerned about is the fact that the figures are around 40 per 1,000 in black Americans, around 22 per thousand overall in the United States, and are down around 12 in the Scandinavian countries. This means that there is a great deal of room for improvement first among black Americans to get the figure down to the level of other Americans and, secondly, for the United States to try to get its figures down to that which exists in Scandinavia.

I think as I mentioned earlier, that it is difficult to separate out the nutritional components from the other health factors but nutrition I am sure is an important contributing factor. I think that we should

be improving nutritional status through many programs that nutritionists won't regard as nutritional. Improved immunizations for the poor, in order to limit this interaction of nutrition and infection; improved health education as well as nutrition education; and many other programs. Therefore I would include many programs that are not strictly nutritional in any applied nutrition program trying to get this mortality rate down.

Senator GOODELL. You mentioned your studies at Cornell on permanent mental impairment—brain damage on animals. Can you elaborate a little more on what has been done, and what has been proven here?

Dr. LATHAM. Yes. There have been a number of different studies done. These have used the rat and the pig at Cornell, and in England there have been studies done on dogs. In nearly all these studies if you produce protein-calorie malnutrition in the experimental animal (and this is often produced, say, in the rat by giving the female rat more small rats to suckle than she can really manage) you get changes which are evident by looking at the number of cells in the brain, as well as at behavioral characteristics in the animals that survive. These animals score poorly on a number of tests. They also have damage to the brain. This is seen by relating the total DNA to cell numbers and therefore estimating the number of cells in the brain.

I am involved, myself, in human studies of this kind which we are conducting in Bogotá in Colombia in South America in which we are trying to separate out the genetic and social variables from nutritional variables. There has been excellent work done, and I think Dr. Birch will talk about what he has been involved in in Mexico, to show that there is a very close association between early malnutrition and subsequent poor psychological performance. It has however been very difficult to separate out the nutrition component from the other components, because where children are deprived of food they also tend to be deprived of intellectual stimulation, they tend to have poorly educated mothers and they tend to suffer a lot of infectious diseases. The fact is that you find in children who have been malnourished early in life a poor intellectual performance on many tests that are used. However, this association between malnutrition and mental development doesn't prove that the lack of protein and calories, per se, is more important than these other factors in the causation of this poor mental development in children. Greater support for research in this area is needed.

Senator GOODELL. I note in your statement, Dr. Latham, you felt you either needed a radical reorganization of the present food programs in the Department of Agriculture or shifting to some other agency.

Can you give us a little more specific recommendation with reference to that? If we were to shift it out of the Department of Agriculture, how would you suggest it be done?

I think you suggested perhaps there should be some high level agency that could bring all of these various sections and agencies in the present programs together in a coordinated program. Do you have in mind something in the Office of the President, or HEW? How would you do that?

Dr. LATHAM. With regard to the food programs themselves there certainly exists within the Department of Agriculture quite a lot of expertise with regard to these. I think the problem is of a Secretary of Agriculture having to wear two hats and the larger of his hats tends to be the farmer's and so there is a conflict of interest.

I could see an advantage in a reorganization in which there was a separate part of the Department of Agriculture which had people whose philosophy and job was definitely alined with the hungry Americans and whose responsibility was for the food programs. It might be better however if these programs were taken over by some other branch of the Government. It might be more logical to have them run by the Department of Health, Education, and Welfare.

I am not sure how this could be achieved but I suppose there is the possibility of setting up a completely new organization to handle such things. There is a need for some super-agency or committee to ensure coordination of nutrition activities. I think this is essential with regard to Government policy in a field which crosses departmental boundaries.

I think without actually moving the food programs out of the Department of Agriculture you still need to have some organization, some setup that is helping formulate policy, and this would not be just food programs but also, for example, nutrition education in schools, health education of the public as well as the distribution of surplus foods. There is a need for some organization that is concerned with this and which makes policy recommendations, if not decisions, which are then carried out by different departments of the Government.

Senator GOODELL. I understand I think what you are driving at when you say a conflict of interest in the Agricultural Department. I wonder if there really is a conflict of interest. It is generally in the interests of the farmer to have increased consumption of commodities that are in surplus. It is generally in the interests of the farmer to stimulate increased production of commodities that could be utilized effectively to feed the poor.

It is not a question of cutting down on the profits or productivity of the farmers. If anything, it is to utilize their production more effectively and increase productivity.

I wonder if it isn't really a question that the Executive Department and Congress have failed to give the Secretary of Agriculture a clear mandate that he is not only there to help the farmers in disposing of their crops and maintaining economic stability but is there to see to it that we produce enough food and the right types of food to feed all our citizens, including the poor.

Dr. LATHAM. I think what you have said is absolutely correct, and I would stress your words "the right types of food." I think what has been said earlier is that there tends often to be a surplus production of some commodity that is not the ideal food for massive supply to the schools or to the poor. It is because the surplus exists and has to be gotten rid of that a conflict of interest arises.

If there could be a reorientation so that the surpluses were planned to be those foods that were particularly desirable for school lunch programs, for the poor, then clearly this would be beneficial both to the farmer and to the poor and to the schools.

This is something that creates its own problems. I think that the Department of Agriculture should certainly be aware of and concerned with trying to create and supply surplus food on logical nutritional grounds rather than as has been pointed out mainly on economic grounds.

Senator GOODELL. You perhaps heard me this morning. I urged clarification to separate this into probably one long-range program. This can involve nutrition education and buying habits and a variety of other things for our people.

It can even involve improved production of certain commodities that are needed to balance the diet of the poor, and a whole variety of other things. It seems to me that we have enough evidence that there is a tragic and very serious problem of malnutrition in certain segments of our population. There is sufficient evidence to justify a crash program to see to it that we will fortify and get foods to these people adapted to their own particular diet habits today, and we seem to have the technology to do it.

Why couldn't we have such a crash program utilizing present commodities in surplus, utilizing the products that the poor are now eating, just supplementing it with concentrated fish protein or whatever else is helpful in the situation?

Dr. LATHAM. I think I agree in part with what you say. There is some need for supplements. I am not sure that this will solve the main part of the problem. I am certain that there already exists within the United States all the foods with the correct nutrients in them that if they were better distributed they would reduce the amount of arteriosclerosis and obesity in one segment of the population, and improve nutritional status in the other half.

There is no doubt that cereals are good foods and that these are supplied in food commodity programs. It is the organization of these programs rather than the nutritional value of the foods that leaves a lot to be desired. For example, one of the food commodities supplied tends to be wheat flour, which is quite a nutritious product. Maybe it could benefit from some supplementation. But on the whole, people in 1968 don't bake loaves of bread in their homes and in this particular program it would be much better, I think, if a large part of this flour was therefore given free to a bakery or to a number of bakeries so that the poor could buy bread at 10 cents a loaf instead of 32 cents a loaf. In fact the recipients get the flour and then don't know what to do with it. It is not that the flour is not nutritious but that the system is not designed to meet the needs.

I think that there should be encouragement to produce more of the foods that tend to be lacking in the diets, and this includes more protein-rich foods.

As Dr. Mayer said this morning, I think we have to be careful—and we found this to be the case in developing countries—that one is not producing a particular food that is seen to be a food for poor people. We need to be aware of this danger. But work is being done at the agricultural level in the production of cereals that have a higher protein content or have a better balance of amino acids. I think there is reason to believe that supplementation of cereal products with fish flour or other types of protein might have some place both in the United States and in the developing countries.

Senator GOODELL. When children are starving, I don't get too excited about this great sociological problem that we are producing food for the poor. I think we have a moral obligation to get something to them, whether it is Saci produced by Coca-Cola, or some forms of the concentrates of corn, surplus corn now that are available, and get it to them so that it is getting into their body and avoiding the irreversible damage that occurs.

I agree with you on the idea, but it seems to me criminal that we let this go on for a period of time when we have the technology to correct it and we could put it in a tasteless powder and a variety of other ways so that they eat it with their regular food.

We could produce something that would be added to their regular diet, and this isn't food for the poor; I am not talking about something that goes on the market with a special label of color that is a food for the poor. I am talking about using our knowledge of concentrates and fortification in the food today to get it to them.

Dr. LATHAM. I absolutely agree that the heart-rending problem is children who are not getting enough food. But I think that looking at those hunger reports, and all the reports in the poor areas, that it is not only that they are not getting food, but they are not getting the right types of food.

In many of these reports there were children going off to school having had no breakfast and others that had the wrong type of breakfast; there are many families in which the children are not getting enough to eat and others getting the wrong foods.

There is something wrong, and I see the problem not in terms of what is available, but the fact that evidently to some Americans it is not available. There is something wrong with the system, and there is something wrong with the fact that there are people who are just not getting enough to eat. I do not see that new foods or technology alone will solve this.

There are, secondly, the problems in which persons are not getting enough of the protective foods or enough proteins. But this seems to be a relatively minor problem and could be partly solved by supplements added to existing foods.

There are evidently Americans in these different pockets of poverty that we have described where apparently the food is for some reason or another not available to the poor. In these cases existing food, not new foods, have to be made available to these people.

Senator GOODELL. I don't quite understand. I think the most serious thing—sure, we give them surplus commodities or whatever else we can—but the most serious thing is they are not getting the proper nutrition. And we have had the testimony here that you don't have any Americans who actually starve in the sense that they die from a clearly identifiable kwashiorkor marasmus, or anything else that is now nutrition. But they aren't getting the nutrients they need.

I don't want them to go to school hungry, either, but if we can get them the nutrients they need, at least they aren't suffering irreparable damage and it seems to me this is a good first step and not a final step.

Let's get them a balanced diet as soon as we possibly can.

The problem we have with the nutritionists, they are so absorbed in their art they want to have every American educated on how to shop,

and they want to get a balanced diet to everybody. This is fine, but it is going to take 50 or 20 or 30 years, if we achieve it then, and in the meanwhile, it seems to me we need crash programs that will get them the nutrients they need.

Dr. LATHAM. I think we agree on that. There is the problem of making available a diet which is nutritionally balanced. But I think most of the growth failure and the nutritional factors contributing to high mortality in young children are due to a lack of a variety of nutrients, including calories, in these young children.

The fortification of many of these foods for the poor might reduce the amount of anemia that exists where there are parasites and also in areas where anemia exists for other causes. It might have other effects. I would be very much against making a categorical statement that fortification—which to most people is a magical term—of existing foods, is going to solve the nutritional problems of America.

Senator GOODELL. Believe me, I don't think there is any panacea that is going to solve it. But are we going to argue against a crash program that will help alleviate this thing because it is not a final solution?

We have the technology to make a major improvement, at least, by fortifying foods and making them available to these people. It is not going to solve the problem. We cannot quit there. We must have our surveys. We must improve our food stamp and commodity distribution program and food lunch, and all the other things. But in the meantime, should we sit by when we know we have the technology and ability and resources to have a crash program, and not have a crash program?

Dr. LATHAM. Certainly not. But I would argue for a crash program in greatly improving the methods and in greatly improving the extent of the distribution of these foods.

Senator GOODELL. So would I. But it is going to take a while to do that.

Dr. LATHAM. Including the fortification. I think we would be equally wrong not to try to have a crash program to get food into children who have not got enough food, and this needs to be food of a great variety of kinds that are widely available and sitting in warehouses in the United States of America and that is not available for some reason to these large numbers of children.

Senator GOODELL. You do agree that a crash program making fortified concentrated foods available could do some substantial good in this area?

Dr. LATHAM. Yes.

Senator GOODELL. Thank you.

The CHAIRMAN. Dr. Latham, just one further question here and then we will let you go.

We have talked a lot today about protein deficiency. I wonder if you could just define for us what are the other serious kinds of food deficiencies, of nutrient deficiencies that are common?

Dr. LATHAM. In the United States?

The CHAIRMAN. Yes. I am talking about the United States.

Dr. LATHAM. We have also mentioned to some extent calorie deficiencies, which like protein, can also affect growth.

Important also, and very common, are iron deficiencies, which lead to anemia. These are common in all parts of the United States.

We have relatively little in the way of serious vitamin deficiency diseases. I think diseases like pellagra, which were very common in the southern part of the United States, have been largely eliminated. The classic vitamin deficiency diseases are not a large serious public health problem in the United States today. I would say one of the major nutrient deficiencies in many communities in the United States is fluoride; that is to say, the fluoridation of water supplies could greatly improve the dental health of many Americans. This is a controversial issue, but I think there is no reason for it to be controversial. From a public health point of view, there is no doubt about its efficacy and safety. We have the knowledge and technology to take care of this important health problem. Another mineral deficiency is that of iodine.

I am alarmed to find many hospitals in the United States serve uniodized salt to their patients. Looking at my own grocery shop it is very difficult to find iodized salt on the grocery shelf. Therefore, it is possible we could have another goiter epidemic in 20 years' time because we didn't actually bring in legislation like some countries to insure that iodized salt is the only type of salt sold. The public became aware of iodine while their grandmothers were walking around with a goiter. Now that goiter is less common it has become difficult to get iodized salt. Iodine deficiency could become a problem in the future.

These are the main nutrients that are deficient.

I would like again to go on record saying that nutritional needs depend on other circumstances besides diet. For example one must control infection if one is trying to improve nutritional status. One must improve the nutrition of mothers if one is going to have some effect on the nutrition of children.

The CHAIRMAN. I notice in your controversy with Dr. Pollack that one of the points at issue was parasites. Dr. Pollack made the point against the "Hunger USA" study that in many cases it was identified as malnutrition cases where actually it was a parasite problem. Would you want to comment on that?

Dr. LATHAM. Yes. I don't think he produced good figures to support his contention. The only important parasitic infection that has a large serious effect on nutritional status is the hookworm, which tends to occur in the warmer parts of the country and causes iron deficiency anemia. This parasite drains blood and therefore iron from the body. But we also know that people do not suffer from the effects of the hookworm, if they are well nourished, unless they have a very heavy load of hookworms.

Therefore, programs to improve nutrition, and especially the iron nutrition of people would also mitigate against the effect of these parasites, just as much as a program to eliminate the parasites.

I am certain we should be attacking both problems. I think though there is an exaggeration of the effects of parasites, and I think in that particular paper, Dr. Pollack attempted to defend the Department of Agriculture by blaming much of the existing malnutrition on parasites. I don't know what his motives were; he was saying we have a lot of malnutrition but it is not due to a lack of food, it is due to other causes. I think it is just as serious whatever it is due to.

I believe we should be taking action against parasites to improve nutritional status. It is no defense to say the malnutrition is secondary to some other cause, therefore, it is not serious, and therefore, we should not be concerned.

The CHAIRMAN. I would like to say from the mandate of the standpoint of this committee, we are as interested in relating the causes of malnutrition as we are in food shortages. Our mandate is broad enough to cover the sanitation and educational factors that bear on the problems of the citizens in this country.

Dr. LATHAM. I am sure you should be recommending, as well as improving the food intake of the poor, attacks on these other problems. I have mentioned the effect on nutritional status of factors such as parasites, such as infectious diseases, such as lack of medical care for children of the very poor, and so on. Attacks on all these problems will improve the nutritional status of the American people.

The CHAIRMAN. Thank you very much, Dr. Latham. It has been very helpful to the committee and we appreciate your testimony and your responses.

Dr. LATHAM. Thank you.

The CHAIRMAN. Our final witness for the day is Dr. Herbert G. Birch of the Albert Einstein College of Medicine, Yeshiva University.

I believe you have just returned from the International Pediatrics Conference in Mexico City?

STATEMENT OF DR. HERBERT G. BIRCH, ALBERT EINSTEIN COLLEGE OF MEDICINE, YESHIVA UNIVERSITY

Dr. BIRCH. Right.

The CHAIRMAN. And some special interests in the relationship of these problems to children. We are very happy to hear your testimony.

Dr. BIRCH. Thank you, Senator McGovern.

It is indeed a privilege to be here today.

One of the problems in being the last witness, I think, is that which faces a baseball player when there are two out and three men on base and his team is behind by one run. Everybody else has played so splendidly before you got to bat that the only two things you are possibly able to do is get a hit or strike out, and I am not quite sure which I am likely to do this afternoon.

I do not want to repeat things that others have, the other speakers have mentioned, but I do think that there are 1 or 2 points that I would like to emphasize just a little bit.

One of the first of these is the question of how much malnutrition is there in the United States?

This is not a question that can be answered in terms of any simple number.

First of all, there are at least four different ways in which estimates of nutritional adequacy or inadequacy in any population or group of population is made. This is true whether we are doing this in the United States or whether we are doing it in any other country.

The first of these is a simple economic one, and these economic studies are ones in which the family income is calculated. The amount and proportion of family income available for food is determined, and the degree to which this amount that is calculated is capable of pur-

chasing or permitting the purchase of an adequate diet under given market conditions and given localities is then estimated.

This results in one kind of estimate that the number of individuals in the population who are exposed to the risks of malnourished or inadequately fed.

There is a second kind of method which is used, and this is a series of dietary surveys or dietary studies or food purchase studies, where the actual purchase consumption absorption of nutrients in various groups in the population is estimated.

This has to be based upon survey techniques, and a survey technique has to be based upon an adequate sampling of the population with which you are concerned, whether or not you want something which is representative for a total population or whether you wish to have a clearer picture with respect to a subgroup defined within a population, will determine the nature of the sample studies.

One unfortunate thing that constantly clouds the picture is that survey reports antidotes, as dramatic as they may be, and conscious-shaking as they may be, often represent studies not of samples which are representative and, therefore, ones from which generalizations can be made, but they represent what we as statisticians tend to call convenient samples; that is to say, they represent studies of people who happen to be available, people who are easy to study and they happen to represent studies of things that are easy to look at as well.

One of the easiest things for us as pediatricians to do is to take a little blood from a child and determine the hemoglobin level, whether the hemoglobin is the best indicator of nutritional requirements or status is open to a considerable amount of debate and question.

There is not at all any question in my mind whem hemoglobin is markedly low we have some dietary problem for which we need to be concerned.

On the other hand, I can think of a lot more detailed information that it would be useful to get with respect to children, that would give us a far fuller picture of the nature or their nutritional status, their nuritional needs, and their general health circumstances. They are not nearly as convenient or as easy or as cheap to obtain.

Another thing that we tend to do is to study children who come to clinics. Well, children who come to clinics are readily available. They represent a captive audience or captive population. One is able to study those. But there is considerable evidence to show that segments of the population who are most severely at the risk of being malnourished, and who are most seriously at the risk of having health problems and developmental problems of a general kind tend to be segments of the population who are not utilizers of available services in a number of ways. And, as a consequence, many of our clinic surveys, convenient as they may be, are unrepresentative, and, as a matter of fact, minimization of the kind of conditions of risk which exist in a given population.

A third way in which we try to agree to which malnutrition is a serious problem is through clinical studies and clinical examinations of defined samples of individuals trying to identify whether or not they exhibit signs and symptoms of deficiency diseases.

These give us a different frequency from those which we get when we look at measures such as blood levels and things of this sort.

In this case, we are identifying disease states. And the final way in which we try to establish nutritional inadequacy in the population has to do with the food habits of individuals with their nutritional knowledge, with the things that they will buy when they do have money, the kinds of things that they think are good for children, for example, or are poor for children, and so on.

I have had Guatemalan mothers tell me, for example, that the worst thing that one can give children is milk, and that if you give them milk this is one of the best ways in which to help them to die.

You ask them how do you know this is the case and they say when we mixed powdered milk with our water and gave it to our children they all developed diarrhea, they all become extremely sick. This is perfectly true. Milk is convenient for children at a given age, but infected black water is not particularly good for anyone at any stage, and the milk then becomes an excellent vehicle under conditions of poor refrigeration, under conditions of ignorance of methods of preparation and utilization, not for the solution of problems but for the worsening of conditions and the worsening of the health of the children themselves. And, a great danger, Senator Goodell, in crash programs, is that they are very frequently good intentioned, which paves the way to that place that we know good intentions so often go—and I don't think you or I want to go there.

The point is that if one engages in a crash program, a crash program to be usable, to be sensible, to be effective, is one that will be intelligently used by the population, accepted by them, and one which in fact will have an impact that we hope it will have, and we think we would all agree on such a program.

This means then that any program, crash or otherwise, that one introduces, has to have built into it adequate surveillance opportunities so that we can determine its effectiveness or otherwise and guard the population from our own good intentions which, in fact, may result in things that are not necessarily good, for the population that we wish to help in any of these circumstances.

Further, we can learn from our own mistakes and from our successes and better plan subsequent programs.

Senator Goodell. We have no disagreement. I certainly do not mean by a crash program just start passing things out willy-nilly. I proposed this because of my frustrations. We always get word we have to reorganize and educate people and do all the other things that we know are going to take 10 or 15 years, while perhaps there are immediate things that can be done.

Dr. Birch. I am completely in agreement. More than that, I would move one step further and say that I think that everything that we know about mass education, and about the effect of education on peoples in groups or populations would suggest to us that education in fact most effectively consists in acting in different ways and not the process of inculcation which occurs from the outside.

So if one can convince people or place people in circumstanes in which they behave appropriately, they become educated most effectively.

So I am not at all disagreeing with the urgency of a problem or its necessities, but I did want to differentiate between precipitousness and planned and effective and urgent intervention.

Well, if we are concerned with all of these different aspects in defining the degree to which there is a problem of nutritional inadequacy in our country, then we are concerned with identifying those individuals who are economic risks. We are identifying those who are a risk with respect to their food habits and purchases, those who are a risk with respect to food available, and those who have in fact certain kinds of diseases, disorders, which urgently require a correction.

My own feeling is not that of identifying how many individuals in a good, given community are in fact a risk. My major concern has been the concern with what are the effects of nutritional and other health variables upon the health and development of children. To what extent do conditions of ill health affect both the physical and mental development of children.

And with that concern, the problem of nutrition obviously becomes a central question.

Our studies have been in a number of forms and they have taken place largely outside of the United States, not because we would not like to study such problems in the United States, but the effective study of health problems, particularly problems of nutrition, of the relationship of maternal nutritional status, for example, to the health of the infant, are often dependent upon the uniformity of the medical care that is available to whole populations of people.

And in the absence of such uniformity of medical care, you have quite an adequate sample of individuals to study.

So that one of the things we are concerned with is what the effect on the development of young children, all of whose mothers and all of whom themselves have equivalently available medical care, when the mother was a woman who, in her childhood, was subjected to nutritional risk and who was thereby stunted and represents the shorter segment of mothers in her population.

These studies were carried out in Aberdeen, Scotland, in association with Sir Dugal Baird and a number of other workers in that community.

What we found there continuously was that the shortest women in the population tended to be the most socialized disadvantaged and economically disadvantaged segment of the population. They gave an inordinate frequency of offspring who were low birth weight and who, by a number of technical definitions, could be considered to be immature, premature, or stunted for the date at the time that they were born.

Such children are very much an excessive risk of developing learning disabilities and disfunctions at a later stage. As a matter of fact, they are far more likely to show a differentiation in their degree of difficulty in learning at a later age than is the case for small children and premature children who are born into socially advantaged groups.

When babies are premature and belong to the upper social groupings in the population we were studying, they are not very different when they are at school age and they are intellectually characteristic from their normal siblings or from their normal age mates in that class in the population.

But, when children come from the lower social class groupings and are premature, they, when they are at school age, are in fact signifi-

cantly lower in their intellectual level that are their siblings than are other children who are full-term births in the population itself.

This suggests then that earlier intrauterine malnutrition, if you will, developmental failure, contributes to a combination of risk conditions for faulty development in children, that children with these risk conditions in lower social class groupings who are continually disadvantaged after birth have no opportunities for compensating for their growth deficiencies in the uterus itself, whereas their more advantaged premature brothers and sisters who are in the other social groupings can in fact compensate so that certainly the social class of circumstances and social circumstances influence intellectual development. But when they are accompanied by poor opportunities for physical development and growth, even before the child himself has been born, this combination is a real blockbuster and results in excessive disturbances on the part of the children with whom we are concerned.

If we move away from birth then and simply look at children during infancy, I think we have a considerable amount of evidence both at animal levels and at the level of the human infant that serious nutritional disturbances in fact affect the growing nervous system.

I think the best evidence is the animal evidence and this has already been remarked upon. I think that it should be noted, at least, four things emerge from these animal studies.

The first is that there is a systematic relationship between the time and the life of the young animal when it is malnurished and the character of its effect upon its nervous system.

This varies from species to species. If we take a species like the rat, in which the most rapid phase of growth and differential of the central nervous system occurs in the 3 weeks immediately after birth and terminates at the weaning stage of this animal, we find that we most seriously affect the nervous system on a permanent and irretrievable basis, if we introduce conditions of inadequate nutrition during this period of the most rapid growth of the brain.

In the human infant, I would beg to differ from others who have expressed opinions, but not in full enough extent really to deal with the issue. I would like to point out the most rapid phase of development and differential of the human infant's nervous system occurs in the 3 months immediately prior to his birth, and continues but at a lesser rate through the first 2 or 3 years of his life.

Therefore, if we are to profit from the animal evidence, perhaps the most vulnerable period for the human infant occurs before he is born, occurs at the time when he is most rapidly differentiating his nervous system, namely, in the trimester period just before birth itself.

Senator GOODELL. In the case of the rat, the most rapid period of development does not occur prior to birth?

Dr. BIRCH. No, it occurs in the 3 weeks after. In the dog, it has a different rate. And one of the fascinating things in these animal investigations—and I cannot emphasize them too much—is that there is a differential vulnerability of the nervous system in accordance with the rate at which its development is occurring. So that when the nervous system is most rapidly occurring in the given species, its greatest vulnerability to insults of all kinds exists.

This is a general embryological condition, as a matter of fact, that not only holds for the system——

Senator GOODELL. I don't want to interrupt your train of thought, but you have one other factor in truth. Assuming that, as you say, the last 3 months of pre-birth is the rapid period of growth in the human being, you have the protective device, the intervening device of the mother here, while after the child is delivered, that factor is not present. Does not that make this, the afterbirth, even a more vulnerable period in that sense?

Dr. BIRCH. We are talking about two different senses of vulnerability. In the one sense, if the mother is healthy, if she is well fed and she has given the infant or is capable of giving the infant an adequate intrauterine food supply, then certainly the infant is protected.

Senator GOODELL. Let me put it another way. I understand what you are going to say, I think, in that sense. It is my understanding that even in the case of a poorly fed, undernourished mother, the body of the mother will draw from itself so that it will in many cases compensate the youngster down to certain levels of very, very serious malnutrition, is that not true?

Dr. BIRCH. I don't think that that is true. That has been argued again and again from totally inadequate data. I would be happy to debate——

Senator GOODELL. It is kind of tough to get the data.

Dr. BIRCH. I am familiar with the data. I think that what we have had repeatedly is the statement in generally well-nourished women that a great deal of depravation is required before the fetus ceases to be the perfect parasite. In other words, before it ceases to draw upon the mother's resources. But this is certainly not true when the mother is a mother who has had a whole number of infants in rapid succession.

It is certainly not true when the mother is a mother in a marginal state of nutrition, when she becomes pregnant, and it is certainly not true when the mother herself is lacking in reserves and in resources. I think that it is one thing to speak about the degree to which normal women may in fact sustain serious food deprivations without affecting the young, and there is no argument about this.

The problem with which we are concerned is not the problem of such women who have exceedingly good resources and reserves. The problem that we have to turn to, if we are to be talking to the issue with which we are dealing here, is the problem of the women who are very marginal in their own physical status, in their own physical grade, and the effect of such marginal circumstances on the development of the fetus later on when they are not under care and when these mothers are not receiving supplementations, or, even normally adequate diets during pregnancy itself.

This is as yet an insufficiently examined problem, and one that requires a great deal of care and study.

I would hesitate to draw a conclusion of no risk for these women from studies of women who are not pertinent to the issue. Well, this suggestion then that the whole problem of nutrition in families has to be linked with the problem of maternal and child care, and the problem of the health of the mother and her child, it is interesting

to note that the same segments of the population in which the mothers are in fact at marginal status for their nutrition represents the same segments of the population in which pre-natal and per-natal care and pregnancy care is the least adequately provided where the resources for such women are the least available and where utilization of what was resources therefore are most incompletely carried out.

So that if we approach that phase of the developing child, his fate is extricably bound up with the fate of his mother not only in terms of nutritional status in this pregnancy, but in terms of her nutritional status when she was a child. Because if they were stunted as a child, if she did not develop adequately, then to this degree she is as much an elevated risk for excessive pregnancy complications and the production of a child who is increasingly a risk. This means then that the sufferings of the mothers in this sense are indeed visited upon the children in the reproductive process itself, even under circumstances in which the mother in the given pregnancy is receiving adequate nutrition and so on.

So we are confronted with an intergenerational problem and there are a number of animal models that have been used for studying this question as well.

The second point that I would like to make is that if we look at the next stage or the next most rapid stage of development in the human infant for nervous systems, it is indeed during his first year of life, and probably during the first 6 months—during the first year. My colleague, Joaquin Cravioto and I, have been very much interested in these children, and have tended to find that serious nutritional difficulties in children at this age indeed tends to result in behavioral developmental legs which are not easily overcome, and in many instances appear to be relatively permanent features of their disfunctions.

We are very much concerned, too, but it is a fact that when you encounter malnutrition in young infants, you are encountering this in environments that have high levels of infection, environments that are not particularly culturally enriched and are not environments that usually result in the kind of stimulations like creative playthings, toys, et cetera, that result in the elevation of infant IQ or children's IQ.

We are aware of this problem. What we are also aware of is the fact that if one finds a culture in which there are relatively uniform opportunities in which to profit from experience, do children in such cultures who have been a nutritional risk represent children who at school age exhibit disfunctions which are significantly great?

What we did was to study a series of groups of children in the Guatemalan highlands who were living in communities that were uniformly or relatively uniformly agricultural, and in which one could see that there were children at school age coming in many cases from the same families, some of whom were very tall and some of whom were very short. The short ones tended to be the ones who had either been an acute and persistent nutritional risk during the course of their development into the school years, and the taller ones were the ones who had been relatively lesser conditions of risk for a variety of reasons.

Certain of the conditions of risk represented absence of food. Others represented the interaction of infection and infectious illness with poor feeding.

But, independently of what caused the nutritional depravation that resulted in the stunting of some children and in the lack of stunting in the others, which were considered with whether the stunted children were significantly reduced in their abilities to integrate neurological information and to function on tasks that were essential if they were able to learn and profit from schooling.

To look at the problem we then studied the children and found that the short children in the village were markedly inferior to the taller children in their ability to interrelate pieces of information that would come to their different systems. For example, if you showed the taller of the children a circle and had him feel a circle through a curtain so he couldn't see it, he had little or no difficulty in telling you that when he felt and what he saw was the same thing.

In contrast, the children who were stunted could not do so.

We turned to tasks that are essential for being able to learn to read. We showed children dot patterns and asked them to tell us whether what they saw in the dot pattern agreed with what they heard when we tapped out a pattern like, for example, if we had dot-dot-dot and then a space, and then a dot, and tapped this is what you are seeing the same as what you have heard. Or, we would tap out—illustrating on table—and ask, "Is that the same as what you are seeing?"

The taller children had little difficulty in integrating auditory and visual experiences. The shorter ones had profound difficulties in dealing with this kind of information.

And commensurate with these difficulties in interrelating sensory information, these children had exceptional difficulties in school learning. We were led then to conclude that either children who were subjected to nutritional disturbances and were shorter as a consequence of this had relatively a permanent alteration in primary integrated central nervous systems functions, or, that short individuals are stupider than tall individuals.

Well, since Cravioto is quite short he could not accept this proposition. I am not a giant myself, and I could not accept the proposition. So what we then had to do was study groups of children who were not a nutritional risk but who were genetically tall or genetically short in relation to the distribution of heights in a population. And when we studied very short children in the middle class of this population and tall children in the middle class of this population, the shorties and the tallies were not different from one another and it did not appear that the individual who was taller was brighter and the shorter duller. Except when the shortness was a consequence of the circumstances of life and early deprivation to which the children had been subjected.

We have argued and I have no intention of going into that in full here that this effect may be direct or it may be indirect, and it can take place through a variety of altered mechanisms. But, whether it is through one mechanism or through another, there can be little doubt that malnutrition, whether it affects the nervous system in a given child or whether it affects his ability as a learner, because it is interfering with his attention, interfering with his motives, interfering with his interests, is certainly something which contributes to learning failures in children, consequently, something which contributes to incompleteness of education and the wasting of educational opportunities.

The CHAIRMAN. Could not it also just be a problem of energy?

Dr. BIRCH. Oh, yes.

The CHAIRMAN. A child that doesn't have enough to eat must be low on energy. Education is a very difficult activity.

Dr. BIRCH. Yes, Senator McGovern. I think this is true of a child who is acutely deprived of food or chronically deprived of food when he is at the school age. But in the children we were studying, these children who had been malnourished at earlier points, were now at school age as well nourished as were their contemporaries who were taller. So we could not explain these differences on the basis of available energy levels in these children.

What appeared to be the case was a persistent defect in neurologic competence that we arrived from the earlier history. In the case of acute depravation, or chronic food depravation in the school years, you do have children who become apathetic, who become unresponsive, who are unable to attain attention, and I do think there is what I would call a secondary consequence of nutritional circumstances, as they affect learning. In other words, the nervous system itself is not permanently altered, but the individual as a learner is indeed made less competent, at least for that point in time.

It is in these interactions that we develop a serious concern then for the widespread character of the effect of general health factors as they may result in learning failures in children, and it is for this reason that we are very much concerned with the work of this committee and with its concern in looking at health and opportunities, together with nutrition in considering the problem of wide sections of the American population.

Thank you.

The CHAIRMAN. Thank you very much, Dr. Birch.

(The paper from which Dr. Birch testified follows:)

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Health and The Education of Socially Disadvantaged Children

Herbert G. Birch

Introduction

Recent interest in the effect of social and cultural factors upon educational achievement could lead us to neglect certain bio-social factors which through a direct or indirect influence on the developing child affect his primary characteristics as a learner. Such a danger is exaggerated when health and education are administered separately. The educator and the sociologist may concentrate quite properly on features of curriculum, familial environment, motivation, cultural aspects of language organisation, and the patterning of preschool experiences. Such concentration, while entirely fitting, becomes one-sided and potentially self-defeating when it takes place independently of, and without detailed consideration of, the child as a biological organism. To be concerned with the child's biology is not to ignore the cultural and environmental opportunities which may affect him. Clearly, to regard organic factors as a substitute for environmental opportunity (Hunt 1966) is to ignore the intimate interrelation between the biology of the child and his environment in defining his functional capacities. However, it is equally dangerous to treat cultural influences as though they were acting upon an inert organism. Effective environment (Birch 1954) is the product of the interaction of organic characteristics with the objective opportunities for experience. The child who is apathetic because of malnutrition, whose experiences may have been modified by acute or chronic illness, whose or learning abilities may have been affected by some 'insult' to the central nervous system cannot be expected to respond to opportunities for learning in the same way as does a child who has not been exposed to such conditions. Increasing opportunity for learning, though entirely admirable in itself, will not overcome such biologic disadvantages (Birch 1964, Cravioto *et al.* 1966).

There are two considerations with children who have been at risk of a biologic insult. First, such children must be identified and not merely additional but *special* educational opportunities effective for them must be provided. As no socially deprived group can be considered to be homogeneous for any particular disability,

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groups of children from such backgrounds must be differentiated into meaningful subgroups for purposes of remedial, supplemental and habilitative education. Secondly, if conditions of risk to the organism can be identified, principles of public health and of current bio-social knowledge should be utilized to reduce learning handicap in future generations.

Concern for the socially disadvantaged cannot in good conscience restrict itself to the provision either of equal or special educational and preschool opportunities for learning. It must concern itself with all factors contributing to educational failure, among which the health of the child is a variable of primary importance.

Such an argument is not new. The basic relationship between poverty, illness and educational failure has long been known, as has the fact expressed by James (1965) that 'poverty begets poverty, is a cause of poverty and a result of poverty.' What is new is the nature of the society in which such an interaction occurs. As Galbraith (1958) has put it, 'to secure each family a minimum standard, as a normal function of society, would help insure that the misfortunes of parents, discerned or otherwise, were not visited on their children. It would help insure that poverty was not self-perpetuating. Most of the reaction, which no doubt would be almost universally adverse, is based on obsolete attitudes. When poverty was a majority phenomenon, such action could not be afforded . . . An affluent society has no similar excuse for such rigor. It can use the forthright remedy of providing for those in want. Nothing requires it to be compassionate. But it has no high philosophical justification for callousness.'

The pertinence of Galbraith's concern as it applies to the health of children, particularly those in the non-white segments of our population, is underscored by the fact that, according to the Surgeon General Stewart (1967), the United States standing with respect to infant mortality has been steadily declining with respect to other countries. Though we are the richest country our 1964 infant mortality rate of 24·8 per 1,000 live births causes us to rank fifteenth in world standing. Had we had Sweden's rate, the world's lowest, approximately 43,000 fewer infants would have died in that year. Of particular pertinence to the problem of social disadvantage is the fact that the mortality rate for non-white infants is twice as high as that for whites, with the highest rates for the country as a whole in the east south central states, Kentucky, Tennessee, Alabama and Mississippi. Wegman (1966) notes that 'Mississippi again has the dubious distinction of having the highest rate (infant mortality) . . . more than twice that of the lowest state' Most of this difference could be related to the higher Negro population of Mississippi.

The data on infant mortality have been extended to other features of child health by Baumgartner (1965) and by Densen and Haynes (1967), who have pointed out that although detailed and careful documentation of the 'degree and magnitude of the health problems' of the Negro, Puerto Rican and Indian groups are not readily available, a strikingly dangerous picture may be pieced together as a montage from various public health statistics, research studies and occasional articles. The picture is striking, not merely because it shows these minority groups to be at a significant health disadvantage with respect to the white segment of the population, but because it indicates that the disparity between white and non-white groups is increasing. Thus, while in 1930 twice as many non-white mothers died in childbirth, in 1960 'for every white mother who lost her life in childbirth, four non-white mothers died.' (Baumgartner 1965). In 1940

the number of non-white mothers delivered by poorly trained midwives was 14 times that for white mothers, a discrepancy that rose to 23 times as great by 1960. Gold (1962) pointed out that while the overall death-rate for mothers in childbirth had reached an alltime low of 3·7 per 10,000 live births, this change was largely due to the reduction of the mortality rate among white mothers to 2·6. Non-white mothers had a death-rate four times as great, 10·3, a rate characteristic of white mothers two decades earlier. In generalizing these findings Baumgartner believes 'that the most advantaged non-white family has a poorer chance of having a live and healthy baby than the least advantaged white family.'

In our concern with educational disadvantage we must therefore recognize the excessive risk of ill-health relevant to educational handicap that exists in the children with whose welfare and education we are concerned. To this end I shall discuss some selected features of health and how far they differentiate the population of socially disadvantaged children from other children in the U.S.A.

Prematurity and Obstetric Complications

Few factors in the health history of the child have been as strongly associated with later intellectual and educational deficiencies as prematurity at birth and complications in the pregnancy from which he derives (McMahon and Sowa 1959). Although a variety of specific infections, explicit biochemical disorders, or trauma may result in more clearly identified and dramatic alterations in brain function, prematurity, together with pre- and perinatal complications, are probably factors which most broadly contribute to disorders of neurologic development (Lilienfeld *et al.* 1955, Pasamanick and Lilienfeld 1955).

A detailed consideration of health factors which may contribute to educational failure must start with an examination of prematurity and the factors associated with it.

Prematurity has been variously defined either by the weight of the child at birth, by the maturity of certain of his physiologic functions, or by gestational age (Coiner 1960). Independently of the nature of the definition in any society in which it has been studied, prematurity has an excessive representation in the lower social strata and among the most significantly socially disadvantaged. Prematurity in any social group is simultaneously indicative of two separate conditions of risk. In the first place fetuses that are primarily abnormal and characterized by a variety of congenital anomalies are more likely to be born before term than are normal fetuses. Second, infants who are born prematurely, even when no congenital abnormality may be noted, are more likely to develop abnormally than are infants born at term. Thus, Baumgartner (1962) has noted that follow-up studies have 'indicated that malformation and handicapping disorders (neurological, mental and sensory) are more likely to be found among the prematurely born than those born at term. Thus, the premature infant not only has a poorer chance of surviving than the infant born at term, but if he does survive he has a higher risk of having a handicapping condition.' One consequence of this association between prematurity and neurological, mental, sensory and other handicapping conditions is the excessive representation of the prematures among the mentally subnormal and educationally backward children at school age (Drillien 1964).

Baumgartner (1962) has presented the distribution of live births by birthweight for white and non-white groups in the United States for 1957 (Table I). For the country as a whole 7·6 per cent of all live births weighed 2,500 g. or less. In the white segment of the population 6·8 per

TABLE I

Percentage Distribution of 4,254,784 Live-Births By Birth Weight and Ethnic Group, USA 1957

Birth weight (g.)	*Total*	*White*	*Non-white*
1,000 or less	0·5	0·4	0·9
1,001–1,500	0·6	0·5	1·1
1,501–2,000	1·4	1·3	2·4
2,001–2,500	5·1	4·5	8·1
2,501–3,000	18·5	17·5	24·5
3,001–3,500	38·2	38·4	37·2
3,501–4,000	26·8	28·0	19·6
4,001–4,500	7·3	7·8	4·8
4,501–5,000	1·3	1·3	1·3
5,001 or more	0·2	0·2	0·2
Total	100	100	100
Percentage under 2,501 g.	7·6	6·8	12·5
Median weight (g.) ..	3,310	3,330	3,170
Number of Live Births	4,254,784	3,621,456	633,328

From Baumgartner 1962

cent of the babies fell in this category, while 12·5 per cent of the non-white infants weighed 2,500 g. or less. The frequency at all levels of low birthweight was twice as great in non-white infants. Baumgartner attributed the high incidence of prematurity among non-whites to the greater poverty of this group. The studies of Donnelly, *et al.* (1964) in North Carolina, of Thomson (1963) in Aberdeen, Scotland, and of Shapiro *et al.* (1960) in New York suggest that many factors, including nutritional practices, maternal health, the mother's own growth achievements as a child, as well as deficiencies in prenatal care and birth spacing and grand multiparity, interact to produce group differences between the socially disadvantaged and more advantageously situated segments of the population.

It has sometimes been argued that the excess of low birthweight babies among the socially disadvantaged is largely a consequence of ethnic differences (*i.e.*, Negroes 'naturally' give birth to smaller babies). However, the high association of prematurity with social class in an ethnically homogeneous population such as that in Aberdeen, the finding of Donnelly, *et al.* that within the Negro group higher social status was associated with reduced frequency of prematurity, the findings of Pakter *et al.* (1961) that illegitimacy adds to the risk of prematurity within the non-white ethnic group, and the suggestion made by Shapiro *et al.* that a change for the better in the pattern of medical care reduces the prevalence of prematurity, all make the ethnically based hypothesis of 'natural difference' difficult to retain.

If gestational age is used instead of birthweight as an indication of prematurity, the non-whites are at an even greater risk than when birthweight is used. In 1958–1959 (Baumgartner 1962) 18·1 per cent of non-white babies born in New York City had a gestational age of 36 weeks or less, in contrast to 8·5 per cent for live-born white babies.

Both the data on birthweight and the data on gestational age leave little doubt that prematurity and its attendant risks are excessively represented in the non-white segment of the population. Moreover, an examination in detail of regional data such as that provided by Donnelly

et al. for hospital births in university hospitals in North Carolina indicate clearly that in that community the most advantaged non-white has a significantly greater risk of producing a premature infant than the least advantaged segment of the white population.

For equal degrees of prematurity, non-white infants have a somewhat better chance for survival during the first month of life (Erhardt 1964). However, during the remainder of infancy this likelihood is reversed, particularly for infants weighing between 1,500 and 2,500 g. at birth. Baumgartner, reviewing these data, concludes, 'this observation strongly suggests that inadequate medical care, inadequate maternal supervision, inadequate housing and associated socio-economic deprivations are exerting unfavorable influences on the later survival of those non-white babies who initially appear the more favored. It is apparent that socio-economic factors not only influence the incidence of low birthweight in all ethnic groups, but greatly influence survival after the neonatal period.'

If the low birthweight and survival data are considered distributively rather than categorically, it appears that the non-white infant is subject to an excessive continuum of risk reflected at its extremes by perinatal, neonatal, and infant death, and in the survivors by a reduced functional potential.

The Background of Perinatal Risk

Clearly, the risk of having a premature baby or a complicated pregnancy and delivery begins long before the time of the pregnancy itself. A series of studies carried out in Aberdeen, Scotland on the total population of births of that city (Thomson 1963, Walker 1954, Thomson and Billewicz 1963) indicate that prematurity as well as pregnancy complications are significantly correlated with the mother's nutritional status, height, weight, concurrent illnesses, and the social class of her father and husband. Although the relation among these variables is complex, it is clear that the women born in the lowest socio-economic class and who have remained in this class at marriage were themselves more stunted in growth than other women in the population, had less adequate dietary and health habits, were in less good general health, and tended to be at excessive risk or producing premature infants. The mother's stature as well as her habits were determined during her childhood, tended to be associated with contraction of the bony pelvis, and appeared systematically related to her risk condition as a reproducer. In analyzing the relation between maternal health and physique to a number of obstetrical abnormalities such as prematurity, caesarean section and perinatal death, Thomson (1959) (Table II) has shown each of these to be excessively represented in the mothers of least good physical grade.

The finding of a relation between the mother's physical status and pregnancy outcome is not restricted to Scotland. Donnelly *et al.*, in their study of North Carolina University Hospital births, has shown a clear distribution of height with social class. In Class I (the most advantaged whites) 52 per cent of the women were less than 5 feet 5 inches tall. In contrast in social class IV (the least advantaged non-whites) 75 per cent of the women were under 5 ft. 5 in. in height. The proportion of shorter women increased consistently from Classes I to IV and within each class the incidence of prematurity was higher for women who were less than 5 ft. 3 in. tall. Moreover, within any height range the least advantaged whites had lower prematurity rates than the most advantaged non-whites. Thus in the least advantaged whites less than 5 ft. 3 in. tall the prematurity rate was 12·1 per cent as con-

TABLE II

Incidence of Obstetric Abnormalities in Aberdeen Primigravidae by Maternal Health and Physique as Assessed at the First Antenatal Examination. (Twin Pregnancies have been Excluded.)

	Health and Physique			
	Very good	*Good*	*Fair*	*Poor; very poor*
Prematurity* (%)	5·1	6·4	10·4	12·1
Cesarean section (%)	2·7	3·5	4·2	5·4
Perinatal deaths per 1,000 births ..	26·9	29·2	44·8	62·8
No. of subjects	707	2,088	1,294	223
Percentage tall (5 ft 4 in. or more)	42	29	18	13
Percentage short (under 5 ft. 1 in.)	10	20	30	48

* Birthweight of baby 2,500 g. or less (From Thomson 1961).

trasted with a rate of 19·6 per cent for the non-whites in the same height range. In the tallest of the most disadvantaged whites the rate was 5·6 per cent whereas in non-whites of the same height range who were least disadvantaged the prematurity rate was 10·1 per cent.

Dietary Factors—Pre-war and War-time Experience

The physical characteristics of the mother which affect her efficiency as a reproducer are not restricted to height and physical grade. As early as 1933, Mellanby, while recognizing that 'direct and accurate knowledge of this subject in human beings is meagre,' asserted that nutrition was undoubtedly 'the most important of all environmental factors in childbearing, whether the problem be considered from the point of view of the mother or that of the offspring.' It was his conviction that the reduction of a high perinatal mortality rate as well as of the incidence of maternal ill health accompanying pregnancy could effectively be achieved by improving the quality of the diet. Acting upon these views he attempted to supplement the diets of women attending London antenatal clinics and reported a significant reduction in morbidity rates during the puerperium.

Although Mellanby's own study is difficult to interpret for a number of methodologic reasons, indirect evidence rapidly came into being in support of his views. Perhaps the most important of these was the classical inquiry directed by Sir John Boyd-Orr and reported in *Food, Health and Income* (1936). This study demonstrated conclusively that the long recognised social differential in perinatal death rate was correlated with a dietary differential, and that in all respects the average diet of the lower income groups in Britain was inadequate for good health. Two years later McCance *et al.* (1938) confirmed the Boyd-Orr findings in a meticulous study of the individual diets of 120 pregnant women representing a range of economic groups ranging from the wives of unemployed miners in South Wales and Tyneside to the wives of prefessionals. The diet survey technique which they used and which has, unfortunately, been rarely imitated since, was designed to minimize misreport. The results showed that there was wide individual variation in the intake of all foods which related consistently neither to income nor to intake per kilogram of body weight. But when the women were divided into six groups according to the income available for each person per week, the poorer women proved to be shorter and heavier and to have lower hemoglobin counts. Moreover, though economic status had little effect on the

total intake of calories, fats and carbohydrates, 'intake of protein, animal protein, phosphorus, iron and Vitamin B_1 rose convincingly with income.' The authors of the study offered no conclusions about the possible outcome of the pregnancies involved, but the poorer reproductive performance of the lower class women was clearly at issue. For as they stated, 'optimum nutrition in an adult implies and postulates optimum nutrition of that person as a child, that child as a fetus, and that fetus of its mother.'

A second body of indirect data supporting Mellanby's hypothesis derived from animal studies on the relation of diet to reproduction. Warkany (1944) for example, demonstrated that pregnant animals maintained on diets deficient in certain dietary ingredients produced offspring suffering from malformation. A diet which was adequate to maintain maternal life and reproductive capacity could be inadequate for normal fetal development. The fetus was not a perfect parasite and at least for some features of growth and differentiation could have requirements different from those of the maternal host.

It would divert us from the main line of our inquiry to consider the many subsequent studies in detail. However, Duncan *et al.* (1952), in surveying these studies, as well as the wartime experiences in Britain, have argued convincingly that the fall in stillbirth and neonatal death rate could only be attributed to a reduction in poverty accompanied by a scientific food rationing policy. Certainly there was no real improvement in prenatal care during the war when so many medical personnel were siphoned off to the armed forces. Furthermore, the improvement took place chiefly among those deaths attributed to 'ill defined or unknown' causes—that is among those cases when low fetal vitality seems to be a major factor in influencing survival—and these types of death 'are among the most difficult to influence by routine antenatal practice.' Of all the possible factors then, nutrition was the only one which, improved during the war years (Garry and Wood 1945). Thomson (1959) commented that the result was 'as a nutritional effect' all the more convincing 'because it was achieved in the context of a society where most of the conditions of living other than the nutritional were deteriorating.'

While this National 'feeding experiment' was going on in the British Isles, a more controlled experiment was being carried out on the continent of Europe (Toverud 1950). In 1939 Dr. Toverud set up a health station in the Sagene district of Oslo to serve pregnant and nursing mothers and their babies. Though war broke out shortly after the station was opened, and it became progressively more difficult to get certain protective foods, an attempt was made to insure that every woman being supervised had the recommended amounts of every essential nutrient, through the utilization of supplementary or synthetic sources when necessary. In spite of food restrictions which became increasingly severe, the prematurity rate among the the 728 women who were supervised at the station never went above the 1943 high of 3·4 per cent, averaging 2·2 per cent for the period 1939–1944. Among the unsupervised mothers the 1943 rate was 6·3 per cent and the average for the period 4·6 per cent. In addition, the stillbirth rate of 14·2/1,000 for all women attending the health station was half that of the women in the surrounding districts.

Meanwhile, even as the British and Norwegian feeding experiments were in progress, there were some hopefully never-to-be repeated starvation 'experiments' going on elsewhere. When they were reported after the war, the childbearing experiences of various populations of women under conditions of severe nutritional restriction were to provide

evidence of the ways in which deprivation could negatively affect the product of conception, just as dietary improvement appeared able to affect it positively.

Smith (1947), for example, studying infants born in Rotterdam and the Hague during a delimited period of extreme hunger brought on by a transportation strike, found that the infants were shorter and lighter (by about 240 g.) than those born both before and after the period of deprivation. Significantly enough Smith also found that those babies who were five to six month fetuses when the hunger period began appeared to have been reduced in weight as much as those who had spent a full nine months in the uterus of a malnourished mother. He was led to conclude from this that reduced maternal caloric intake had its major effect on fetal weight beginning around the sixth month of gestation. Antonov's study of babies born during the siege of Leningrad (1947) confirmed the fact of weight reduction as well as Smith's observations that very severe deprivation was likely to prevent conception altogether rather than reduce the birthweight. Antonov found that during a six month period which began four months after the start of the siege, there was an enormous increase in prematurity as judged by birth length—41·2 per cent of all the babies born during this period were less than 47 cm. long and fully 49·1 per cent weighed under 2,500 grams. The babies were also of very low vitality—30·8 per cent of the prematures and 9 per cent of the full-term babies died during the period. Abruptly, during the latter half of the year, the birthrate plummeted—along with the prematurity rate. Thus, while 161 prematures and 230 term babies were born between January and June, 1942, five prematures and 72 term babies were born between July and December. Where information was available it suggested that the women who managed to conceive during the latter part of the year, when amenorrhea was widespread, were better fed than the majority, being employed in food industries or working in professional or manual occupations which had food priorities. Antonov concluded that while the fetus might behave for the most part like a parasite, 'the condition of the host, the mother's body, is of great consequence to the fetus, and that severe quantitative and qualitative hunger of the mother decidedly affects the development of the fetus and the vitality of the newborn child.'

Long after the war, Dean (1951) was able to confirm the Smith and Antonov results with a careful analysis of a series of 22,000 consecutive births at the Landesfrauenklinik, Wuppertal, Germany, during 1937–1948. It was apparent from this series that the small reduction in the average duration of gestation recorded was insufficient to account for the degree of weight reduction observed. The study demonstrated, even more clearly than before, that severe hunger did not merely reduce the mother's ability to maintain the preganancy to term, but could act directly through the placenta to reduce the growth of the infant.

Post-war Studies

These wartime and post-war analyses leave little doubt of an association between maternal diet and the growth and development of the child in utero. Moreover, they suggest that the nature of the diet is significantly associated with pregnancy course and complications.

It is unfortunate that most of the more recent studies of the relation of maternal nutrition to pregnancy course and outcome have tended to obscure rather than to clarify the issue. Most of these studies, such as the excellently conducted Vanderbilt Cooperative Study of Maternal and Infant Nutrition (Darby *et al.* 1953 *a* and *b*, McGanity 1954) have produced con-

fusing and equivocal findings because of patient selection. Since the women included for study have tended to be those who registered for obstetrical care early in pregnancy the lowest class women were markedly unrepresentative of their social group. As a result, these studies have failed to include the very women who are most central to our concern. What is sorely needed is a detailed study of nutrition and pregnancy course in socially disadvantaged women who come to obstetrical notice far too late to be included in the usual dietary surveys in obstetrical services. The design of such a study and its conduct would not be easy. However, if conducted, it would have one virtue absent in most extant studies—pertience.

Obstetrical Care of Lower Class Women

Obstetrical care as suggested above is markedly different in socially advantaged and diadvantaged segments of the population. A preliminary view of the obstetrical care received by lower-class pregnant women may be obtained from a consideration of Hartman and Sayl's (1965) survey of 1380 births, at the Minneapolis, General Hospital. This hospital which served medically indigent patients living in census tracts having notably high rates of infant mortality delivered 43 per cent of its patients with either no prenatal care or only one third trimester antenatal visit. Of the woman who did attend the hospital's prenatal clinic, 3 per cent made their initial visit during the first trimester, 26 per cent in the second trimester and 71 per cent in the last trimester. Infant mortality appeared to vary according to prenatal care. The mothers having no prenatal care experienced fetal deaths at a rate of 4 per cent, a rate considerably higher than the 0·7 per cent fetal death rate for mothers having one or more visits to the prenatal clinic.

Boek and Boek (1956), in upper New York State, collected their sample through an examination of birth certificates. 1,805 mothers were interviewed and grouped according to social class as determined by the child's father's occupation. The amount and type of obstetric care correlated with social class. Mothers in the lowest social classes tended to seek health care later during pregnancy than higher class women. Lower class mothers tended to use a family doctor for both pre- and post-natal care, rather than the obstetric specialists and pediatricians heavily patronized by upper class women. More than twice as many upper class women attended group meetings for expectant parents than did lower class mothers. Lower class women tended to stay in the hospital fewer days than upper class women, and although the former paid lower doctor's bills, they tended to pay higher hospital bills since more higher than lower class families had hospital insurance. Three months after the birth of the child fewer lower class women had received postnatal checkups than upper class women and fewer mothers in the lowest social class had their babies immunized with a triple vaccine or planned to have this done.

The effects of a good, comprehensive health program on pregnancy losses was studied by Shapiro *et al.* (1960), in a comparison of the infant mortality rates for members of the Health Insurance Plan and the general New York City population. Obstetric-gynecology diplomates delivered 72 per cent of the HIP babies. Only 24 per cent of the general New York population received specialist care, and only 5 per cent of non-white babies were delivered by specialists. Because of these radical differences in type of delivery care, the investigators compared the HIP prematurity and perinatal mortality rates only to those New Yorkers who were patients of private physicians. Socio-economic status was judged by the occupation of the father as recorded on

birth and death certificates. The data on prematurity for the three year period are presented in Table III. The white patients who participated in the Health Insurance Plan had their prematurity rate reduced from the 6 per cent rate characteristic for their group in the city as a whole to 5·5 per cent. This reduction just missed statistical significance at the 5 per cent level. In the non-white group the rate was reduced from 10·8 to 8·8 per cent, a difference significant at the ·01 level of confidence. Within each specific category of physician used, Shapiro found that white deliveries had a far lower perinatal mortality than non-white for the general New York City group. General service deliveries had a far greater mortality rate than private physician cases in hospitals for both the white and non-white groups. 'Among white deliveries mortality was considerably higher for general service cases than for those under the care of private doctors in each occupation category . . . This raises the interesting question whether the greater mortality in general service is principally due to factors associated with type of care or the setting in which it is received, or whether the poorer risk women within each occupation class tend to turn to general service.'

One example of the type of risk that careful prenatal attention can diminish is shown in Kass's study (1960) of bacteriuric pregnant women in the Boston City Hospital prenatal clinic. The investigators wished to see if treatment for bacteriuria during pregnancy would have any ill effects on the health of the fetus, but shifted emphasis when they found that bacteriuric women had a dramatically higher rate of infant mortality and prematurity than non-bacteriuric women. Patients diagnosed bacteriuric and adequately treated so that they were non-bacteriuric at term had a 14 per cent lower prematurity rate than untreated women (Table IV). Since the incidence of bacteriuria was 6 per cent of the pregnant women seen at the prenatal clinic, Kass predicted that 'it should be possible to lower the total perinatal death rate by about 25 per cent and the total

TABLE III

Prematurity Rates by Ethnic Group, New York City, and HIP (Adjusted) 1955–1957*

Single Live Births Attended by Private Physician in Hospital

Ethnic Group	*Prematurity Rate per 100 Live Births*[1]			
	New York City[2]	*HIP Adjusted*[2]	*Standard Error of Difference*	*P*[3]
Total (Excluding Puerto Rican)	6·2	5·7	0·23	0·04
White	6·0	5·5	0·24	0·06
Nonwhite	10·8	8·8	0·74	<0·01

1. Prematurity rate is defined as the number of live births 2,500 gm. or less per 100 live births.
2. New York City rates are observed rates for deliveries of women of all ages excluding those under 20 and age not stated.
HIP rates are adjusted to age of mother and ethnic distribution of New York City deliveries (excluding deliveries of women under 20 and age not stated).
3. 'P' represents the probability that NYC-HIP difference is due to chance factors.
* (From Shapiro 1960).

TABLE IV

Effect of Bacteriuria During Pregnancy on Occurrence of Pyelonephritis, Prematurity, and Perinatal Death

Patient Group	*No. of Patients*	*No. with Pyelo-nephritis*	*Premature Infants (per cent)*	*Perinatal Mortality (per cent)*
Untreated bacteriuric ..	48	20	24	14
Treated bacteriuric ..	43	0	10	0
Non bacteriuric	1,000	0	9	2

(From Kass, 1960)

prematurity rate by between 10 and 20 per cent, simply by screening for bacteriuria and treating it properly.'

In view of the potential importance of prenatal care on pregnancy course and outcome and the suggestion that such care is deficient in the lowest socio-economic groups it is important to examine the ethnic distribution of antenatal care. The study of Pakter *et al.* (1961) though restricted to New York City is representative of conditions that exist on a national scale. His findings reported in Table V can be replicated in any urban community having a significantly large non-white population. In rural areas the situation is equally bad. Approximately 30 per cent of married Negro mothers and 39 per cent of Puerto Rican mothers received no prenatal care during the first six months of the pregnancy. In contrast, only 13 per cent of white married mothers were subjected to a similar lack of care.

Post-natal Conditions for Development

Densen and Haynes (1967) have indicated that many types of illness are excessively represented in the non-white segments of the population at all age levels. I have selected one, nutritional status, as the model variable for consideration. A considerable body of evidence from animal experimentation as well as field studies of populations at nutritional risk (Cravioto *et al.* 1966) have suggested a systematic relation between nutritional inadequacy and both neurologic maturation and competence in learning.

At birth the brain of a full-term infant has achieved about one quarter of its adult weight. The bulk of subsequent weight gain will derive from the laying

TABLE V

Obstetric Care in Different Ethnic Groups

	White		*Puerto Rican*		*Non-White*	
	married	*unmarried*	*married*	*unmarried*	*married*	*unmarried*
Private services	85·8	17·3	—	—	—	—
Ward services	12·2	81·0	90·4	97·5	82·1	97·4
Prenatal care in first six months	87·2	36·7	60·4	43·5	61·7	42·9

(Drawn from Pakter 1961)

down of lipids, particularly myelin, and cellular growth. Animal experiments on the rat (Davison and Dobbing 1966), the pig (Dickerson *et al.* 1967, McCance 1960) and the dog (Platt *et al.* 1964) have all demonstrated a significant interference in brain growth and differencitation associated with severe dietary restriction, particularly of protein, during the first months of life. In these animals the behavioral effects have been dramatic with abnormalities in some cases persisting after dietary rehabilitation.

The relation of these data to the human situation is made difficult by the extreme severity of the dietary restrictions. More modest restrictions have been imposed by Widdowson (1965) and Barnes *et al.* (1966) and the latter experiments indicated some tendency for poorer learning in the nutritionally deprived animals. Cowley and Griesel's work (1963) suggests a cumulative effect of malnutrition on adaptive behavior across generations.

The animal findings as a whole can be interpreted either as suggesting a direct influence of malnutrition on brain growth and development, or as resulting in interference with learning at critical points in development. In either case the competence of the organism as a learner appears to be influenced by his history as an eater. These considerations add cogency to an already strongly held belief that good nutrition is important for children and links our general concerns on the relation of nutrition to health to our concerns with education and the child's functioning as a learner.

Incidents of severe malnutrition appear rarely in the United States today, but there is evidence to suggest that the low income segments of the population suffer from subtle, sub-clinical forms of malnutrition which may be partially responsible for the higher rates of morbidity and mortality of children in this group. Brock (1961) suggests that 'dietary sub-nutrition can be defined as any impairment of functional efficiency or body systems which can be corrected by better feeding.' Since 'constitution is determined in part by habitual diet . . . diet must be considered in discussing the aetiology of a large group of diseases of uncertain and multiple aetiology . . .' The relationship between nutrition and constitution is demonstrated by the fact that the populations of developed nations are taller and heavier than those of technically underdeveloped nations and that 'within a given developed nation children from economically favoured areas are taller and heavier than children from economically under-privileged areas.'

In comparison to the vast body of data available on the diets of peoples in tropical countries, very little research has been done in recent years on the nutritional status of various economic groups in the United States. The effects of long term subclinical malnutrition on the health of the individual are not yet known, and little research has been directed at this problem since 1939. However, it is instructive to review the studies comparing the diets of low-income people with the rest of the population since these lay the basis for hypothesizing that nutritional differences may have some effect on the overall differences in health and learning ability between groups.

The nutritional differences between lower and higher income individuals begin before birth and continue thereafter. In a study of maternal and child health care in upper New York State, Walter Boek *et al.* (1957) found that babies from low income families were breast fed less often and kept on only milk diets longer than upper income infants. In a study of breast feeding in Boston,, Salber and Feinleib (1960) confirmed Boek's results and, 'social class was found to be the most important variable

affecting incidence of breast-feeding' (TableVI).

Social class differences in feeding patterns continue after weaning. Filer and Martinez (1964) studied 4,642 six month old infants from a nationally representative sample and found that 'infants of mothers with least formal education and in families with lowest incomes are fed more milk formula . . .' and less solid foods at six months old than those from higher educational and economic groups. Class differences in the intake of most nutrients varied primarily according to the amount of milk formula consumed.

The researchers found that for 'almost all nutrients studied, the mean intakes were well above recommended levels. The single exception was iron; more than half of infants do not get the lowest recommended provision—a finding that corroborates the results reported by a number of other investigators.' Iron deficiency was most prevalent among infants of mothers with low educational and income levels. Infants whose mothers attained no more than a grade school education received a mean intake of only 6·7 mg. of iron a day, as compared to the 9·1 mg. mean intake of infants whose mothers had attended high school. Since 'nutritional iron deficiency is widespread and most prevalent in infants in the low socio-economic group,' and iron deficiency is the most common cause of anemia in infants during the first two years of life, malnutrition at least with respect to this nutrient is widely prevalent in lower class infants.

A study of Negro, low-income infants in South Carolina (Jones and Schendel 1966) uncovered more extensive areas of malnutrition in this group; the death-rate for Negro infants in South Carolina was twice the national rate). Thirty-six Negro infants from low income families were tested when they visited a Well-Baby Clinic for routine examinations. The subjects ranged in age from four to ten months. 'The bodyweights of 66 per cent of the infants were below the 50th percentile in the Harvard growth charts, 34 per cent below the 10th percentile and 9 per cent below the 3rd percentile.' Twenty-nine per cent of the subjects had 'serum albumin concentrations which have been associated with marginal protein nutrition' and serum globin concentrations below normal range. Sixty-one per cent had total protein concentrations below normal and 33 per cent had 'serum ascorbic acid concentrations which have been associated with a sub-optimal intake of vitamin C.' One infant's albumin concentration showed severe protein deficiency and 'eight . . . infants had concentrations of serum ascorbic acid reflecting a severely

TABLE VI

Incidence and Duration of Breast-Feeding Among 2,233 Mothers

	Social class of father		
	Students	*Class 1 and 2 (Warner's)*	*Class 3–7 (Warner's)*
Total Number	88	550	1,595
Number Breast-Feeding	61	219	217
Percentage Breast-Feeding	69·3	39·8	13·6
P For Difference in Proportion	< ·01	< ·01	< ·01
Mean Duration (Days)	123·0	111·7	98·5
P. For Difference in Means	> ·05	> ·05	> ·05

(Data drawn from Salber and Feinleib 1966)

limited dietary intake of vitamin C.' The researchers concluded that 'it would appear possible that malnutrition may be one of the many underlying causes for the high rate of Negro infant mortality in South Carolina.' Since Greenville County, where the study was conducted, has a relatively small number of infant deaths, 'it is possible that malnutrition may be even more severe and/or prevalent in many other counties of the state.'

Since the sample used in this study is small (36 infants), the results must be viewed as suggestive rather than conclusive. But taken together with the findings on iron intake, a New York study which shows that anemia is common among Negro and Puerto Rican infants (James 1966) and the recent finding of Arneil (1965) that 'some anemia was present in 59 per cent of Glasgow slum children,' the suggestion is strengthened that poor diet may be partly responsible for the poor health of lower socio-economic class children.

The studies so far reviewed have dealt with populations that are in some way representative of the nutritional status of large groups of children. Since these studies are few in number and limited in approach, they cannot give a complete picture of the nutritional status of lower class Americans. Hints about areas of malnutrition which have not been thoroughly investigated can be drawn from studies of special groups within the American population. In a survey of the 'Dietary and Nutritional Problems of Crippled Children in Five Rural Counties of North Carolina,' Bryan and Anderson (1965) found that the diets of 73 per cent of the 164 subject sample were less than adequate. The cause for the malnourishment of nine out of ten of the poorly fed children was poor family diet and in only one of ten cases was the malnutrition related to the physical handicap of the child.

Although all the children were from families in the low income group, the researchers found certain significant differentiations between the Negro and white families studied. Seventy-one per cent of the Negro children and 35 per cent of the white children's diets were rated as probably or obviously inadequate. Only a limited number of food items were used and 'in many of the families . . . only one food was cooked for a meal and this would be eaten with biscuits and water, tea or Kool-Aid . . . For the most part, the diet of our low income families contained few foods that are not soft or that require much chewing.' Suggestions of poor nutrition in infancy and childhood can also be drawn from studies of constitutional differences as well as from measurements of food intake.

A study of the nutritional status of junior high school children in Onondaga County, New York (Dibble *et al.* 1965) compared subjects from broadly different economic groups. School 'M' was 94 per cent Negro, while Schools 'L' and 'J' were overwhelmingly white. The schools were also differentiated on the basis of the occupation of the students' fathers: '. . .of the 58 per cent of the employed fathers from school M, 52 per cent were laborers, whereas only 10 per cent from school L and 38 per cent from school J were in this category.' When the heights and weights of the subjects were compared, a greater percentage of students from the lower-socio-economic class school fell in the short stature and low-weight zones. There was also a tendency for students from the predominantly Negro school to have less subcutaneous fat by ranking of skinfold than students from other schools.

Blood and urine samples were taken for all the subjects and the researchers set up criteria to determine the level of adequacy for the various nutrients. 'Subjects from school M, (the Negro school) had a slightly lower average hematocrit, largely due to

the greater number of female subjects from that school in the low classification (and) the average plasma ascorbic acid value for school M was about half as great as the average in school L.' There was also a tendency for the Negro population to have low values for hexose and pentose when erythrocyte hemolysate transketolase activity was determined. Average urinary excretions of riboflavin and thiamine was above acceptable level in all groups, but data for folinic acid indicated lower levels of excretion for children from school M than for children in schools L and J.' The question whether this observation was related to the lower ascorbic acid levels of these children indicates a need for further study in this area. The authors conclude that the differences between the schools show a relationship between nutrition and socio-economic status. These differences are greater than the differences between male and female students, and are related to each other on the various parameters of the study. 'There was a slight indication that the growth of the male subjects in . . . school (M) had not been as great as that of the subjects in the other schools with whom they were compared. This fact was supported by somewhat lower average levels in the other parameters . . .'

Although the students at the predominantly Negro school in Onondaga County did not appear to suffer from gross nutritional deficiences, their diets were significantly less adequate than the subjects from the white, middle-class schools. The investigators did not attempt to link dietary habits with health records, but the results of the study lead to speculations about the relationship between suboptimal diet, rates of infection, school absence and academic performance.

Why Malnutrition?

Why, in a society with an abundant and often enriched food supply, are several groups of the population inadequately nourished. The answer appears to lie in two broad areas: money and information. Cultural differences in food habits and beliefs, though important, appear to lose their significance relatively quickly when adequate funds, higher general education, and sound knowledge of proper nutrition become available. Thus in an article on 'The Nutritional Status of American Negroes,' Jean Mayer (1965) finds that 'the food habits of Negroes belonging to the higher socio-economic classes appear to be essentially those of their white counterparts, (however) it can be fairly stated that in general the state of nutrition of Negroes is inferior to that of whites in the same geographic areas. In some cases, it is vastly inferior.' Just as poverty and lack of education breed poor eating habits among lower economic class Negroes, low income combined with a good education can produce adequate nutrition, as has been shown in a comparison of the dietary habits of students wives with other low income groups (Jeans *et al.* 1952).

In a detailed study of the 'Eating Patterns Among Migrant Families' in Palm Beach County, Florida, Delgado *et al.* (1961), found that a combination of low income, lack of education, lack of kitchen equipment and proper storage facilities contributed to dramatically poor diets in the migrant families.

When the family diets were analyzed in terms of the various nutrients, only 20 per cent of the families met the National Research Council calorie requirements. Thiamine, protein, Vitamin A and iron requirements were not met by over 50 per cent of the families. About 80 per cent did not meet the requirements for calcium and riboflavin and 97 per cent did not have enough Vitamin C. None of the families met stated requirements for milk, green and yellow vegetables; only a few had citrus fruits and tomatoes, potatoes or

other fruits and vegetables and eggs; and only 43 per cent of the families met the daily requirements for meat.

Negro migrant agricultural workers have 'the highest proportion of malnourished individuals of any group in the country.' and Mayer (1965) finds the 'shortage of published data in this field striking.' Although lack of money to buy nutritious foods is apparently the major reason for malnourishment, the lack of information about nutrition is also to blame for both the rural and urban Negro diet. A monotonous, limited diet is the rule for Southern rural Negroes and the inadequacy of the diet is exaggerated for Southern urban Negroes for whom the availability of green vegetables is decreased. 'Consumption of fresh vegetables is low and consumption of citrus fruits negligible. Milk consumption is substantially lower than in white families . . . This is for a large part a reflection of lower income; but even at equal income, milk consumption may be lower for Negro families.' Although calorie requirements are usually met in urban families, protein, calcium, thiamine, riboflavin, nicotinic acid, Vitamin A and Vitamin C requirements are often inadequately met.

In the North 'even as approximate a description of the nutritional status of the Negro population is impossible to arrive at.' Mayer observes, however, that familiar Southern foods of minimal nutritional value, such as turnip, mustard greens, kale, okra and plantains, are stocked by stores in northern Negro areas. 'Careful persual of the records available in large cities, as well as the collection of impressions of experienced physicians, dietitians, and health administrators, leaves little doubt that our Negro slums represent the greatest concentration of anemias, growth failures, dermatitis of doubtful origin, accidents of pregnancy and other signs associated with malnutrition.'

Although the studies reviewed here are helpful for their indications and descriptions of areas of sub-optimal nutrition in this country, a detailed and comprehensive study of the nutrition of the low income population is still lacking. Since sub-optimal nutrition can have social and psychological ramifications, as well as constitutional and medical results, a more thorough knowledge of the ways in which nutrition can affect the daily life of the individual would be useful for all those who seek to improve the health and social well being of the poor.

Conclusions

In this review I have examined certain selected conditions of health which may have consequences for education. Other factors such as acute and chronic illness, immunizations, dental care, the utilization of health services and a host of other phenomena, perhaps equally pertinent to those selected for consideration, have been dealt with either in passing or not at all but in fact studies of these factors that do exist reflect the same picture that emerges from those variables which have been discussed. In brief, though much of the information is incomplete, and certain aspects of the data are sparse, a serious consideration of available health information leaves little or no doubt that children who are economically and socially disadvantaged and in an ethnic group exposed to discrimination, are exposed to massively excessive risks for maldevelopment.

Such risks have direct and indirect consequences for the functioning of the child as a learner. Conditions of ill health may directly affect the development of the nervous system and eventuate either in patterns of clinically definable malfunctioning in this system or in sub-clinical conditions. In either case the potentialities of the child as a learner cannot but be impaired. Such impairment, though it may

in fact have reduced functional consequences under exceptionally optimal conditions for development and education, in any case represents a primary handicap which efforts at remediation may only partially correct.

The indirect effects of ill health or of conditions of sub-optimal health care on the learning processes may take many forms. Only two can be considered at this point. Children who are ill nourished are reduced in their responsiveness to the environment, distracted by their visceral state, and reduced in their ability to progress and endure in learning conditions. Consequently, given the same objective conditions for learning, the state of the organism modifies the effective environment and results in a reduction in the profit which a child may derive from exposure to opportunities for experience. Consequently, the provision of equal opportunities for learning in an objective sense is never met when only the school situation is made identical for advantaged and disadvantaged children. Though such a step is indeed necessary, proper and long overdue, a serious concern with the profitability of such improved objective opportunities for socially disadvantaged children demands a concern which goes beyond education and includes an intensive and directed consideration of the broader environment, the health and functional and physical well-being of the child.

Inadequacies in nutritional status as well as excessive amounts in intercurrent illness may interfere in indirect ways with the learning process. As Cravioto, *et al.* (1966) have put it, at least 'three possible indirect effects are readily apparent:

(1) *Loss of learning time.* Since the child was less responsive to his environment when malnourished, at the very least he had less time in which to learn and had lost a certain number of months of experience. On the simplest basis, therefore, he would be expected to show some developmental lags.

(2) *Interference with learning during critical periods of development.* Learning is by no means simply a cumulative process. A considerable body of evidence exists which indicates that interference with the learning process at specific times during its course may result in disturbances in function that are both profound and of long term significance. Such disturbance is not merely a function of the length of time the organism is deprived of the opportunities for learning. Rather, what appears to be important is the correlation of the experiential opportunity with a given stage of development—the so-called critical periods of learning. Critical periods in human learning have not been definitively established, but in looking at the consequences associated with malnutrition at different ages one can derive some potentially useful hypotheses. The earlier report by Cravioto and Robles (1965) may be relevant to the relationship between the age at which malnutrition develops and learning. They have shown that, as contrasted with older patients, infants under six months recovering from kwashiorkor did not recoup their mental age deficit during the recovery period. In older children, ranging from 15 to 41 months of age, too, the rate of recovery from the initial mental deficit varied in direct relation to chronological age at time of admission. Similarly, the findings of Barrera-Moncada 1963 in children, and those of Keys, *et al.* (1950) in adults, indicated a strong association between the persistence of later effects on mental performance and the age at onset of malnutrition and its duration.

(3) *Motivation and personality changes.* It should be recognized that the mother's response to the infant is to a considerable degree a function of the child's own characteristics of reactivity. One of the

first effects of malnutrition is a reduction in the child's responsiveness to stimulation and the emergence of various degrees of apathy. Apathetic behavior in its turn can function to reduce the value of the child as a stimulus and to diminished the adults' responsiveness to him. Thus, apathy can provoke apathy and so contribute to a cumulative pattern or reduced adult-child interaction. If this occurs it can have consequences for stimulation, for learning, for maturation, and for interpersonal relations, the end result being significant backwardness in performance on later more complex learning tasks.'

However, independently of the path through which bio-social pathology interferes with educational progress, there is little doubt that ill health is a significant variable for defining differentiation in the learning potential of the child. To intervene effectively with the learning problems of disadvantaged children it would be disastrous if we were either to ignore or to relegate the physical condition and health status of the child with whose welfare we are concerned to a place of unimportance. To do so would be to divorce education from health; a divorce which can only have disorganizing consequences for the child. Unless health and education go hand in hand we shall fail to break the twin curse of ignorance and poverty.

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The CHAIRMAN. Is it possible, in your judgment, that the poor in this country, that is, those who are malnourished as a result of their poverty, are generally suffering from mental retardation in one degree or another?

Dr. BIRCH. No. I wouldn't think so.

What one has in looking at intellectual levels by social segment of the population is evidence that from birth onward a variety of different factors at different ages contribute to diminishing the intellectual potential and intellectual capacities of disadvantaged segments of the population.

In studies of ours on the Puerto Rican working class children in New York City, for example, we find that at the age of 2 to 3 years, these children in their intellectual competency are well within the normal range, and that given opportunities for developing they may remain within the normal range into the first of the school years.

But that as one proceeds both in this segment of the population and many others throughout the Southeast into the school years themselves, there is a consistent increment in the number of children within the disadvantaged group who begin to increasingly show deficits of function as they grow older.

Since most of our measurements as they grow older are based upon the degree to which they have successfully attained and profited from education, it appears most likely to me that these changes in the amount, in the number of individuals who are not functioning well with increasing age, reflects a degree to which they have been subjected repeatedly both to educational disadvantages and to human insults which reduce motivation to learning as they move ahead.

I think that this is a point of view that requires examination and testing, but it is a point of view that was shown in the very first studies of this kind of problem which, after all, didn't begin in this country but began in Great Britain when Hugh Borden, back in the 1920's, was concerned with what happens to canal-boat children who live on the canal boats when they are of school age and have interrupted schooling or inadequate schooling and so on.

What he found was that these children had no differences in their IQ from the general population of children of the same social grouping in the cities themselves, but as each year went by they grew increasingly, relatively more disadvantaged, until by the ninth or 10th year a significant number of them were being identified as being subnormal in their intellectual functioning.

I think what he showed at that time and what we are witnessing again and again today is the manner in which an accumulation of disadvantaged, both at the health and at the level of educational opportunities and social opportunities, reflects itself in a declining IQ with age and segment of the population.

Senator GOODELL. I would like to put it a different way if you will. I recognize your answer concerned increasing increments with age, continuing circumstances of deprivation. What would be, in your judgment, the degree to which it is likely that permanent irreversible damage occurs either in the last 3 months of a child's prebirth period, or the first 3 or 4 years thereafter?

In other words, with malnutrition thereafter, how much can you retrieve?

Dr. BIRCH. Well, I think that my answer to that would be based upon the comparative studies of the consequences which are attached to low birth weight in different social class groupings. This is true whether the studies are done at Aberdeen, Scotland, or in Kaui, Hawaii, and studies have been done in both places.

In your group that is at continued social disadvantage, the effect of low birth weight results in a significant disadvantage of these low birth weight children as compared to the remainder of their population over their social class.

In the relatively more advanced sections of the population, the fact of premature illness, unless it is terribly severe, is not terribly important. It does not result in such disadvantage.

This suggests there is either nutritional or environmental compensation which is possibly given different circumstances for postnatal existence, so that I would tend to argue, I think, that the evidence that we have today suggests that aside from those individuals who are severely and obviously damaged because of their prematurity, that the potential for recovery is also great in this remaining period, and given more optimal circumstances thereafter a considerable number of such children can be saved and helped.

Senator GOODELL. If I understand you correctly, you have said that while we know there may be some permanent damage that occurs in this period, you are optimistic a good proportion of this——

Dr. BIRCH. Permanent damage happens to all of us every day all of our lives. In other words, I think that we should recognize that one of the features of the brain is that it does have a fair amount of redundancy and it has a fair amount of reserve, and that even when there has been permanent damage introduced, there are opportunities for this wonderful organ to reorganize itself and to compensate for losses that it has received.

I think that even when there is damage there are remedial approaches to the problem of a damaged brain and there are optimal environments for different degrees of damage which, in fact, can result in lesser or greater degrees of disturbed outcome.

In other words, given the same brain damage, subjecting a child to one set of developmental circumstances will produce a child who is permanently impaired and handicapped. Given the same degree of brain damage, permitting him and giving him the opportunities to function in an entirely different and facilitated circumstance will give you an individual who does pretty well.

Senator GOODELL. Not as well as he might have?

Dr. BIRCH. I hope not as well as he might have, because I like the brain and I think that it does something. But certainly far better than he would have functioned had he not been given these other developmental opportunities.

Senator GOODELL. These are areas that are difficult to be definitive about, are they not?

Dr. BIRCH. I am sorry.

Senator GOODELL. It is difficult to give a final and definitive judgment in these areas because of the problem of measurements and all the rest?

Dr. BIRCH. I think the problems of measurement constitute one problem, that the problem of the definition of the amount of insult at the very beginning represents another problem.

Let me give you an example in which experts fool out on a discussion of this issue, perhaps to anticipate your next question.

Some people who have studied animals at places other than Cornell, let us say, with respect to Dr. Latham, have found when they studied their animals that have been seriously nutritionally deprived in infancy, these animals learn just as well as do the ones who have not been deprived. And they say they are known facts. The reason that these kinds of conflicting reports come forward so often is that most tasks that we ask animals to learn are ones that they can do perfectly well if you cut out 20 percent of their brain, surgically.

For example, they can condition just as well. If you cut 20 percent of the brain of the rat he will learn mazes as well as his brother whose brain you have not touched, and the problem we are concerned with in these areas is the development of sensitive tests which will indeed show up what are the consequences of a damaged brain.

So if we give a rat a task other than the maze to run—for example, if we give him a running task where he is to jump at a triangle when the background is black but to jump at a circle when the background is white, and give him this task, the one with the brain damage fails abysmally, even though he learned the maze as well as did his brother, but his brother learns the other task perfectly well.

Senator GOODELL. Is this an actual test?

Dr. BIRCH. Yes, sir.

Now, it is of interest that these data have been available now for 42 years and we have known of the differential sensitivity of these various techniques, and one of the problems that we have is that the animal physiologist and the comparative animal psychologist and nutritionist haven't gotten together for working out and sharing appropriate techniques which would be more sensitive indicators of issues that they hold in common.

Now, this is a research area that I think should be stimulated and supported.

The CHAIRMAN. Dr. Birch, laying aside the acute cases of mental retardation in relationship to malnutrition, is it generally true that a person on an inadequate diet, maybe not a very bad diet but an unbalanced diet, where he is lacking certain things, his intellectual performance will go down under those circumstances? I don't mean to the point of what we described as retardation. His general alertness and capacity to deal with complex matters? Will you notice a difference?

Dr. BIRCH. We have. We had some studies of this, particularly in the wartime period and postwar period, in Minnesota and elsewhere, in which a normal adult was subjected to conditions of food depravation, often quite severe.

During the period of the acute severity they did indeed show reductions of various kinds in their competence and their alertness and their responsiveness and their learning ability. But when they were rehabilitated nutritionally these did not appear to be a persistent defect, and they returned to the levels at which they were formally functioning.

Senator GOODELL. You were talking about previously normal adults who are deprived during the adult period.

Dr. BIRCH. Yes. We have little or no information on what the long-time persistent consequences of malnutrition are and whether they are accumulative in other population. There are thoughts on this, but not very good data.

The CHAIRMAN. Dr. Birch, I just have one final question. I was wondering whether there were any findings that came out of the Mexico City pediatric conference that was there on the subject of this investigation, nutritionally related problems.

Dr. BIRCH. Well, I would like to call your attention to two reports that appeared at those meetings. One was the report of John Darbing from the University of Manchester, who was reporting on the effects of malnutrition during the rapid phase of the development of the nervous system in the rat, on the organization and growth of the brain of this rat in subsequent periods.

He was able to show that there was a reduction in cellular size, in cellular number; that there is a reduction in the nervous system, and that these differences were not repaired as a consequence of the later adequate nourishment of these animals.

Similar findings were reported for cell number and features of cell growth by Winnix of Cornell University. At the level of human nutritional studies and what it concerns, a number of studies from several places in the world, several from India, one or two from Mexico itself, and several from other places, in Latin America, including Chile, indicated that those segments of the population and particularly those segments in which children were subjected to nutritional risks, depended on epidemiological studies and findings to show serious degrees of defectiveness and deficiency at school age and at a later point in their development.

These studies represent not so much new materials by confirmation of the work, some fragments of which—and some more developed phases of which we have already been speaking about.

Senator GOODELL. I would like to put this in very simple terms at the conclusion. I understand you have expressed some optimism about the degree to which you can retrieve or rehabilitate, if you wish, a brain, if you provide adequate nourishment later on in the child's life.

Dr. BIRCH. No.

Senator GOODELL. Then I would like you to clarify it.

Dr. BIRCH. Adequate nourishment in association with adequate remedial and facilitative education.

Senator GOODELL. Fine. Would you say this is a true statement? The evidence we have now is that very serious damage can and does occur to the brain because of malnourishment during the critical period, 3 months before birth and after birth.

There is some question how much we can recoup with the rehabilitative procedures that you have described.

Dr. BIRCH. Yes, I think there is a very real question as to what indeed can be recouped. The main reason for this is that most of us who have been working in this area have in a sense been on a fact-finding mission rather than on a treatment mission. And I think there is a fundamental difference between these.

I think you in your own work are in that first phase yourselves right now. You are at the level of saying now if there is serious dislocation of the nutritional circumstances for a child, does he end up with some disturbance, and is this disturbance one that persists?

Well, I think that we have reached the point where we can, without too much question, suggest that indeed there is such a disturbance and that it does persist. But now a physician has at least two other re-

sponsibilities. One responsibility is the responsibility of can this be prevented, and this is something that we have been talking about here.

The second problem is now that it has happened and there is a whole generation of individuals in which it has happened, are there techniques, devices, treatments, methods, therapeutic approaches that would minimize these disastrous consequences and in fact result in an increased habilitation or rehabilitation of the child?

We have just begun to become concerned with that problem, having moved out of the initial factfinding phase, and we are now, for example, trying to look at the problem of what are the different circumstances that result of later life, that result in better or worse outcomes for children who are subjected to the same kinds of risks at an earlier stage in life.

We have little information about this at the moment. But what we do have, I think, does suggest what I have been attempting to suggest; namely, that there is hope for the rehabilitation. Whether complete or otherwise, I think it is much too early to say. But certainly hope for rehabilitation and rehabilitation that will result in improvement.

I felt I had to raise that question here today because otherwise we are left in a situation where we say: "Well, those kids who have had it in the early years of life have indeed had it and they are done and nothing can be done for them."

I don't think that is the case and I think the problem of maximizing their function is a special job in itself that has to be undertaken even after or simultaneously in efforts to engage in prevention, which, I think, is the main focus of the committee.

Senator GOODELL. Thank you.

The CHAIRMAN. Thank you very much.

Senator GOODELL. Very excellent testimony.

The CHAIRMAN. Thank you very much. I think you and your colleagues have given us very invaluable testimony and assistance.

I would like to say as these hearings move along that if you have additional thoughts or suggestions that you think would be helpful, we welcome your assistance at any time.

Senator GOODELL. I think the chairman put it out. I am certainly glad you clarified this shorty aspect because the namesake of your university was not very tall either.

The CHAIRMAN. The hearings will be adjourned until 10 o'clock tomorrow morning.

(Whereupon, at 4:30 p.m., the hearing adjourned to reconvene on Wednesday, December 18, 1968, at 10 a.m.)

NUTRITION AND HUMAN NEEDS

WEDNESDAY, DECEMBER 18, 1968

U.S. SENATE,
SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS,
Washington, D.C.

The committee met at 10:05 a.m., pursuant to recess, in room 1202, New Senate Office Building, Senator George McGovern (chairman of the committee) presiding.

Present: Senators McGovern, Clark, Mondale, Percy, and Goodell.

Also present: William C. Smith, staff director and general counsel.

The CHAIRMAN. The committee will be in order.

And our first witness is Dr. Altschul, Special Assistant to the Secretary of Agriculture. Dr. Altschul is one of the leading authorities in the world on the food problems that this committee is investigating, particularly on the problems of protein foods.

Dr. Altschul, we will be happy to hear from you.

STATEMENT OF DR. AARON ALTSCHUL, SPECIAL ASSISTANT TO THE SECRETARY OF AGRICULTURE

Dr. ALTSCHUL. I have prepared a statement which I presume the committee members have.

I would like to go over the statement, not read it, but comment on it, and perhaps clarify some points and emphasize others.

The first point I would like to make Mr. Chairman, concerns the role of innovation in the problem of hunger. I think we might properly ask how can we solve the immediate problem of hunger and malnutrition in this country.

Will it be by doing more of the same? That is one alternative.

The second question is more of the same, but also with innovations?

And the third alternative would be, will progress made only by innovation? That is, by using new ideas, together with additional effort.

I am not sure of the answer to these questions, but my own instincts would be that I do not see any chance of solving the problem in a practical way, without innovation.

And this really is the burden of what I am trying to present, and that is why I am bringing up the role of modern science and technology and the role of the private sector, and trying to bring up what we can learn from food programs in underdeveloped countries.

I think the first point before getting down to details might be to say that in general ways, what we would like to accomplish, and what might be the components of a national food policy.

I have listed them, and I would like to read them, and just comment on them. I have listed three general principles. One, that no one must go hungry or be malnourished. This is a right of every citizen. Two, that hunger or malnourishment must not be a deterrent to economic development. And three, that the American diet must provide for optimum health throughout life.

The one that most everybody has been talking about is the first one. That is, no one must go hungry or be malnourished. I would like to draw your attention to the second one, that hunger or malnourishment must not be a deterrent to economic development.

The first attracts more attention, people going to bed hungry is a dramatic picture. But perhaps the ability to learn to work, to compete, to perform, is a much more significant and more important part of the problem, because this is the basis of the whole question of development. I might say that not only must people not go to bed hungry, but perhaps, more importantly, they must not come hungry to school or to work, and this is what I mean by the second point to my three point components of an American food policy

I am not going to discuss the third one, about the American diet providing optimum health. It probably has been discussed by others. It is a general problem for all Americans.

What are the elements of an effort to eliminate hunger and malnutrition? I would like to emphasize the dual aspects of the problems of feeding people, the question of quantity and the question of quality. The first is associated with the word "hunger," having enough food, the second is associated with the word "malnutrition." Even if we give people enough food, that does not mean that the nutrition problem is eliminated, if they do not have enough of the quality elements. These might mean enough protein, it might mean all of the vitamins, it might mean all of the needed minerals.

And just getting enough food, of the wrong kind, does not do any good. As a matter of fact, it exacerbates the problem. Certainly you have to have enough, but poor people have the problem of getting adequate quality. I would like to point out the difficulty that faces a woman who has to wean a child, if she has no milk available, and/or has no animal products.

It is very easy to wean a child with animal products.

It is very difficult to wean a child, if these are not available. Poor people, who have not as much of quality foods available to them as the others, find it very difficult to have a balanced diet. If there is no or little quality food, it takes an expertness, or perhaps new and fortified foods, to solve the problem.

I think that no one quarrels with the concept of nutrition education. It is terribly important. Everybody has to know that there are such things as calories and proteins and vitamins and minerals.

He has to know enough to take care of himself, and also enough not to go for quackeries. But I think we should point out that we should not expect too much, too soon from nutrition education.

While it is something that we can and must do, we cannot rely on that alone. And that is why I come into the next point, which is to put the maximum nutrition into foods. I would like to extoll, if I may, the virtues of fortification.

You don't have to know anything about goiter to solve the problem of goiter, if somebody puts iodine in the salt. We have accepted the question of solving the problem of goiter in the United States by iodizing salt. Since not all of the salt is iodized, I would expect that we may find relapses in this problem in areas where people are not purchasing iodized salt. But you just don't have to be a genius or know nutrition to solve that problem.

We have eliminated, on the main, the vitamin deficiencies in the United States, by putting vitamins in foods that are used abundantly, in bread, in milk. And this is the idea of fortification.

You use a common vehicle to get nutrition into people so that nutrition is not left to chance. The one thing that we can do now that perhaps could not have been done before is that not only can we fortify cereals with missing vitamins and minerals, but we now can improve the protein of cereals by fortifying with missing protein components, and this can be done in two ways.

It can be done either by adding the amino acids that are deficient, or by adding protein concentrates such as dried milk, say, or fish. Amino acids are chemicals, they are powders, they can be made synthetically, they can be added in small quantities, so that you don't know they are added.

There is a bread on the market that you can buy in Washington, D.C. that has lysine added, and you would not know it to look at it; the only way you know it is that it is so stated on the label. The protein quality of that bread is perhaps doubled over the protein quality of ordinary bread.

That does not mean anything to anyone who makes a sandwich, with meat and cheese, or chicken, or fish, but it does mean something to a person who makes a sandwich with jelly, because now he is getting much better protein out of that bread. That kind of a bread is now being marketed in India. It is called "Modern Bread" and it is being marketed in every large city in India. Of course it is making a small impact in India as yet, but it is a new idea, and people are even buying it by the slice, just to get a little extra nutrition.

At the risk of being called a medicine man, I am going to take out some samples and show them to you, because I think it is one thing to talk about abstract ideas, it is another thing to show you things that are real, that either in an advanced stage of development, or are being commercialized or commercially tested.

Pasta in its many forms of macaroni, spaghetti, and the like is one of the really broad-based foods. There is hardly an ethnic group anywhere in the world that does not have this kind of a food in its dietary.

One can add soybean protein to pasta to increase the protein content and improve the protein quality, and reduce the strain on people who just don't get enough of the good foods.

I think, Senator McGovern, that you will be interested in this next one because it is an outgrowth of what you started.—The Food-for-Peace program developed a corn-soy-milk mix that has been sent in hundreds of millions of pounds all over the world, to feed children. It is a flour. It is used as a gruel. What I am showing you here is the second generation. General Foods—they are still experimenting with this—have made macaroni that looks like any other macaroni, but

with corn, soy and wheat. It has twice the protein, twice the protein quality. It costs no more.

This is the kind of thing I am talking about, when I talk about fortification.

And therefore, I would say that as a matter of strategy, if one were looking at a way to improve the diet of people who need help, that the first thing one could ask is, "What can I do in terms of fortification of existing staple foods?"

The second point is that we ought to look at new foods. New foods are being developed all the time. As the American food industry flexes its muscles, it has higher and higher technological capability, and it develops new foods. But it develops for the middle class, mostly, which is the large market. And the foods then sift down to other people, the poor, the aged, the children, and pregnant women.

What can you do to help them? Well, this is perhaps a philosophical question. One can say that you should tell them to have more meat, milk, and eggs.

There is no question that these are very good for them. They ought to have them. But it is also well known that if you give a poor child an extra dime, he will buy a soft drink. Now you have two alternatives. You could punish the child for buying the soft drink and wasting the dime, or maybe you can try to put something in the store that is going to compete with that soft drink, and maybe he will like it, and buy it, and maybe it will do him some good.

You can argue the question of character in children, and what one ought to do. We are not discussing character at this meeting. We are discussing nutrition; the only issue that interests us is what we can do in terms of nutrition.

I think that we can learn some tricks from what is happening overseas. The next exhibit is something from Hong Kong. We all know about the Hong Kong flu, but maybe we don't know as much about Vitasoy.

This is a soybean drink which contains protein. It has been on the market for quite a few years. This is not a toy, or an idea. It has 20 to 25 percent of the soft drink market in Hong Kong. It is marketed by Mr. K. S. Lo, and it is quite successful.

Any child who drinks this certainly gets more nutrition than if he drank something that just has sugar in it. This is something that is making an impact in Hong Kong.

This attracted the attention of the Monsanto Co., who have decided that this ought to go other places. They are now getting ready to market test a drink called Puma, which is a soybean drink. They are planning to market it in Guyana, Guiana, and perhaps in other Latin American countries. The Agency for International Development has been helping them look into Brazil as a place to market it.

Some of the food companies have not gotten help from us. They have done it on their own. One of these is Saci which is being market tested by Coca-Cola in Brazil. It contains vitamins, and it contains soy proteins; it is a chocolate drink. I don't know how well it will go. This is in the testing stage now.

To complete the picture the Agency for International Development has encouraged Pillsbury to market-test a dry drink, that you just

put in a glass of water. It is called Frescavida; it is a protein drink, that would furnish 7 grams of protein per glass.

These are not just ideas, and I have mentioned just a few. Some of they are commercial, as Vitasoy. Some of them are being market-tested, some of them are still in the design stage. But we are not talking about abstract ideas.

We are talking about things that are being done overseas. I would imagine that ideas such as this are being considered for this country, because they certainly have relevance, wherever they are.

There are many who say that food habits don't change, that you can't sell nutrition. That is not so. Food habits are changing. You can sell nutrition. It is just not easy to do it. It has to be attractively packaged. It has to taste good. But if it does taste good, then added nutrition is an extra plus.

These new drinks are becoming sort of hybrids. They are neither soft drinks nor health drinks. They are sort of both.

I would like to make one point, Mr. Chairman, that I think must be made all the time. You cannot develop a poor man's food, and make it practical. This has been tried. People have tried to take the cheapest way of making good nutrition, and give it to people as a way of solving the problem.

But people, no matter how poor, no matter how hungry, have just as sophisticated tastes as the rest of us. They like things that taste well, and they like to eat things that other people who are not so poor eat. These drinks that I have shown you are expensive. But that is a plus, at the beginning. The price will go down in time. But its present price may be a plus at the beginning, because this means something that you like to aspire to.

I will never forget a sign I saw in Jamaica, that read, and this was all over Jamaica: "You don't have to be a rich man to enjoy a drink that millionaires prefer." This was an ad for Schweppes Bitter Lemon. This was in all the slum areas of Jamaica. I think that it illustrates very clearly the notion of what motivates people to eat and drink.

The CHAIRMAN. Isn't it a fact, Dr. Altschul, that to talk about a cheap protein food is a contradiction in terms? There is not any cheap protein, is there?

Dr. ALTSCHUL. There is not any, with this exception, Senator McGovern, the fortified foods. These are no more than a few percent more in cost. The bread I was talking about costs no more than 2 percent more. So the only way to really get cheap foods, and to obviate the problems of its being poor man's, because it is something they are always eating, is to fortify major foods.

Protein is expensive. Protein is much more expensive than calories, much more expensive than grain, much more expensive than tapioca, let's say.

The next point I would like to make is how do you get the food industry involved in these new products. They have an obligation to their stockholders to run a business that makes a profit, and so they must justify what they are doing.

We faced this problem 3 years ago, when we sought to get some of these companies interested in developing new foods in foreign countries, where there is a food problem.

And we found that the U.S. Government had to provide a grant to make a market test of the food and to test the prototypes.

NOT MUCH MONEY

The Agency for International Development gave 10 companies about $60,000 a piece for this. This is not a very large sum of money, compared with the resources the companies themselves have put into it. But this is what it took to get them interested. We are not yet far enough along in this program to find out whether these companies will make an investment or not in a new food industry.

Mr. Chairman, I testified before on this subject and I noticed a feeling of hesitancy about supporting the food industry in new foods.

I have never been able to understand this position, because, as a government, we support many private efforts for socially important purposes, whether they are for military purposes or the space program or whatever. I have never been able to understand why the food program deserves this hesitancy. So I have looked to see if there are any other programs that might be similar to the food programs that are now being supported. I would like to submit that there is a food program that gets enormous support, and well deserved. In the period of 1951 to 1968, the Office of Saline Water received appropriations of of $210 million for its program of developing ways of desalination of water. This money has been used for such objectives as developing new technologies and putting up pilot plants, and operating them. Many of these contracts have been given to private industry, which has the particular know-how.

I would like to submit that sweet water is a food, just as much as these beverages are. You can't drink salt water. You can't raise animals on salt water, and therefore you can't raise animal food. You can't irrigate crops with salt water. The support of an effort to make sweet water out of salt water is just as much a food effort as the support of an effort to design a drink that might be useful for specific food purposes.

I would think that the old people are a specific challenge. One of the things common to old people, and I am afraid this is going to be common to poor people in general from some preliminary data that are coming out, are poor teeth.

They would like to chew on a steak, but they just can't. They don't like the kind of foods that they have to eat because they are poor and they can't chew. Many food people have told me that it would not be an impossible trick to design attractive foods for people with poor teeth.

This is a challenge that ought to be worked on.

To go ahead with some of the other things, I think that we need quantitative information on the extent of the problem. People have asked time and time again What is the extent of the problem?

We know that there are hungry people in the United States. We have seen pictures of malnourished people, but do we know whether it is 1 or 10 or 20 million people? We have no way of knowing quantitatively except by certain trends and inferences the exact nature of the problem.

We might guess or we might try to draw inferences from the relative infant mortality in some counties as against others, but these are just inferences, because we don't know the relative role of food and medicine in infant mortality in those specific counties.

While it should not stop us from doing anything, we ought to proceed as quickly as possible to find out what is going on.

What is the extent of the problem, and what progress are we making?

We should not inaugurate a program, and not make provisions to measure what it is doing.

We must select the smallest number of models needed, models of poor rural people, models of poor urban people and so on, so that perhaps we can multiply from these models and get an idea quantitatively of the extent of the problem.

The work that is being done by the Public Health Service is certainly an excellent beginning. One ought to look at this program to see how much more must be done to be able to extrapolate and get a quantitative measure of what is going on nationwide.

I think we ought to have some way of watching this all the time. We have a Council of Economic Advisers that submits periodically reports to the President, on the state of our economy. We ought to have some sort of a council that submits periodic reports on the state of our health.

And then I would expect that we could adjust in an intelligent manner, and not just either spend too much or too little.

I would like to put in a plug for nutrition research. There is a lot known about nutrition. Certainly enough known to go ahead, but it would be a mistake to say that we know everything. We certainly don't. We don't know, for example, all that we should know about the relative reversibility and irreversibility of effects of malnutrition. What are the economic effects of malnutrition? What are the various genetic differences in a population and how do they affect malnutrition?

And therefore, I should think that we ought to have a more elaborate research program on nutrition, and within the government this ought to be coordinated between the various departments that are involved. Statements about the state of our nutrition ought to be coordinated, before they are issued.

At the end of the written testimony, I put down certain things that maybe ought to be given priority and might be done quickly. I think, for example, the first thing is, as funds permit, to put a food program in every county and independent city. This has been Secretary Freeman's ambition, and this certainly ought to be done, as quickly as possible.

Second, I think we ought to give priority to vulnerable groups. You just can't do everything, and therefore, you have to do what you can for the highest priority elements. The priority elements in our society, from the point of view of nutrition, are the infants and preschool children, and the pregnant and nursing women.

There are other priority elements, the aged and the sick, and the adolescents, but I would say the top priority elements are the preschool, the infants and preschool children, and pregnant and nursing women.

As a result of this consideration, the Department of Agriculture inaugurated very recently a program for these vulnerable groups. I would like to read from a statement made by Secretary Freeman that is in my written testimony:

> We are distributing a special supplementary food package to new and expectant mothers, and to infant and young children in low-income areas. These

supplementary foods include evaporated milk and corn syrup for formula making, iron-enriched baby cereal, and fortified fruit juices. These foods are being distributed through health centers and clinics virtually as though they were part of a medical prescription.

I would like to emphasize the point that it is a part of a medical prescription. If a doctor thinks that the patient needs extra food, or needs it for the child, this is the only issue.

I should point out Mr. Chairman, that this program can be planned equally for counties that have commodity programs, and counties that have stamp programs. It has just started. It is just in a few places. It ought to be expanded as rapidly as possible.

I should point out that there was considerable cooperative effort between the Departments of Agriculture, Health, Education, and Welfare and the Office of Economic Opportunity in getting this program started.

The school lunch touches 19 to 21 million children. It ought to be as modern as possible. It ought to take advantage of the latest developments in food distribution.

There are changes in food distribution. Many restaurants are now using frozen foods more and more as a way of getting uniform quality at the lowest possible cost.

If we are to get these school lunch programs available to the children who need it, then we have to get them in places where there are no kitchen facilities, and provide them at lower cost.

It is not necessary to have a kitchen to be able to have a school lunch program. One could use convenience foods and just have heating elements in the school, or alongside the school, to provide a lunch.

I see no excuse for not having a lunch in any school because of lack of facilities. And therefore, it would seem that every effort ought to be made by demonstrations, by publicity, by calling attention to the successful efforts in certain parts of the country where this is being done, to speed up the effort to get this idea across to the school districts that need it most.

I should think that protein fortification might start with fortified pasta of one kind or another.

We should increase our education efforts, to use the extension services for the purpose of educating the poor people in rural and urban communities more efficiently.

It would be a mistake, though, to give the impression that all this is easy, that there exists a panacea, that there is a simple formula.

We have to be as smart as possible. We have to use animal protein, chicken and meat and milk and eggs, wherever we can, as efficiently as possible.

We should use fortification, we should use new foods as needed, we should use new delivery systems wherever possible, use education, use every possible way to increase the efficiency of our program, and be flexible, to change it.

With that kind of an approach, the problem of getting the food to the people can be solved in a reasonable time. I am not talking about the basic reasons why people don't have food. Those are basic problems that will take a much more heroic effort to solve, but the problem of getting food to people ought to be soluble in a reasonable time.

Finally, I would like to emphasize again the basic reason why we are interested in feeding people in the first place. There may be many

reasons. There may be moral reasons and ethical reasons, and medical reasons, but I would like to emphasize the fact that if we do not solve the hunger problem, then I don't expect that we can solve anything else for disadvantaged people for they will not be in good shape to learn or to work properly.

I think that is all I have to say, Mr. Chairman.

The CHAIRMAN. Well thank you very much, Dr. Altschul, both for your oral statement and the written statement, which you submitted. Your prepared statement will be placed in the record at this point.

(The prepared statement of Dr. Altschul follows:)

PREPARED STATEMENT OF DR. AARON M. ALTSCHUL, SPECIAL ASSISTANT FOR INTERNATIONAL NUTRITION IMPROVEMENT, USDA

I. INTRODUCTION

The focus of this testimony is on the role of modern science and technology in resolving the problems of hunger in the United States. Great strides have been made in the fields of nutrition and food technology, both in knowledge and application. New foods are appearing regularly but, more importantly, the capability to convert available commodites into a wider and wider variety of food forms has expanded greatly and continues to expand. There is no reason why we shouldn't expect this new technology to provide unique solutions. Twentieth century problems require twentieth century solutions; outmoded ideas and patterns can hardly hope to cope with the modern day complex problems.

The prime agent for application of these new technologies is the private sector. The private sector has had a part in the development of the basic knowledge, but, primarily, it has utilized the basic knowledge to provide the expertise for new food applications. No attempts to develop viable and permanent solutions to the food problems can succeed without involving the talents of the private sector.

Many of us have been interested in food problems in developing countries. Now, as we turn to the domestic scene, we find much in common in both the application of technology and in dealing with food problems arising from underdevelopment. Hunger and malnutrition know no national boundaries. The food problems of poor people in underdeveloped countries and in underdeveloped regions of developed countries have much in common.

II. FUNDAMENTAL OBJECTIVES OF DOMESTIC FOOD PROGRAMS

Before going into detailed discussions of things that might be done, it might be well to restate the objectives of food programs (or what might be a National Food Policy) in their simplest and most all-inclusive terms.

(*a*) *No one must go hungry or be malnourished.*—This is a fundamental right of every American citizen. Although there may be quarrels with assessment of needs or with methods of cure, no one argues with this basic premise.

(*b*) *Hunger or malnourishment must not be a deterrent to economic development.*—This is not redundant with the first objective. Not only must people be kept from starving, but they should have enough food *of the right kind* so that they may learn and work to their maximum capacity. It is well known that people who lack sufficient food cannot learn well, work well, or endure as well as people adequately nourished. Some of these setbacks are temporary and can be reversed by making food available again. But food deficiencies during infancy often interfere permanently with physical and mental growth. No program of economic development which depends so heavily on learning and performance can succeed in the face of such handicaps.

(*c*) *The American diet must provide for optimum health throughout life.*—This is the ultimate continuing goal. As our knowledge of nutrition and medicine improves, we find more ways of preventing certain diseases and curing others through adjustments in diet. These steps are made easier by our ever-improving versatile food industry. Conversely our changing habitat introduces new dangers to health. Insofar as these effect our food supply, we must be continually on guard and modify our foods accordingly.

III. ELIMINATING HUNGER AND MALNUTRITION

The following may be considered elements of a program to cope with hunger and malnutrition in the United States:

(*a*) *Provide enough food.*—Ultimately, the objective is to improve economic circumstances to the point that the need for food aid is eliminated. Until then, for those who cannot afford enough, food must be provided either directly or through funds to purchase food.

If enough food becomes available, hunger is eliminated. But there is no guarantee that malnutrition will disappear as well. Malnutrition is the deficiency of one or more essential nutrients. Even when there are enough calories there may be a deficiency of protein, of some vitamins and minerals, or of a combination of these. No amount of food lacking these ingredients will overcome these deficiencies.

The problem of providing a family with a good diet is much easier if adequate quantities of animal products such as milk, meat, eggs or fish are available. But poor people afford these foods less; hence, it becomes more and more difficult to provide a good diet with the foods that remain available.

(*b*) *People must be taught how to use food most efficiently.*—Man does not instinctively select foods to avoid malnutrition. He must be taught the rudiments of nutrition—that there are calories and proteins, and vitamins and minerals. And he must be taught to select foods to meet his requirements. This is nutrition education. Where there is a great variety of foods available for selection and where there are adequate funds, malnutrition can be avoided as well as hunger when we know how to use the foods properly. This is what most of us do.

But this is more difficult for the poor as pointed out earlier. The good protein and the trace nutrients are more easily found in the more expensive foods. Quality of food goes down with lowering income; the chances of selecting a good diet even with education are less when there is less money to spend on food.

(*c*) *Foods must provide maximum nutritional impact.*—Since money alone and education alone do not guarantee freedom from malnutrition, we must manage to put maximum nutrition into the major foods. This is the principle of fortification and enrichment of foods with trace nutrients— amino acids, vitamins and minerals. Common foods such as cereal products and milk can and are carriers for trace nutrients. Good nutrition should not be left to chance; the normal diet can be boosted to be adequate in quality so long as there is enough of it. The extensive processing involved in the normal food chain provides the mechanism for fortification: it is no problem to include fortification along with other processing—the technology, institutions, and logistics are all there.

Fortification and enrichment of foods is not a new idea at all. It is over 25 years ago that bread flour was fortified in the United States with vitamins. Vitamins A and D have been added to milk for many years. The addition of iodine to salt is another way of eleminating a trace nutrient deficiency by means of a common carrier. *The new breakthroughs in fortification are that modern technology has provided means of adding yet other trace nutrients, so that it becomes possible to make foods complete as sources of nutrition.*

Recently it has become possible, for example, to add vitamin A to wheat flour. The problem of protein deficiency is easier to handle because small amounts of deficient protein ingredients can be added to the cereal foods, thereby converting them into sources of good protein. The addition of $\frac{2}{10}\%$ of the amino acid lysine to wheat flour converts the flour into a much better protein. Hence bread made from such flour is immensely better as a source of protein. Such a fortified bread, Modern Bread, is widely sold in new bakeries in India, lysine-fortified bread is available in the United States.

Therefore, there is no longer any excuse for protein deficiencies or any trace nutrient deficiencies just because people cannot get the foods which commonly have these nutrients in adequate supply.

Enrichment and fortification may be temporary measures until the economic circumstances improve so that more expensive ways of getting nutrition are open. But another way of looking at this matter is to consider that good nutrition can now be achieved at relatively low cost. Then, if any one wants more aesthetics in food, he can spend more money to get the aesthetics starting with an established floor of good nutrition.

(*d*) *New foods should be developed to meet specific needs.*—New foods are continually being created by industry to supply and develop new markets. The food habits are changing as the result of new technologies and the needs of

modern living. But the new foods are designed to meet the needs of primarily middle income groups who are the majority of the consumers. These foods are available only in a limited way to the poor people; or if poor people use them extensively it is at the expense of their ability to purchase other needed foods or living necessities.

Why can't foods be designed to fit specific needs? Foods particularly attractive to children and adolescents—candies, snacks, beverages—could be made more nutritious and could indeed be helpful in overcoming malnutrition. Poor children do not differ from others in their desire for these kinds of foods. Why not enter lower priced nutritious foods in competition with the ones they now buy which offer limited nutrition? Elderly people with poor teeth and poor appetites, who live under social conditions which do not promote good eating, could be helped by designing foods that are attractive and easy to eat, yet are competitive with foods they now buy.

It is argued that it would be far better to teach children good food habits than to give in to them and convert candies into nutritious foods. Certainly nutrition education must be continued and emphasized. And we would not quarrel with the need to build "character" into children. But our objective here is good nutrition; that must be the only guidepost. So let us emphasize education but also utilize all other options to achieve the desired goal.

When we speak of technically designed foods for special purposes we must add the caveat that we do not intend this to mean poor man's foods. There are no such things as poor man's foods acceptable to poor people.—What we mean are foods which have attractiveness and yet are lower in cost and more easily reachable by the poor people. As far as we can see there are no poor man's automobiles yet there is a wide range of options in price from which to choose. This is what we mean in foods. We would like to increase the range of options of foods that can be enjoyed and yet provide better nutrition.

It has often been said that food habits are most difficult to change, and indeed they are. But it is wrong to infer that food habits have not changed. We have witnessed in our own generation enormous changes in food habits; witness the increased consumption of Chinese and Italian foods. The whole idea of convenience foods is a new food habit; instant breakfast type foods are remaking breakfast habits. The Japanese have shifted since World War II from an exclusively rice diet to one which contains significant quantities of wheat products. The same has happened in many parts of India. Cola drinks which can be bought all over the world are an entirely new food habit.

You cannot change food habits willy-nilly. But if the new option is an attractive one and makes sense economically, then the food habit definitely can and is changed.

Similarly it has been said that one cannot sell nutrition. This is another myth. The vitamin industry is testimony. The low calorie foods which have sprung up in a matter of a few years into a major industry are a demonstration that you can sell nutrition, in this case a lower content of calories. The increased consumption of foods advertised to contain added vitamins and minerals is more evidence. There has been a major shift in the consumption of unsaturated fats compared to saturated fats owing, in part, to the increased concern about the relationship of serum cholesterol to the incidence of heart disease. This is another illustration of how nutrition has influenced people's eating habits.

When nutrition is presented in an attractive way, it is a factor in the purchaser's decision. It may not be the primary factor but it is a most imporant factor, nevertheless.

(*e*) *The role of the food industry.*—We have already pointed out that the food industry has the technical expertise to design new foods and that in fact it has been bringing new foods on the market regularly. The problem may be stated as follows: How can the food industry be encouraged to design foods for special groups and for social purposes. It is recognized that any food, no matter for what purpose, must ultimately be profitable. But it is also recognized that there may be a differential in the rate at which a venture becomes profitable when one deals with limited classes and limited objectives or with new ideas, than with proven approaches.

We faced this problem a few short years ago when we undertook to interest the American food industry to design new foods for production and marketing in developing countries where there is a protein problem. We found that most companies which had the technical competency to participate in such a program requested grant aid to study the market and test prototype foods. The sum of

money required were relatively small but were needed to induce management to free scarce technical personnel for such projects.

As a result of our discussions with a number of food companies, the Agency for International Development brought out an experimental three year program for the development of protein foods. Presently nine companies are engaged in studies in seven countries to design foods tailored specially for the needs of each country. A description of the present status of the program is given in the following table. On the average, about $60,000 was the amount of grant funds given for market studies and product evaluation. The companies themselves contributed their technical resources and the research and development necessary to produce the new products.

The objective of this program, however, is not to produce more reports but to provide the companies with the opportunity to determine whether they can make an investment in these new food programs. This program has not been going long enough to enable us to evaluate the success of this effort to generate investments, nor do we know if any additional government incentives may be necessary to tip the balance in favor of investment.

Not all of the companies have required government assistance. Some of them like Quaker Oats in Colombia, Coca-Cola and Corn Products in Brazil, General Foods and others have not been given assistance. Even so there has been a close relationship between government officials and personnel of many of these companies. We are not prepared to say how much this cooperation helped and encouraged these companies to go ahead. Actually, it would be a mistake to try to keep books to establish some kind of credit for the government. It is more important that a close working relationship be maintained between government and industry, flexible enough to take advantage of the different needs of the various companies.

The experiences in foreign countries would seem to suggest the pattern that may be evolving in this country. It would seem that certain companies will need financial inducement to get started and that others may start without financial inducement but might require some later. Obviously, financial support cannot be provided on a permanent basis; we believe that only the pioneers will merit initial support. Once successful models are available of economically viable foods that are particularly useful to the income groups that need them, other companies may come in without additional help.

We believe that a lasting solution to the food problems of hungry Americans will come by raising their income. This solution will be accelerated by providing a broader base of food options. The food industries can not only contribute to new foods but they could develop new industries, find new jobs, and could possibly contribute to other aspects of rehabilitation of unerdeveloped areas in the United States. *That they may need some initial support is not an unusual departure from other efforts in the United States to use the facilities of the private sector for advantage to the citizenry at large.*

(*f*) *Know the extent of the problem and evaluate the effect of counter measures.*—Although there has been considerable discussion of the problem of hunger in the United States for the last several years, there is still no clear cut information on the extent and severity of the problem. It is not possible to develop a program designed to meet needs at the lowest possible cost on the basis of the information now available.

Every effort should be made as quickly as possible to develop an assessment of the problem. The studies by the Public Health Service on selected samples of populations in certain geographic areas are an excellent step in the right direction. These have to be extended as necessary. Moreover, a continuing program must be developed to monitor representative samples of the American population, not just the poor alone, to determine the state of health and the trends in our health picture. This country needs to know the health and nutrition pulse just as it needs to know the economic pulse.

We must also be able to measure what we are accomplishing by the various programs. What is the effect, for example, of school lunches or of special foods for infants and mothers? These are not easy questions to answer; nutrition is one element of the well-being of people, but there is also medical care, housing, clothing, sanitation, etc. What is the best mix to achieve maximum good at lowest cost? These are problems that epidemologists have wrestled with; new methodologies need be developed. We cannot act on faith alone, we must know what we are achieving.

Once such information gathering programs are operative, it becomes possible to adjust the food programs, up or down, as the situation warrants.

NEW PROTEIN FOOD PROGRAM OF THE AGENCY FOR INTERNATIONAL DEVELOPMENT

Region country	Company	Date of contract	Product	Raw materials
El Salvador	Pillsbury	February 1967	Protein beverage powder. Comes in 3 popular flavors	Sesame seed, wheat germ, and sugar.
Brazil	Krause Milling	March 1967	Traditional food, "fuba" fortified with soya	Corn and soya.
Do	Monsanto	June 1967	Soya beverage bottled as soft drink	Soya and sugar.
Do	Swift	April 1967	Milk-like beverage dry mix	Soya and nonfat dry milk.
Do	do	do	Textured soy protein in sausage-type food	Soya and others.
Tunisia	International Milling	May 1967	Traditional staple food "couscous," fortified with high-protein wheat fractions	Wheat.
Kenya	Del Monte	June 1968	Beverage	Soya or other oilseed protein.
India	Dorr-Oliver	December 1968	Cottonseed protein concentrate practically free of gossypol. Flour can be an ingredient of human foods.	Cottonseed.
Pakistan	General Mills	June 1968	Textured oilseed protein products or sauces	Soya and cottonseed.
Thailand	Archer-Daniels Midland	August 1968	Textured soy protein foods	Soya.
India	Swift	July 1968	Similar to their Brazilian project	Soya and cottonseed.

(*g*) *The need for additional research.*—As we look harder at the needs and at programs developed to meet the food needs, we become more aware of the inadequacy of our nutritional information. We need to know more about what constitutes nutritional adequacy, more about how this is affected by genetic and environmental factors. We need to know precisely the damage, reversible and irreversible, to various age groups when they are exposed to malnutrition. We need to know how to be more flexible about improving nutrition at the lowest possible cost. Therefore, hand in hand with the practical operations of food programs there must be more research to acquire needed new information.

IV. SOME ACTIVITIES DESERVING MORE EMPHASIS

We have come a long way in our efforts to stamp out hunger and malnutrition in the United States. In an announcement made public on December 10, Secretary Freeman summarized some achievements and announced new programs:

He announced a liberalization of the Food Stamp Program which will improve benefits to more than 500,000 persons.

He pointed out that the Department has increased the variety of foods offered under the commodity donation program from 5 in 1960 to 22 today; that the Department has one or the other family food assistance programs operating in areas where more than 85 percent of our population lives; that food programs are now in operation in the 1,000 lowest income counties in the nation and that the USDA is helping pay local costs in 186 of these counties and is actually operating the donation program in 49 counties where the local governments have refused to do so even with USDA financial help.

He further stated:

"We did just recently add another 235 areas to the Food Stamp Program. When we get all of these into operation, we will have well over 3 million people in 43 States and the District of Columbia participating in the Food Stamp Program. Added to these are another 3.5 million low-income people who are receiving donated foods under the Direct Distribution Program.

"In 1968, we made a real break-through in funding for the food programs for needy children with a special $45 million appropriation to provide free or reduced price lunches. For the first time, we are in position to really move out and reach hundreds of thousands of additional children in urban elementary schools and remote rural schools.

"We are distributing a special supplementary food package to new and expectant mothers and to infants and young children in low-income areas. These supplementary foods include evaporated milk and corn syrup for formula making, iron-enriched baby cereal and fortified fruit juices. These foods are being distributed through health centers and clinics virtually as though they were part of a medical prescription."

These programs for vulnerable groups are now operating in 56 areas.

But there can be no satisfaction until hunger is eliminated and there can be no letting up until this is accomplished. In the Secretary's words:

"So long as we are blessed by the Almighty with food abundance, such abundance that at times it threatens a decent income for our farmers, the existence of a single hungry American is a contradiction of the American Dream—and our Judeo-Christian ethic."

The obvious first priority is to extend food programs to new areas, as necessary. In addition, there are certain aspects that might be emphasized:

1. Vulnerable groups

Rodney Leonard, the Administrator of the Consumer and Marketing Service, recently announced the new distribution of special foods for infants and mothers. It operates through health centers; upon prescription by the physician, the mother may obtain infant foods or supplementary foods suitable for pregnant and nursing women. *This goes directly to the most vulnerable groups; it strikes at the most likely victims of hunger or malnutrition. This program should be extended as rapidly as possible.*

Similar programs might be considered for other vulnerable groups, particularly the aged.

2. School lunch

There is a ferment in the methodology of institutional feeding. New technologies such as freezing, originally developed for convenience foods, are now being used in restaurants, and in business and institutional feeding units. There are savings

in equipment costs, space, quality control, and labor. *School lunch feeding does not differ in principle from any other kind of institutional feeding;* the school children could be beneficiaries of any savings in cost of the lunch or by extension of lunches to schools which do not have adequate kitchen facilities.

Consideration of such innovations by individual school districts should be accelerated. This can be done, in part, by establishing pilot demonstrations in typical schools and by conducting simulation studies of the costs of the various options. There is no need for such a great diversity in practice as now exists.

3. Fortified cereals

There is a need for a cheap, readily acceptable protein fortified cereal for inclusion in the food distribution program. This would minimize the danger of malnutrition arising from incomplete or imperfect utilization of the distributed foods. Pasta (macaroni, spaghetti, and the like) fortified with soybean protein is well suited for this purpose.

Demonstrations should be undertaken immediately in several locations to determine acceptability and value of such an addition to the food program.

4. Nutrition education

This is a fundamental support to all food programs.—This has the capacity for multiplier effects so that the funds now spent on food will be utilized more efficiently. It should be expanded as rapidly as can be done efficiently.

V. CONCLUSION

No panacea

It would be criminal to suggest that there is a single panacea for all the food problems or that a single approach will work for all geographic areas or for all ethnic groups. It is only by the combination of the various approaches discussed above that viable solutions can be reached. It is not unreasonable to expect that if adequate effort is given to the problem of eliminating hunger and malnutrition in the United States, that this problem should be reduced to a minimum level in a few years. This does not mean that the permanent solution will be attained, but, a least, the people affected will be in a better position to participate in other activities aimed at raising their economic level.

The basic issue

We cannot emphasize often enough the central role of feeding programs in the entire complex of development.—It is not enough that we save lives, important as that is. It is not enough that we improve health and minimize medical expenses and demands on the limited number of doctors and dentists, important as that is. It is that we have undertaken to improve the lot of the underprivileged by making it possible for them to compete in this complex society, to be self-sufficient, to be taxpayers. This means education from the day of birth; this means competitive performance at every stage of life. Any money spent on improved education or improved opportunities for employment is a mockery in the face of hunger and malnutrition. Hungry and malnourished people cannot perform up to their maximum genetic capacity. Even if this disability is temporary, it is bad enough. But, as we mentioned earlier, there is evidence that damage in infancy is not reversed later. Temporary or permanent impairment of learning and performance are a social and economic drain which we can ill afford when our greatest national asset is our human resources.

The ultimate issue

But, perhaps, the best argument of all is that hunger and malnutrition are an affront to the American concept of the dignity of man.

The CHAIRMAN. I notice in both accounts, you are describing our national food policy, or what it ought to be. You began with a statement that no one must go hungry or be malnourished. Now that is not the present policy of our Government, is it?

Is that—is there any agency of the United States that has been authorized to say that no one in this country shall be permitted to go hungry?

Dr. ALTSCHUL. I stated it explicitly, because I think it should be stated as explicitly as often as possible. I have heard it said in many speeches. I have heard it said in Secretary Freeman's speeches, and

I quoted him in my written testimony, that he would consider hunger of any person, any one person, an affront to our whole system, but I don't know if it has ever been put down as a specific policy.

The CHAIRMAN. Well, if that were the policy of the Government, there would not be much point in these hearings. If we had already accepted as a matter of national policy that no American should be hungry or malnourished, there would not be much point in conducting an investigation to determine the extent of hunger in this country, and what we could do about it, would there?

Dr. ALTSCHUL. No, that is right.

The CHAIRMAN. You think that should be the guiding principle——

Dr. ALTSCHUL. Yes, sir.

The CHAIRMAN (continuing). Of our Government, this should be an accepted policy of the United States, so that no citizen of this country should be permitted to suffer from hunger or malnutrition?

Dr. ALTSCHUL. Yes, sir.

The CHAIRMAN. Well, I agree with that, and I had not seen that stated anywhere as the official policy of our Government.

Dr. ALTSCHUL. I am not sure that we have an official policy on nutrition. One of the things that I think ought to come out is an official policy, not only for nutrition of disadvantaged people, but an official policy for nutrition in general.

One of the purposes of government might be that everyone has the best chances for a long and healthy life, as far as his food supply is concerned.

The CHAIRMAN. Do you think it is accurate to say, Dr. Altschul, that there are large numbers of Americans suffering from malnutrition or hunger or both? I am talking now about millions of Americans that are suffering from what you would consider a serious malnutrition problem?

Dr. ALTSCHUL. I can't on the basis of what I know or what I have seen, give you a number. That is my problem. I have seen reports. For example, there was a report published about the Roxbury district in Boston, which showed malnourishment. I have seen other reports, but I have seen no systematic kind of information that would allow us to extrapolate to the number.

I would think that we can say that it is a serious problem.

The CHAIRMAN. Would you say that it is even serious that we don't know?

Dr. ALTSCHUL. Indeed. Indeed, it is a reflection. It is a reflection on our information systems, and our information gathering, that this is not part of it.

The CHAIRMAN. I noticed what you said about the importance of doing more on the fortification of foods. You point out that we have virtually eliminated vitamin deficiencies in the United States by fortifying milk, bread, and other basic food elements. Is it feasible to think in terms of eliminating protein deficiencies in this country by using the same method, fortification of basic foods?

In other words, are we talking about a problem here, that is roughly commensurate with the problem we have already largely involved with reference to vitamin deficiencies?

Dr. ALTSCHUL. About 10 years ago, there was an effort to put lysine into bread, as part of the Federal standards. This was defeated, be-

cause there was no evidence of general protein deficiency at that time and, therefore, it was felt that the whole population did not need it.

I would say that if all of the good foods were distributed throughout, we have plenty of good protein in the United States now to take care of everyone. I am talking about good protein from milk, meat, or eggs. But as a temporary expedient, at least, I would think that the introduction of fortified foods in the commodity program would speed up the elimination of hunger, protein malnutrition, in those recipients.

I am not quite so clear as to a mechanism of doing it in the stamp programs, but I would think that the availability of fortified foods in the groceries where stamp recipients purchase food would help improve the food situation.

The answer to your question is that whereas we cannot justify total fortification of everybody's bread or pasta, because most of the people in the United States do not suffer from protein deficiency, we can justify specific tailored fortification of food most likely to reach the affected people, and this surely would eliminate protein malnutrition.

The CHAIRMAN. Well, I think it is quite clear that if we are going to solve the nutrition problem in the United States, or the malnutrition problem, we have got to have the cooperation of private industry.

I met with Mr. Hal Dean, chairman of the board of Ralston Purina, who is chairman of the new task force of the Grocery Manufacturers Association that is looking into this problem of what they can do in the private sector to improve the nutritional content of our foods.

I know you have had a lot of experience in talking about—with private industry people, Dr. Altschul. What do you see as the problem in enlisting greater cooperation and initiative on the part of the private industry people, on the fortification of food items?

What are the economic and the built-in problems that they have which make it difficult for them to move ahead?

Dr. ALTSCHUL. I guess, Mr. Chairman, it is a matter of cost. Let's take the question of fortified bread. Fortified bread will cost 2 percent more.

And unless some provision is made to finance that, or one can get general agreement that this is going to be done, it won't be done. I just don't think it will be done just by itself.

The CHAIRMAN. It takes some Government seed money.

Dr. ALTSCHUL. I think so. I think this is the problem in all of them. I don't know for sure what it would take. For example, we put money in this—Puma—to help the manufacturer look at it in Brazil. We put money in this one—Frescavida—but we did not put any money in the Vitasoy development and we did not put any money into Saci. Maybe someday we may have to. We have helped these companies in other ways. I think that we have to be prepared to seed.

The CHAIRMAN. Was there Government money involved in the vitamin reinforcement of foods, when you get bread and milk now that says vitamin D added, or vitamin C?

Was that done under Government prodding, or did the private industry move ahead on their own?

Dr. ALTSCHUL. The private industry moved ahead, and passed on the cost to the consumer. I should point out that the cost of vitamin fortification as against protein fortification is about 10 percent. That is, the vitamins are that much cheaper.

The CHAIRMAN. So it is a much more expensive operation.

Dr. ALTSCHUL. It is more expensive. It may be that in time, protein fortification will decline in price; I would expect that; but it will still be of a higher order of magnitude of cost than vitamins, and so, if you pass that on to the consumer, that will cost money.

Someone is going to have to figure out how to do it, and people will have to be encouraged to select the more expensive bread as against the less expensive bread.

The CHAIRMAN. Is it the cost of the protein itself that is responsible for that 10-to-1 ratio or the processing or the development of it?

Can you give us some indication?

Dr. ALTSCHUL. It is the ingredient cost.

The CHAIRMAN. Ingredient cost.

Dr. ALTSCHUL. The vitamins as against amino acids, or vitamin as against a source of amino acids like soy or fish flour, are 10 percent of the cost.

The CHAIRMAN. Because you said a while ago, protein is just an expensive food in any form.

Dr. ALTSCHUL. That is right.

The CHAIRMAN. Are there rules and regulations, to your knowledge, Dr. Altschul, within Government agencies, that make it more difficult for high-protein foods to be developed?

For example, I was told here recently that hot dogs, or frankfurters, are consumed in enormous quantities in this country. There is a USDA ruling that 3 percent of the ingredients can be in the form of cereal. And that the soybean people—that is, the soy products people—have offered to put in a soy product to take that 3 percent allowance that would be much more nutritious, a great deal more valuable in terms of the protein content than cereals, and that they have been unable to persuade the Department of Agriculture to classify soy meal as a cereal.

In the first place, do you note that as a fact, in that specific instance? Are there other things of that kind where we have interpretations that make it difficult for us to improve the protein value of food?

Dr. ALTSCHUL. My impression is that you are correct in that specific instance of cereal versus soybeans, but I don't know for sure.

There are standards that permit just a limited amount of other materials into, let's say, meat products. I think it ought to be pointed out that these standards are there for a good reason, that they are there to protect the consumer against adulteration.

The CHAIRMAN. In that case, you would not be protecting the consumer, if you deny him a high protein food that would taste just as good, and use that as a substitute for cereal.

Dr. ALTSCHUL. I would think that there may have to be a reconsideration of standards, and reconsideration of other ways of approaching the problem. As you know, Mr. Chairman, it is now possible—I have talked about beverages. I have talked about texture, in the case of cereals. It is also possible to introduce texture in protein products such as soybean products, and then they can be added to conventional American foods, or anybody's foods, not affect the esthetics of these foods, and lower the cost.

And I would think that this is something that will take place

sooner or later. I would hope that when it does take place, that care will be taken to be sure that the standards can be monitored properly, and that all consumers will benefit.

Twenty-five years ago I don't think it would have been possible to add many of these products to foods, and make something that people would like, or would want to eat.

So we are facing a new problem now because of the advances in technology, which have made possible consideration of new ideas and new standards.

The CHAIRMAN. Just one other question, and then I want to let other members of the committee have an opportunity to question you. What is the difference in value between animal and vegetable protein?

Does it make a lot of difference?

Dr. ALTSCHUL. Nutritionally?

The CHAIRMAN. What difference does it make in terms of the individual, whether he gets his protein intake from animal proteins or vegetable proteins? Are they interchangeable as far as the nutritional value is concerned?

Dr. ALTSCHUL. Proteins are composed of components called amino acids. There are about 20 amino acids in proteins. The amino acids are divided into two groups, essential and nonessential. The nonessential are the kinds that you don't have to get in your food because they are produced in the body from other food ingredients.

The essential are the kinds that must be supplied in the food. Eight of those 20 amino acids are essential for man. When you and I eat protein, we are really eating the protein to get our daily dose of the essential amino acids and of nitrogen for production of the nonessential amino acids. If one of these essential amino acids is out, or deficient then the protein effect is reduced.

It makes no difference what the source of the protein is, if you get those essential amino acids in the right concentration. It so happens, because animal protein is so much like our own protein, that when we eat animal protein there is no problem. We get the essential amino acids automatically. That is why, if a person has a sufficient amount of animal protein in his diet, it is really unimportant where the rest of the protein comes from, because he has his quota of essential amino acids.

I should point out a very important point. You don't store amino acids. You have got to get them every day. If I got a lot of protein today and I get none tomorrow, I don't get much credit for what I got today on tomorrow.

The CHAIRMAN. On that point, you talk about animal proteins, would that apply equally, let us say, to red meat or to fish, or to poultry?

Dr. ALTSCHUL. Yes.

The CHAIRMAN. It does not make any difference.

Dr. ALTSCHUL. No, more or less.

The CHAIRMAN. One type of meat is as good as another.

Dr. ALTSCHUL. Yes, just as long as it is digested, it does not make any difference. They are all good. What is called the best in the world is egg protein. That is the standard. It is called a hundred on scale of protein values, and all of the other animal proteins are in the range of perhaps 85 to 100.

The vegetable proteins, let's say the cereal, proteins, are deficient in one or more amino acids.

Wheat is deficient in lysine. Corn is deficient in lysine and tryptophan. Rice is deficient in lysine and threonine. That is why I said you can improve by fortification. All you have to do is add that lysine back to the wheat. If you add enough, you can approach the quality of animal protein. So the answer is that you can convert vegetable protein to be equally nutritious to animal protein, if you balance it properly, or supplement it with the missing amino acids. To give you a real example. The animal food industry, which is very smart about feeding animals, poultry, or swine, and they are as sensitive to new nutrition as we are, originally required animal protein in their feed mixtures, until they understood all the nutrient and all the vitamin requirements. Now they can raise a pig or a chicken, on totally vegetable protein, because they can mix several sources of vegetable protein to get the proper mix of amino acids. And if there is still some deficiencies such as methionine, let's say, in some of their mixtures, they add it. They got to the point now where they put it on a computer. Depending on the price of soy bean, or peanuts or cottonseed meal, or corn or sorghum, or methionine, they can blend it any way they want to achieve protein quality.

The CHAIRMAN. It occurs to me if we can do that for animals, we certainly ought to be able to do it for humans then.

Dr. ALTSCHUL. There is one additional thing about humans which we must never forget, and that is esthetics. You just can't stop with a nutritious mixture; you have to go one step further. You have to put it into a food that people will like to eat.

This is an additional problem, and this raises the cost.

The CHAIRMAN. Senator Mondale?

Senator MONDALE. Thank you, Mr. Chairman.

I wish to commend you, Dr. Altschul, for your very useful testimony. May I ask—perhaps this was commented on before I came in—what your position is with the Department of Agriculture?

Dr. ALTSCHUL. I am a Special Assistant for International Nutrition Improvement. I am concerned primarily with the problem of improving protein nutrition, in the developing countries.

Senator MONDALE. So you are a specialist in the area of improving nutrition, but your duties require that your efforts be assigned to world food problems, and not to domestic food problems.

Dr. ALTSCHUL. That is right.

Senator MONDALE. Does the Department have a Dr. Altschul that is concerned with domestic nutrition problems?

Dr. ALTSCHUL. Speaking for myself, as a nutrition consultant to the Secretary, I was asked to look at our domestic food program from the point of view of what we learned from our foreign programs.

Senator MONDALE. How long has he been abroad? How long has he been with the Department?

Dr. ALTSCHUL. I would say that I was involved for about a year in this informal capacity.

Senator MONDALE. How long has there been an expert in your position, in this, assigned to foreign food problems?

Dr. ALTSCHUL. Three years.

Senator MONDALE. Three years. So now in your testimony on the dynamics of fortification, efforts to enlist the domestic food industry

for new types of food products that would be highly nutritious, acceptable to the users, you list an entire table here of new protein foods that have been developed in recent years.

I note that many of them are Minnesota firms—wherever there is genius, usually there is a Minnesotan at the top of it. Is there any comparable program for devising protein foods and unsnarling the acceptability problems, the distribution problems for the hungry in America?

Dr. ALTSCHUL. Yes. This was done by informal discussion with people in the Office of Economic Opportunity. This took place about 9 months ago. We brought to their attention this table that you have in the testimony. It was suggested that they might want to consider a similar program in the United States, and they began to consider it.

About 2 months ago, they issued a public invitation for bids. I was very much interested in the fact that about 30 companies, some of them listed in that table, who have sort of cut their teeth on the foreign program, but many others, put in bids for support. I understand that the Office of Economic Opportunity is now considering giving a certain number of these grants on a similar basis for the United States.

Senator CLARK. Would the Senator yield for one question?

Senator MONDALE. I would be glad to yield.

Senator CLARK. I am wondering, Mr. Altschul, how the Agriculture bureaucracy got itself in a situation where you developed this new protein food program for your international development activities, and apparently did nothing about the equally serious problem domestically, and finally, the Office of Economic Opportunity, according to your testimony, picked it up and it is doing it.

What is the matter with the Agriculture?

Dr. ALTSCHUL. I don't believe I am the one to answer that question, sir.

Senator CLARK. That is a good bureaucratic answer. We will try to get the Secretary.

Thank you, Senator.

Senator MONDALE. Well, now, you say there is a beginning program funded by OEO to enlist the technology of the private food industry in the United States to the solution of domestic food problems, particularly related to hunger. How well financed is that?

How much money do they have? How does the funding for that program compare for—with that for international food problems, as it relates to new food technology?

Dr. ALTSCHUL. I can't answer that directly. I would say on the basis of what I know that the financing is strictly for demonstration purposes. It is a small amount of money they are talking about.

Senator MONDALE. Do you have any notion, or can you make a rough estimate of how much money is involved?

Dr. ALTSCHUL. My guess would be that it is of the order of a magnitude of half a million dollars.

Senator MONDALE. What is the magnitude of the program which you administer?

Dr. ALTSCHUL. Well, this particular program that you have on that page is not much more. We are talking about $60,000 for nine companies.

Senator MONDALE. But there is a follow-on in the AID program that does not exist here. In other words, if they develop a product like CSM, to which you referred earlier, it may mean a market of millions and millions of dollars through AID's purchased goods, a highly profitable market.

Am I correct?

Dr. ALTSCHUL. That is right.

Senator MONDALE. Now, CSM was developed not for domestic use.

Dr. ALTSCHUL. No.

Senator MONDALE. It is a high-protein gruel which is now used around the world to deal with nutritional problems of starving children elsewhere, but not for our own, and it is not only a product that has been established, it is a very desirable market for American food processors.

Am I correct in that?

Dr. ALTSCHUL. Well, the market is to the U.S. Government.

Senator MONDALE. Well, let me put it this way: There is a tremendous amount of competition by the American food industry to develop foods which would attract the attention and support of the AID program.

Am I correct?

Dr. ALTSCHUL. Yes.

Senator MONDALE. Is there any similar program in the Federal Government that excites the interests of the domestic food industry to meet the food problems of the poor in our country?

Dr. ALTSCHUL. I don't know of any. May I just comment on one of the samples, a corn macaroni? This is really an effort to develop a CSM second generation for the American people. I should point out that we have been going up and back between foreign and domestic food efforts; you just can't divide technically or in your brain the foreign program from the domestic program.

This thing here—corn macaroni—started with our pressing General Foods for something in Brazil, and they are looking at it in Brazil. But I also understand that they are market testing it in certain areas of the United States where it might be beneficial.

Senator MONDALE. And as a matter of fact, one of the difficulties in food technology is acceptability. In other words, you can design a food that is classic in terms of protein, but a particular population group may not use it.

Dr. ALTSCHUL. That is right.

Senator MONDALE. They may refuse to use it.

Dr. ALTSCHUL. That is right.

Senator MONDALE. We have had cases in our foreign food program where we designed the perfect food. And starving people will have nothing to do with it, even though the alternative is starvation.

Dr. ALTSCHUL. That is right.

Senator MONDALE. So one must apply a great deal of pure research and adaptations, adaptive research, to design a food that is both adequate and acceptable.

Dr. ALTSCHUL. That is right.

Senator MONDALE. But we are not doing that, except in this beginning, modest program which OEO started 9 months ago for our own people.

Dr. ALTSCHUL. That is right.

Senator CLARK. Would the Senator yield for a brief observation?

Senator MONDALE. Yes.

Senator CLARK. I would like to the attention of my Republican colleagues. As this investigation proceeds, I hope the committee on both sides of the aisle—and I shall not be here much longer—will give careful thought to Dr. Jean Mayer's testimony of yesterday, indicating the philosophical difficulty with having the Department of Agriculture administer a program for hunger. It is not set up for that purpose and consequently in my opinion it has fallen pretty badly on its face. That was called to the attention of the Secretary, as long ago as the spring of 1967, that there was hunger.

In other words, they did not want to admit it, in the second place, they were of the view that it was their job to get rid of surplus food products. They became immersed in the problem of chiseling who would get food stamps possibly for free.

This is really a welfare, not an agricultural problem and I hope the new administration will give serious consideration to that, because I think we can through the activities of this committee, work out a real program to deal with hunger, in America, but I don't think we are ever going to get it done through the Department of Agriculture.

Senator GOODELL. Would the Senator yield?

Senator CLARK. Yes.

Senator GOODELL. I would just like to thank the Senator for his observations. As you know, I have been at this for some time also, and I feel very deeply that the Department of Agriculture is not constituted so it gets priorities and focuses on the needs of the people, but under their mandate. I would say that the gentleman from Pennsylvania and I would butt our heads against the wall for some time on both sides of the aisle, and I don't expect we are going to be in the promised land just because we have changed administrations; we have people in both parties who are very much concerned about keeping these programs in the Agriculture Committee, and keeping it in the Agriculture Department for other reasons.

I certainly will carry on that crusade that the Senator from Pennsylvania led so effectively in my own way, the best I can, and I know others will.

Senator CLARK. I will agree with the Senator from New York.

Senator PERCY. Will the Senator yield?

I would also like to concur with my colleague from Pennsylvania. I think that not only in respect to this program are we now clearly demonstrating we do not have the types of foods needed by the poor, but that it is also scandalously true that, in respect to our foreign aid program. There is a great deal of cynicism abroad about the type of food we send abroad. There is full knowledge that types of food are not selected necessarily for humanitarian reasons but rather to relieve ourselves of the out-of-balance condition we have, where we produce certain foods based on the amount of political pressure that is put on a particular surplus situation. The same thing is true, and I think it is an equally scandalous situation, in our school lunch program.

Schoolchildren who should have a nutritional balance are not given it, because the surplus foods that are made available to schools will not provide that balance.

It is perfectly ridiculous to keep the administration of these pro-

grams in the Department of Agriculture. If we are going to have a school lunch program, or a hot breakfast program for poor children, it ought to be placed in the department that will see to it that the children get what they need; not what we need to get rid of because of the surplus programs in agriculture.

Senator MONDALE. I think one of the issues which admittedly we must grapple with is the whole question of Department jurisdiction. I guess in fairness to the Department of Agriculture, if one would judge the adequacy of any other human program by the same standards we are now asking of nutrition, you would find the other programs we have equally if not more deficient, education, health, the distribution of health services, in this country, is a national scandal.

So that I am afraid that there is not going to be any immediate, quick, secret, and inexpensive answer to this problem, simply by transferring it from one department to another, and I think the real decision here is that all of these human programs is for the Congressmen, who are finding fault with the executive, for the Congress to realize that it is fundamentally at fault for not providing the substance which permits these agencies to deliver the services then to those who need it most.

I am on the Housing Committee. We have an annual charade up here about how we are not getting enough housing to the poor, and then when the appropriation process comes along, we authorize dreams and appropriate peanuts. Before we assault everybody down at the other end of Pennsylvania Avenue, let's share a little of the blame here ourselves, and come up with a program that makes sense, and not only that, give it the substance that permits these administrators to deal with the most need where it is found, and with the poorest poor.

I think there is more than enough blame for all of us here, and we all ought to be ashamed of our performance.

The CHAIRMAN. Would the Senator yield at that point?

Senator MONDALE. Yes.

The CHAIRMAN. I think since Dr. Altschul is here, we ought to make it clear that he is not testifying today for the Department of Agriculture, but that he is here as an expert on the problems of nutrition, and with special reference to protein foods.

We will have Secretary Freeman here sometime around mid or early January, and also Secretary Cohen of the Department of Health, Education, and Welfare.

I do think this colloquy is very helpful.

Senator MONDALE. Well, Mr. Chairman, what I was seeking to establish is something that has become obvious to me in my office, and I am sure to you in yours, and that is that there is a very elaborate and sophisticated structure in the Department of Agriculture and in the Agency for International Development, dealing with food technology and the distribution of foods to the starving and those food-deficient nations receiving our help.

We did not go into it here, but there is, I think, a Committee on Food Technology under Dr. Santi in the Department of Agriculture or in AID which is probably the finest assemblage of specialists in the world on this whole problem of food technology and distribution and acceptability, and so on, which panel reviews all of the proposals from the private food sector, and I don't think there is a similar effort

in the domestic hunger problem, and if there is, there is not the follow-on of an attractive profit opportunity for American industry, which is obviously the reason and the only justification why most of these industries, which are profitmaking industries, can bother to undertake the effort, and I would hope this is one of the matters that we would explore.

Now, you mention again, as did Dr. Mayer, the possibility of the use of the Extension Service to help us with domestic food programs.

I think this is something we ought to explore, too, Mr. Chairman, because the Extension Service has a home management component, which has for years and years helped, not the poorest poor, but families understand dietary problems, and home management problems, and so on.

Could this program be expanded to make that same kind of service available in the home?

For nutrition, education, and health and assistance to the deprived families who have these nutrition problems? I would hope we would explore that as well.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Goodell.

Senator GOODELL. Thank you, Dr. Altschul. I appreciate very much your testimony. There are just two or three things I would like to explore with you. To what extent is the Department of Agriculture now expanding moneys either from grants or directly to fortify foods that are now in surplus commodities?

Dr. ALTSCHUL. I would say that there is considerable fortification with vitamins of some of the foods that are now being distributed.

Senator GOODELL. Vitamins?

Dr. ALTSCHUL. Vitamins. Fortification with proteins or amino acids is now being considered in some pasta products. Just now. But vitamin fortifications, I would say, is quite extensive. The fortification with iron is also quite extensive.

Senator GOODELL. We have talked about the preference of the eating public, particularly those in need of better nutrition.

How would you characterize our surplus foods as compared to the desires of the people who need the surplus foods? Desires for specific commodities and products?

Dr. ALTSCHUL. Well, I would say that milk, milk powder, or any milk products—milk protein—are certainly a very desirable, very desirable product for anyone.

It may be that some change has to be made to improve the emulsifiability of dry milk powder to put it into solution; people might not know how to use ordinary milk powder, and maybe we have to improve it. But I would say that milk protein is an excellent source of nutrition.

Senator GOODELL. I must say I think you misunderstood me. I mean the desires of these people for types of food. Will they eat it, or not?

Dr. ALTSCHUL. Will they eat milk?

Senator GOODELL. What is the extent of these commodities, the kinds of commodities that the poor desire in their diets?

Dr. ALTSCHUL. I would say that by and large, the commodities that are being distributed to the poor are things that they will eat and desire. My problem has been with the flours, the wheat and corn flours, which maybe are not used as much as possible by people who don't know

how to bake them or use them. That is why I have been trying to get a more sophisticated product into the program.

It is not easy to put bread, for example, into a commodity program, because bread is not stable. But it is easier to put something like fortified pasta into the commodity program.

I don't think we are far away from things that they desire. I think we must make adjustments, but I don't think we are far away.

Senator GOODELL. In other words, you are hopeful, with the right effort, that we could convert present surplus commodities into palatable food that would be desirable to the poor.

Dr. ALTSCHUL. Yes, sir; exactly.

Senator GOODELL. Don't you think we ought to have a real crash effort in that respect?

Dr. ALTSCHUL. I would hope so.

Senator GOODELL. Well, we talked about this for so long now, I am beginning to get a little discouraged. We have the commodities in surplus, we apparently have the technology to convert those commodities into palatable food that the undernourished poor in our country will eat, but we are not undertaking this program. Is there anything underway?

You say they are considering fortifying with protein?

Dr. ALTSCHUL. Yes, they are considering it.

Senator GOODELL. I wonder. We are going to be attacking the Republican administration and the Agriculture Department very shortly. Perhaps this committee could not, on a bipartisan basis, do something to push this faster, since in the last 2 years, when I have been involved in this controversy, we have been talking about it the whole period of time. The Secretary of Agriculture testified last spring, once again, that ample surplus commodities exist to feed the known undernourished poor in our country, but we don't seem to be doing anything to convert them.

I don't expect any answer to that question.

Does that pasta you have there taste like the kind of food that is now popular?

Dr. ALTSCHUL. Mr. Senator, I brought some extra samples, and I would be very happy to give you one to take home. My guess is that it tastes just as good as anything else.

Senator GOODELL. Well, it tastes good; but does it taste like what they usually eat?

Dr. ALTSCHUL. Yes, sir.

Senator GOODELL. The question is, is the flavor close to it? You know, little differences in taste make quite a difference.

Dr. ALTSCHUL. That is right, and people are very sensitive. The food people are pretty smart about getting foods to taste good, and I would think they are approaching it.

Senator GOODELL. Let me attack another phase of this, Dr. Altschul. I am concerned about this problem of the extra cost of fortification and how private enterprise gets involved in doing it.

Now we have some commodities where there is a requirement that they meet minimum specifications, with fortification. I guess bread is an outstanding example of this. When this is done, it is my understanding that your private producers want control, they want to see that

it is enforced, and because it is going to cost them extra money to fortify the bread, they want to know if their competitors are also putting the same amount of fortification in.

Is that not correct?

Dr. ALTSCHUL. That is right.

Senator GOODELL. But most of our commodities are not controlled in this respect by the Food and Drug Administration. Is that not correct?

Dr. ALTSCHUL. That is right.

Senator GOODELL. The vast majority of food commodities that we eat are not controlled by Food and Drug except for the quality and safety?

Dr. ALTSCHUL. Yes.

Senator GOODELL. Not certainly by nutritional standards of fortification?

Dr. ALTSCHUL. That is right.

Senator GOODELL. The question has been raised a number of times that we should permit a sort of minimum fortification of certain commodities on a regional basis, rather than a national basis.

Dr. ALTSCHUL. Yes.

Senator GOODELL. Do you have any thoughts about that?

Dr. ALTSCHUL. I think that is the way it is going to go. As I pointed out earlier, there was an effort at fortification of bread with lysine, 10 years ago or so, but such standards were not approved, on the grounds that there was no evidence for a nationwide protein problem.

If you look at the average figures for the United States, we have a surplus of protein. I don't think that the situation is any different now, in the sense that if you were to fortify all of the bread, in all of the United States, that you could justify the added cost to everybody. Therefore, I would think that regional approaches—and I am not sure how to do it, it is not easy—but I would think that regional approaches might be the best way to do it.

Senator GOODELL. Well, I agree with you, that we should be at least experimenting with this. We would have difficulties, when you get into the urban ghetto areas, I presume, on how you are going to require fortification of products that are sold in the supermarkets and the grocery stores in those areas and not required in the suburbs or other areas of the city.

Certainly, you could, in certain regions of the country, recognize that there was a general deficiency of nutrition in that region of such proportions to justify a minimum fortification requirement.

Would you agree?

Dr. ALTSCHUL. Yes, I would.

Senator GOODELL. Now the further problem which you alluded to in Food and Drug Administration is, among other things, charged with the responsibility to see that the American public is not duped.

There seems to be a pretty strong philosophy there that the American public often is duped by fraudulent claims which state that a certain percentage of iron, or vitamin, or protein, is required, in which 99 percent of the people buying the product get their substances in ample amounts in other foods. It is not necessary. Is that not basically an approach of the Food and Drug Administration?

Dr. ALTSCHUL. That is right. That is a consideration.

Senator GOODELL. And they, in effect, are saying the American public should not subsidize the overfortification for 99 percent of the people, in order that 1 percent get the fortification they need in their diet. This comes down to the question, again, of a poor man's food.

In effect, if you are requiring overfortification for 95 or 99 percent of the American people, you are converting this poor man's food into a general food for everyone and making the American people pay for it.

It would appear to me we could arrive at more selective ways of taking the same product and fortifying it. For those who are deficient in their diet, take the same—basically the same—product, but they would get the extra fortification.

Now, there would be some marginal overlap, I am sure. I wonder if it would not be feasible for the Federal Government through a grant program—a contract program with the private food industry—to develop foods such as you have displayed before you, let their imaginations run wild, and make these foods available with a subsidy for the extra cost, on a general basis, particularly in those areas of great need.

For instance, if we could subsidize the distribution in areas where you have a very high percentage of impoverished families—I think the food industry is very good at salesmanship and promotion.

I would not be surprised if given that start, you would find many of these nutritious products take hold, and become very popular. Not a poor man's food at all, but a general food for the people, very desirable. What would you think of that?

Dr. ALTSCHUL. I think that unless this is done, we might not solve the problem. Unless we understand that some basic qualitative changes are required to help poor people until they can get an income sufficient to get the conventional foods, it may not be solved at all.

Senator GOODELL. The question that was handed to me here was: Can we get too much protein or fortification? Why don't you just answer that?

I presume that healthwise you cannot, but maybe budgetwise you can.

Dr. ALTSCHUL. I think that is the answer. There are certain vitamins, for example, vitamin D, that you may be in danger of getting too much. There are some medical problems, but in general, one can stand a reasonable surplus.

As far as protein is concerned, I think the budget is going to come into it, before anything else. Surely you can't just go overboard and do anything to an excess, but we have not reached that point.

Senator GOODELL. Well, following along this with Senator Mondale's question, it appears we are a long ways from excess in this particular area. We seem to have done virtually nothing, domestically, to develop these special products that might be popular, not only with the poor, but with the general public.

I think an awful lot of American parents might be happier if there children drank Saci, rather than Coca-Cola, or some other soft drinks that have no particular nutritious value.

I think it was some time ago that the Department or the Food and Drug Administration carried on a great deal of philosophical debate before they would require that soft drinks are fortified in any way,

and the decision came down that soft drinks should not be fortified, they should not be doing anything to encourage the consumption of soft drinks.

And we missed a great opportunity, I presume, to get fortified food and protein and other things, in the stomachs of our children.

Dr. ALTSCHUL. It is always a difficult question to answer.

We surely would like to encourage good food habits, and you would hope that eventually, as people's economic circumstances improved, we would be able to satisfy their nutrition with good food, and discourage the children from other things. But we are talking about an emergency situation, and a temporary situation, of getting people back on their feet, so that we can improve their economic circumstances.

Mr. Senator, I would like to temper your criticism of delays in getting the food industry involved into this domestic situation by pointing out that we are really dealing with something that happened in the last 2 or 3 years. If there has been a time delay, it was a very short time delay. Saci was introduced on a market test, just January of this year. Puma has yet to be introduced, maybe next month. So we are talking about things that are just now happening and we are not that far behind in time, in developing these foods.

Senator GOODELL. I appreciate your putting that in. I think we might have done it a lot sooner, had we had some programs to stimulate because the technology has been there for a lot of this fortification for a good while. Fortification has just not been economically desirable or approved particularly by our labeling requirements in the Food and Drug Administration, and there have been a lot of difficulties for the industry.

Just one more quick question, Dr. Altschul.

You have discussed the school lunch program, and the fact that something like 21 million youngsters are participating in the school lunch program. As I recall, 2 million of those are classified as children of poor families.

This is 2 million out of 6 million children, generally, in classification of poor families.

Do you have any recommendations as to how we can improve this record?

Dr. ALTSCHUL. Two. One, I think we ought to make every effort to reduce the cost of lunches.

Senator GOODELL. For everybody, or just for those that are——

Dr. ALTSCHUL. For everybody. There is no reason why we should not operate the school lunch program on the same basis as anyone operates a going business. It really is unimportant whether it is operated by the school officials or whether they contract it out to others, but it ought to be operated on the same stringent specifications as any business, as any restaurant business.

I have been in contact with a number of people who run very successful food restaurants as a business, who tell me that the future of their business lies in their using convenience foods, such as frozen foods.

I know of one company that serves food in New York and, prepares it in Virginia, ships it to New York, frozen. It is quality food, their customers are satisfied, and they are able to handle the economics of rising costs.

There is no reason why schools ought not to operate the same way.

Senator GOODELL. You said two things, and I don't want to divert you from the second, but you feel that a kitchen at the end of the line—a heater——

Dr. ALTSCHUL. Heating and distributing facilities.

Senator GOODELL. This concerns me a great deal.

Dr. ALTSCHUL. That is my second point.

Senator GOODELL. Because in all our hearings on school lunch, we found that the schools that needed the school lunch most often did not have it. These were the older schools in the slum ghetto or rural areas. They did not have kitchens, and cafeterias; this was their excuse.

Your new schools, built in the suburbs and the better areas of the country, have built-in cafeterias, and then they had the school lunch program in large amounts, but we end up with about 90 percent of the participants in the school lunch program being those who come from relatively affluent families.

Dr. ALTSCHUL. That was my second point.

Senator MONDALE. Would the Senator yield there?

Senator GOODELL. I would be delighted to yield.

Senator MONDALE. About a month and a half ago, I went to a small elementary area school in our small ghetto in St. Paul. They had a splendid cafeteria and a very balanced meal, hot, warm meal, salad, and about every fifth child could not afford it. One child, whom I will never forget as long as I live, I would say was about 6 or 7 years old and she had a filthy dress on, and she sat at this table amidst the other children eating their good meal, eating a chocolate cookie. She had a little dirty bag that she brought, her mother had sent, and there were two other chocolate cookies, and I asked the principal, how can this happen? Can't you subsidize?

He said, "I go around and I try to raise money from businessmen, so on, to subsidize, and that goes as far as possible," he said, "but we still don't have the money to pay for lunches when the families can't afford it."

He said, "Last year we had an OEO project where we could sell the lunches for 15 cents, but the money has run out, and it is now a quarter." If there is anything that just seared this issue in my mind, it was that disgraceful situation of this little child, and there are many more like her.

I assume there are millions like her in the country, that sit amidst their friends at lunch, while they have a decent meal, and they don't. It is a disgrace.

Senator GOODELL. I agree with you, Senator. This is under circumstances where we have the school lunch program. Unlike the food-stamp program, they authorize reduced costs, or free lunches; if there is enough money they are given the grant to do it. It certainly ought to be done, but what we have ended up doing, in many cases, is subsidizing the lunch for the general populace of the children, who can afford, perhaps, to pay more, and leave a lot of children out who cannot afford to pay anything.

Your suggestion, as I understand it, is to make it free for all children.

Dr. ALTSCHUL. I did not say that.

Senator GOODELL. I drew that conclusion. I did not mean to push you to that.

Dr. ALTSCHUL. I was talking technically, Mr. Senator. I am sure that the other considerations obtain, but I was thinking of two technical considerations: (1) Lower the cost, and (2) to the point that you brought up, there is no reason why food cannot be served hot, if you want it hot, anyplace in the world.

We serve it in every plane, and no one looks for the kitchen in a plane, and it does not take up too much space. I see no reason why in any of the ghetto schools there can't be a school lunch if modern technology is used.

Senator GOODELL. One final aspect of the school lunch program, it seems to me, is not utilized sufficiently. Could we not use these children to participate in the school lunch program much more effectively as an outreach into the families, in terms of nutrition education?

Dr. ALTSCHUL. Yes, indeed. One of the main points of the present school lunch program is to utilize the school as a means of education. Certainly it is another means. We also talked about the extension service that ought to be used.

The school lunch program ought to be used as a means of education. There are many countries in the world where it is the principal means of nutrition education.

Senator GOODELL. I wonder if it would not be important in this respect to encourage if not require participation of parents in school lunch programs. I don't mean that all parents participate, but that a program for school lunch, built into a parent participation program, particularly in your poorer areas.

We found, for instance, in the parent participation being a vital aspect in Headstart. The parents learned with the children. You avoid the gap between parent and child that develops if the child begins to learn things that the parent does not know. This also results in attendant psychological tensions.

And I wonder if there would not be a potential here for greater parent participation, coming in and participating in the school lunch programs, and understanding the elementary aspects of nutrition a little better?

Dr. ALTSCHUL. I quite agree. There is another point, and that is that the group that is most difficult to reach are the preschool children, the infants, postweanling infants. There are few institutional ways of getting at them. If you encourage parents to go to schools and participate, there is also an added possible benefit, and that is that you will develop another channel to get to pregnant women, to mothers, to infants, and I would certainly encourage that.

Senator GOODELL. I would hope also, in that connection, we are going to see a major blossoming across this country of day care centers for 2- and 3-year-old children, well below the Headstart age.

We are just beginning to have the services.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Senator Goodell.

Senator Percy.

Senator PERCY. Mr. Chairman, in the interest of our other witnesses, who are patiently waiting, I would like to say that I have enjoyed this

testimony and would just like to ask the doctor whether or not he is familiar with a report made by the National Council of Negro Women titled "Operation Daily Bread" which is a report of a workshop held in Sunflower County, Miss., in October of 1968.

Dr. ALTSCHUL. I am not familiar with it.

Senator PERCY. I would like very much, Mr. Chairman, to insert in the record at this point pertinent extracts from this report. The Council of Negro Women went down to Sunflower, Miss., held 3 days of hearings, and then started projects in three counties, Sunflower and Bolivar in Mississippi, and Macon in Alabama. These programs are related directly to the problems that we are dealing with, but they come to a somewhat different conclusion.

They say that people do need assistance and help in gifts of food, but they come to the conclusion that self-help is the best help.

Give a family some food, and they will eat several meals; give them the tools of production, and they will feed themselves. This remarkable program, by these very gifted women, was designed to provide seeds for planting, pigs for the raising of litters—even wires and posts for the penning in of pigs—and expert technical assistance on how people can provide more food in rural communities for themselves.

This, of course, is not applicable to the problems of the inner city, but a great deal of our poverty does exist in rural areas, and I think that these women are to be commended for their great consideration of the needs of the people in rural poor communities.

The hearings that they held were, I think, extremely interesting and helpful, and I believe all members of the committee would benefit, as well as members of the Department of Agriculture, from reading this report.

The CHAIRMAN. Senator Percy, without objection the document you referred to will be printed in the hearing record.

(The document referred to will be found in the appendix, p. 199.)

The CHAIRMAN. At the close of our session yesterday, Senator Goodell suggested that we also have printed written exchange that occurred several weeks ago between Drs. Pollack and Latham, and Mayor, and, without objection, that will be included in the hearing record.

(The document referred to is to be found in a following volume.)

The CHAIRMAN. Thank you, Dr. Altschul. We will proceed with the next witness.

Dr. ALTSCHUL. Thank you Mr. Chairman, and members of the committee.

(The following communication was subsequently received for the record:)

U.S. DEPARTMENT OF AGRICULTURE,
INTERNATIONAL AGRICULTURAL DEVELOPMENT SERVICE,
Washington, D.C., December 20, 1968.

Hon. GEORGE MCGOVERN,
U.S. Senate.

DEAR SENATOR MCGOVERN: I welcomed the opportunity to testify before the Select Committee on Hunger and Human Need on December 18 and to discuss our experiences with the private sector as we sought to interest it in developing new foods for special purposes. I tried in my testimony to reflect the sober concern of many of this Department for the problems of hunger everywhere and the need to do everything possible for the hungry in the United States. In doing this I was following the example set by Secretary Freeman who has always expressed great compassionate concern for the hungry and has urged us to do all that we can.

I was, therefore, aghast at the interpretation put by some of the press on the relative magnitude of our technical effort for the hungry in the United States. It is true that my position is that of Special Assistant for International Nutrition Improvement and that I was brought in by the Secretary to help improve the world food situation. He was concerned that the world food problem which affects peace and security was receiving inadequate technical attention at a time when most of the technical effort of this Department was devoted to domestic food and nutrition problems. As progress was being made in developing new commercial food programs abroad, the Secretary felt that foreign experiences would be helpful to improve our domestic food efforts, and encouraged me to become concerned in domestic hunger problems as well.

To infer from this that the Department has put less technical effort on domestic hunger is furthest from the truth. On the contrary, our scientific and technical effort on the domestic food problems far exceeds anything we have done in the foreign area. This program has been in operation since this Department was organized. Over 75 capable scientists and technologists in the Agricultural Research Service, the Economic Research Service, the Extension Service, and the Consumer and Marketing Service are concerned with this problem. Their efforts in nutrition research, in food consumption surveys, food economics, in food technology, and in education are a most authoritative basis for everything that is now being done. If by omitting to state this obvious and well known fact I have allowed a misconception to arise in some of the press, please let me hasten to put the record straight.

I, therefore, would appreciate it if you would include this letter in the record as part of my testimony.

With best wishes, I remain

Sincerely,

AARON M. ALTSCHUL,
Special Assistant for International Nutrition Improvement.

The CHAIRMAN. Thank you, Dr. Altschul, for your testimony, and we appreciate ever so much your contribution to the hearing.

Is Dr. Elam, of Chicago, in the room? I am going to ask Senator Percy to present Dr. Elam. Dr. Elam is here at the suggestion of Senator Percy.

Would you come to the witness table, Dr. Elam?

Senator PERCY. Mr. Chairman, I am very grateful for your calling Dr. Elam. Dr. Elam is the medical director of the Mile Square Health Center in Chicago. This is a health center operated with the cooperation of OEO, and under the jurisdiction of St. Luke's Presbyterian Hospital, which itself is directed by Dr. James Campbell.

It is an area involving 1 square mile, carved out of the center of a very low income area on the West Side of Chicago. It covers 25,000 residents, many of them on ADC, and has virtually every conceivable problem that we face in the inner city areas across the country.

Dr. Elam has worked intimately with the citizens of this community. He sees them in a perspective that I think could only be seen through his eyes. His testimony will not deal with just the nutritional needs of the poor, but—as our committee is directed to do—with all the human needs of the poor.

It is my own deep feeling that whereas the Kerner Riot Commission report points out jobs as No. 1 in the needs of poor people, closely related to the lack of jobs is the fact that the poor often don't feel well enough to go to work. If anyone doubts that, just go into a retail store or factory today in areas that are hit by the flu epidemic and see them trying to operate with a large proportion of the population away. Poor people get up in the morning and often don't feel well enough to be able to go to work. This is true for literally hundreds of thousands of the poor.

Their health needs stand as an important impediment to their ever being well enough to hold a job, and when they do go to work, their attendance and performance is affected by their lack of health care. I feel that to have a man who has dealt with this problem on an intimate basis where he has seen the needs of the poor on a daily basis will be very helpful to our deliberations.

He will present with his testimony a report made to him by Mrs. Earlene Lindsey, community organizer. I have visited with her and I know Mrs. Lindsey is a very gifted woman. I would like to read the last sentence of her report because there is a considerable dialog now as to whether programs for the poor should only come from the experts in Washington, from the top down, or whether we should continue the pioneering work that has been done to give the poor a voice in the programs that affect their own destiny. Mrs. Lindsey, who has spent her life working with the poor, ends her report by saying:

When plans are made to deliver health care to poor people, please listen to the poor.

I don't know of a better representative of the poor in Chicago than Dr. Elam.

STATEMENT OF HARRY ELAM, M.D., MEDICAL DIRECTOR, MILE SQUARE HEALTH CENTER, SECTION OF COMMUNITY MEDICINE, PRESBYTERIAN-ST. LUKE'S HOSPITAL

Dr. ELAM. Thank you, Senator Percy.

Mr. Chairman, first I want to express my appreciation for your having me here.

A little background for me. I have worked extensively, Senator Percy, in this West Side area since my medical school days, with the exception of 2½ years, when I was in Nigeria. At that time, in being in Nigeria, the University Hospital of Ibadan, Nigeria, there was a committee that came over that was part of USAID.

They were studying the nutritional needs of west Africa or Africa, should we say, specifically relating to Nigeria, and I thought how ironic it was, I just having left the West Side 18 months before, having seen the terrific survey that they did, and knowing little was being done for the poor black or white in the urban areas around the area of nutrition.

Senator Mondale has discussed, or made the comment a few minutes ago that health care for the poor is a national scandal. I would add that it is a national disgrace. Some Greek or Latin philosopher, thousands of years ago, said that a nation's resources is in its people. We have a lot of people that we need to get out and on with the business of nation building, and this is why I am here.

I apologize for not giving you the copies ahead of time, but due to circumstances beyond my control I was unable to comply with your request. So I brought them here with me this morning. I think you will be able to read through it and question me on it, however.

I think you will be able to read through it and question me on it, however.

The CHAIRMAN. You may proceed as you wish, sir.

Dr. ELAM. I shan't read this for you, but to take out some of the pertinent factors, for example, the background to the urban ghetto areas, which I am more familiar with, having come out of that massive institution in Chicago, which is Cook County, and knowing this particular area rather well. It is interesting, too, that many of the patients that we serve in our health center at present were formerly my patients at Cook County, so that when I walk the street, I am always greeted: "Hello, Doctor, I know you. You used to be my doctor at Cook County Hospital."

The background of the flight to the suburbs, and what replaced the urban white population is noted in the document.

In the field of social science, we learn that the poor behave differently from the middle class and affluent across a very wide spectrum of health care. Dr. Altschul, in response to a question—"How can we get to the pre-school child?"—said that he didn't know, or words to that effect, that one thought that maybe the families could be used. But the vehicle that you would have to use with the family would be an indigenous worker, to interpret to them what you are saying, so that as Mrs. Lindsey points out, in one of the numbers that she gave me, "We are tired of being researched to death."

These are her words. We have used a similar kind of vehicle when I was in Africa, because we had a similar problem of interpreting what one was trying to do with nutrition. What we did was to get the nurses, who were from the culture, who could express it, and assure the families that we were not taking away from the diet, but adding to the diet.

If you will look under the heading "Barriers" that prevent any effective delivery of care, nutrition, or health, one comes to a very interesting concept, and that is the attitude of the deliverer to the recipient. This comes across loud and clear, and I think the Office of Economic Opportunity is to be heartily congratulated for writing into its guidelines of operation that to have a citizens' advisory board, at least 50 percent of whom must come from the area that you are delivering the service.

Further on, a paragraph is taken from a report by Dr. Alonzo Yerby, in early 1967, I believe—the bibliography is in the back. I would just like to summarize what Yerby said here, near the middle of the paragraph:

* * * the health care of the poor is piecemeal, often inadequate, undefined, poorly organized, and without compassion or concern for the dignity of the individual.

Yerby has emphasized that we who are concerned with health care, and this would include nutrition, as Mr. Altschul has pointed out this morning, must find ways to escape the "poor law of medicine," which we are victims of also. He points out that this "poor law" is embedded in us from our colonial days, and as you read some of the testimony or the writings of learned physicians and other altruistic people in dealing with the poor before 1775, you will find this kind of theme running through.

In general, we have our poor bargaining their dignity for a service, and this creates a difficult problem for the deliverer, particularly if he doesn't know what he is about, since we are in a different kind of cultural context.

Referring to my statement: Another barrier is that which results from the impersonal, undignified, aloof atmosphere, so often seen in facilities that serve the poor—we are happy to add that Senator Percy has seen our operation, that the area in which we serve is very much involved in what goes on there, and woe be it to the person who does something wrong. I hear about it in 5 minutes, from the outside. Somebody calls me to complain.

Another barrier is the language problem—the problem of communication. This is a very rich subject all in itself, because the poor have a very different life-style. They are very vocal, and very expressive, and they talk in allegories, so that unless you are aware of this, it escapes you, and you really don't know what he is saying.

The classical wording for this is when you don't understand, from the professional standpoint, is "He is nonmotivated. He is hard to reach. He is hard core."

We have taken the atmosphere and the philosophy at the health center, of which I can speak personally, that there is no family in that area, however hard core he is, that we cannot reach in some way, without bargaining his dignity.

Another thing, Mr. Chairman, in the next paragraph, is distance. Whatever you are going to do, it has got to be close, because these people are oriented around their neighborhood. The reference point is the neighborhood. Six miles away, or 10 miles away, other than going to a hospital that will serve them, just is kind of out of their realm of thinking.

Lack of carfare: Fares just went up in Chicago, 40 cents each way. This means that a person going to a resource for anything, who lives at a distance, that he cannot walk, is going to spend, if it is an adult, 80 cents round trip. If you understand the economics of this, of such a poor family, this is really a hardship, particularly if a mother has to go twice in a week, just for herself—not to take into account the amount of money, half fare, that she has for any number of children that she has to take.

There are many other barriers that get in the way of the urban poor, on his way to seeking the health care, and I am lumping nutrition and economics and the things that Senator Percy has just pointed out. I might add that one of the things that we have found out about the health center, I have been told this: "You can do anything." The people literally believe that. It is rather interesting that they never question the adequacy nor the good health care that we give, but they are involved in asking questions like: "Where can I get a job? What is the barrier to getting the job? Can the educational standard be lowered, that I can get in it?"

So that economics and health and nutrition are intimately connected. In other words, I don't see how we can discuss poor, and my particular focal point is the urban poor, since that's where I am, without talking about the whole realm of things that you heard this morning: economics, education, nutrition, and the delivery of health care.

Nutritional problems in the urban areas. This comes again to my reference point of my stay in Africa, and here is the reference point. The Inter-Departmental Committee on Nutrition for National Defense is the one that was in Africa. I hear recently they have begun to concentrate on the urban areas. In discussing this with one of the staff

members, who is Dr. James Carter of the division of nutrition at Vanderbilt and was in Africa at the same place at the same time that I was, has given me some background. He tells me that mainly the nutritional problems in the urban areas were more or less documented on a biochemical basis. It has been left to Cravioto and that group, who studied the Indians outside of Mexico City, to come up with far-reaching conclusions that malnutrition associated with poverty or with illness and poverty had deleterious effects on the developing child. Now here again, half of our population in our service area, which serves roughly 25,000 people, are under 21, so you can see the implication of this; going back to "a nation's resources is in its people."

Then we come again to touch again on the kind of thing to ask about the school program, which is one example. How does the urban poor perceive its community health problems? How do they see it? Because it is one thing to build a structure, or to deliver a program, to not have it interpreted by the area residents, and wonder where they are. This particular work is done by our health educator. We employed this young man, who had done his study in the Altgeld Gardens, which is one of the oldest Chicago Housing Authority projects, which is about 20-some miles from where I work.

Further on, you will see some of their answers. They are just itemized there, and these were adults that were questioned. I have forgotten the exact numbers, but a copy of this thesis is in the Graduate School of Public Health, the University of Michigan, in Ann Arbor.

You can see what they object to. Some of the things you can do something about. Some you can't. But note in my statement under "B. Respondents' View Relative to Resistance Toward Medical Treatment," No. 1, fear. This is a whole gamut of things in the culture. Fear of being rejected. Fear of being treated dirty. Fear of anything. Fear of being turned away. Fear of bargaining his human dignity.

Last night was one of my meetings with a group of young men, young adolescents. The average age is about 14, I meet with a group of them that ranges from around 10 to 15 boys per session, and we discuss anything. We got on a discussion last night, which I didn't bring up, and it is apropos for me to tell you what they said, relative to delivery of health care. One of the young men says: "I would never go to county hospital, no matter what is done to me. First of all, nobody listens to you, and secondly, they treat you like dogs."

That's No. 1, Mr. Chairman, fear.

The long waits can be cut down, particularly if you put the delivery of health care in proximity to the area served.

Too much red tape. There is a report where people go, for example, to the large university or teaching hospitals, and get routed around. I read a report last night where an old man died at home for lack of care because he simply couldn't go to five different speciality clinics within the same structure. Nobody told him how to get there. Nobody explained the importance of it, and his words when somebody visited him in the report were: "To hell with it. They didn't want to help me, anyway."

There is another one that is rather interesting, which is cultural, No. 4, belief in faith healing. We don't have too much of that in our area, although there is one large structure which does go in for this,

and I believe we don't have too many of their people coming into the center.

Under "C. Opinion Relative to the Delivery of Health Services," I think you would be interested in No. 1, No. 2, and No. 3. This is what poor people say. They generally are not people with high school education. No. 1 is pertinent: "Health for everyone should be considered a right. Poor people are not treated with respect in private clinics, and they are treated rudely in public facilities." The author concludes that this study has not answered all of the questions, nor would one expect such.

However, one lesson remains crystal clear. While it may be perhaps our duty to help people help themselves to a better health, it is not our duty to make them over into our own culture. So therefore, we have to deal with the fear on their level, not how we perceive it.

In asking our community organizer, Mr. Chairman, since she is intimately involved with the community, too, and she is living in this area, first on the South Side, in the vicinity around 38th and Langley, 12 years before, and she has been in this area about 12 years, and she knows almost everybody on the street; I asked her to jot down how she saw this. It didn't have to be in any order, just number how she wanted me to deliver this, and these are her thoughts.

This is appendix 1. Notice that she is talking not about our health center, because we have one already. She is talking about any poor area. She is touching on the public schools there, with the contribution that they could make in the educational area, vis-a-vis health eligibility. And she specifically singled out New York because New York has a much more acceptable title XIX program than our own States does.

I would like to draw your attention to the third paragraph. It is a known fact that foodstuffs in urban poverty areas are more expensive than in middle-class or the affluent suburban areas. There are many families in our urban poverty areas who are not on welfare, but are medically indigent, despite a steady job. The take-home pay, however, isn't much more or much above that of a comparable welfare recipient. In fact, I have had this experience at the Chicago State Hospital, which is under the Department of Mental Health of the State of Illinois, where they had a difficult time in filling the position of laundry helpers.

In looking into this problem, why the jobs went begging, I was struck by the fact that a man or a woman could make more money on welfare than he could having a steady job. So it was really to his detriment to get a steady job, because his family suffered, because if he got off of welfare, the income went down, because the State didn't pay him.

I am only using this as an example, not to castigate the department of mental health, but to show you why people with jobs still need help and why we have the problems of nutrition that we have heard this morning.

Then one comes into the area of long-range planning, et cetera. Economics is beginning to come through, since in Mrs. Lindsey's report, the fifth paragraph is extremely important.

She also talked about our senior citizens. These are the people that are on medicare, and literally, we have a group of them that live in

what is termed "Sullivan House." Sullivan House is the senior citizens area in our particular group that is under the Chicago Housing Authority.

The only thing these people wait to do is to die. She was pointing out that in the total realm of health, we should in some way begin to see how we can make these people feel useful. Health needs for the poor includes mental health, and you cannot divorce that from economic security. You cannot divorce that from jobs. It is impossible to divorce it from education, and so I am using health in its broadest category, because that is the business we are about in the Mile Square area, and in the introduction of the paper, you will see the problem of fragmentation and what it does to your population.

Housing has been touched on.

No. 9 and No. 10, I think, are the gist of this discussion from our community organizer's standpoint.

I asked our dietitian, whom we do have on staff, is there such a thing in her experience as a low-income diet? She said that she was aware of one that had been put out by the U.S. Department of Agriculture. Maybe there were others, but she was not aware of any others.

And I said: "Would it work in our clinic area?"

And she said: "No, Dr. Elam, because for all practical purposes, the costs of supplementing this diet for a number of people in a family, in our particular service area, makes it a middle-income diet."

I think that the key to some of the effective delivery, particularly in the area of nutrition, to salvage our poor people, is going to be utilizing the indigenous worker, to interpret, to demonstrate, to plan, and follow up, on what we are about.

I have covered a wide realm of things in this brief discussion, but I wanted to give you an overall view, and tie nutrition into it as an aspect, because you simply cannot divorce it from the rest of what we are all concerned about.

The community sees us in a very fascinating way; as has been reported, they see us as giving good care, they see us as solving any problem, and particularly, they see us as solving some of their economic problems.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much, Dr. Elam, your prepared statement will appear in the record at this point.

(The prepared statement of Dr. Elam follows:)

PREPARED STATEMENT OF HARRY P. ELAM, M.D., MEDICAL DIRECTOR, MILE SQUARE HEALTH CENTER[1]

HEALTH NEEDS AND THE URBAN POOR

Introduction

The private practice of medicine in our inner cities has been declining steadily in recent years. Physicians in ever increasing numbers have left the area for the suburbs. The community areas served by the urban hospitals have changed.[2]

The distribution of physicians is clearly related to the racial and socioeconomic changes that are occurring in urban areas. The migration into these areas of both poor black and poor white people, and the flight of the previously white urban population has caused a steady enlargement of poverty areas in the cities. This

[1] Funded by the Office of Economic Opportunity.

[2] Lashof, J.: Editorial, "Medical Care in the Urban Center." Annals of Int. Med. 68, #1, January, 1968.

has caused a large discrepancy in available medical manpower between the poverty and non-poverty areas. This discrepancy is both quantitative and qualitative.

Studies carried out by the Hospital Planning Council of Chicago indicate that suburban hospitals draw the majority of their patients from the immediate surrounding community. Many of the urban hospitals draw from a minority of patients coming from the area in which the hospital is located. Much of this patient distribution is related to the economic and racial changes that have occurred in the area.

The differences in hospitals used by the poverty and nonpoverty groups is most revealing. Thirty percent of all admissions from the poverty communities in Chicago in 1965 were to Cook County Hospital. Among patients in one community fifteen miles distant from the Cook County Hospital, 47% of this community's hospital admissions were to the County Hospital. This is in sharp contrast to the broad base and level of care provided to residents of the non-poverty areas, among whom no one hospital accounted for over 4% of all admissions.

From the field of social science, we learn that the poor behave differently from the middle class and the affluent across a wide spectrum related to health care. Illness for the poor, is defined in different terms, when compared to the definition given by the middle class. The poor are less inclined to take preventive measures, and more often the delay is longer in seeking medical care. It appears that the people most in need of medical services are the ones who least often procure them.[3] This raises the realization that there are barriers that prevent the poor from seeking health care.

The barriers

When a review is made of the efforts that have gone into solving the health problems of the poor, we find many apparent solutions. For example, hospital out-patient departments have expanded, emergency room services have increased, board of health clinics have multiplied, and welfare medical care programs have been developed. With these impressive programs, why, then, do we still experience a crisis in health care for the poor?

The answer lies in the fact that, unfortunately, these monumental efforts have taken the form of piecemeal, uncoordinated, stopgap measures that were or have been designed to meet the most obvious needs of the moment. This has resulted in a complex range of facilities and disease-oriented clinics. When we look at what is available in our cities, we find prenatal clinics, well-child clinics, family-planning clinics, tuberculosis clinics, mental health clinics, etc., none of which are quantitatively adequate.[4] No one person takes the responsibility for coordinating the services delivered and/or evaluating the total health needs.

The basis of medical practices is a personal physician who takes responsibility for the total care of the patient, including preventive and curative services, coordination of specialty care and arrangement for hospitalization when indicated. This personalized care is more often that experienced by the middle class and affluent segment of the populations. Thus we have a dual system of care, one system for the poor and another system for the non-indigents. Yerby summarized the health care of the poor as being "piecemeal", often inadequate, underfinanced, poorly organized and without compassion or concern for the dignity of the individual. He has emphasized that we who are concerned with health care to and for the poor must find ways to escape from our tradition of "poor law" medicine for the poor that has been our inheritance from colonial days.[5]

In general, clinics and other out-patient health facilities, are organized from the staff point of view. This usually means that the main focus is on getting the work done. Seldom, if ever, is consideration given to ways in which patient visits can be made with the least amount of confusion. Add to this large build-

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[3] Yerby, A.: "The Disadvantaged and Health Care." Amer. Journal of Public Health 56: 5, 1966.

[4] Lashof, J., op. cit.

[5] Yerby, A.: Barriers to Utilization of Health Services. State-wide Conference on Barriers to Utilization of Health Services. New York State Public Health Association and Public Health Association of New York City, March 13–14, 1967.

ings, complexity and the permeation of an aloof, impersonal atmosphere, it is not too difficult to see why this is a barrier.

Another barrier results from the impersonal, aloof atmosphere, so often seen in health facilities that serve the poor. This barrier is in the area of communication between the "Staff" and the poor. The poor, with a rich and imaginative language, and also quite verbal, have a life-style that is more centered around personal contacts. In an aloof impersonal atmosphere, generally this personal contact cannot be cultivated. More often than not, he barters his human dignity when trying to seek health care.

Distances are important. A look at the way poor people tend to organize their lives reveals that the immediate neighborhood is the focal point as well as the reference point. Accompanying this are other barriers as lack of carfare, eligibility rules that are unrealistic, etc., all of which tend to discourage poor people, who seek health care.

There are many other factors that place barriers in the way of the urban poor, on his way to seek health care. The above examples are not intended to be all inclusive nor complete. Health problems of the poor are so intertwined with social problems that it is ludicrous to try to separate them.

Nutritional studies in the urban areas

Methods used in determining nutritional status have found wide application in nutrition surveys of developing countries throughout the world. These have been conducted by the Interdepartmental Committee on Nutrition for National Defense. These methods are now being applied to some of our urban areas, as this survey is currently under way. So far, available literature in the larger urban areas, particularly in cities like Chicago, New York, Philadelphia, etc. has reported the biochemical evidence of nutritional deficits in the poor.[6] A study by C. J. Woodruff, appearing in the Journal of the American Medical Association, 196:214, 1966, indicated that malnutrition has the same effects on biochemical criteria as malnutrition in children in developing countries. In other studies by J. C. Cravioto et al, there are suggestions that malnutrition associated with poverty or illness exerts an effect in retarding mental development.

The urban poor and its perception of its community health problems

It is easy to blame apathy, recalcitrance, non-motivation, ignorance, etc. on the poor. But have we, who are concerned with the delivery of health, asked the people of such a community what *they* consider as health problems and health needs? Without involving such a community in the planning and action process, we are likely to continue to have our health facilities operating at less than capacity in a time of increasing health demand.

From an unpublished Master's Thesis, "A Study of Perceptions of Health Problems and Needs in a Selected Community"[7] there are several tables that list health needs as the recipient sees them. The selected community studied was the Altgeld housing complex which is one of the oldest housing projects in Chicago. The following is a composite of the answers of respondents to several interviews:

A. Needs and Problems:
   1. Lack of 24 hour health service.
   2. Need for Dental Clinic.
   3. Need planned parenthood clinic.
   4. Need improved garbage collection.
   5. Miscellaneous items.

B. Respondents' View Relative to Resistance Toward Medical Treatment:
   1. Fear.
   2. Long waits in clinics.
   3. Too much "red tape."
   4. Belief in faith healing.
   5. Lack of money.
   6. Miscellaneous.

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[6] Carter, James: Personal Communication, Division of Nutrition, Vanderbilt University, Nashville, Tennessee.

[7] Clayton, Aurelius T.: A Study of Perception of Health Problems and Needs in a Selected Community. Unpublished research report; University of Michigan, School of Public Health, Ann Arbor, Michigan, March, 1968.

C. Opinion Relative to the Delivery of Health Services:

1. Health for everyone should be considered a right.
2. Poor people are treated rudely in public facilities.
3. Poor people are not treated with respect in private clinic.
4. People should have a voice in determining what facilities are placed in their communities.
5. The War on Poverty offers new opportunities for improving the health of people.
6. Community people should be hired to work in health clinics operating in their communities.
7. Outsiders who work in a community often do not understand the community's problems.

The author concludes, "This study has not answered all of the questions, nor would one expect such. However, one lesson remains crystal clear to the author; while it may be perhaps our duty to help people help themselves to better health, it is not our duty to make them over in our own cultural image."

Summary

There are many factors that must be taken into account when health services to the poor are discussed. When focusing on the urban poor, there are a multitude of complex, interlocking factors. To single out health care and health delivery, purely on the basis of disease, physical or mental, is to perpetuate the "poor law" of medicine to the poor.

APPENDIX 1

To: Harry P. Elam, M.D., Medical Director, Mile Square Health Center.
Submitted by: Mrs. Earlene Lindsey,[8] Community Organizer, Mile Square Health Center.

I will try to describe some of the unmet health needs, of the poor, as I see them.

1. There is an urgent need for more Health Centers, so services can be available in all areas, where the poor are concentrated.

2. The public schools need more health professionals, on a five-day basis. There is a need for more adequate coverage by nurses and physicians, as well as other deliverers of health.

3. The eligibility to qualify for care under Title XIX should be expanded. (For example, the New York Title XIX Program). It is a known fact that food stuff in urban poverty areas are more expensive than in middle class or the affluent suburban areas. There are many families in our urban poverty areas, who are not on Welfare, but are medically indigent, despite a steady job. The take home pay isn't much above that of a comparable welfare recipient.

4. Long range funding of a Health Center, say five to ten years, to offer economic stability to the area residents who are employed by such a Health Center. Along this same line, there are professionals living in the community, who do not want to work in a community health center they view such a Health Center as a "temporary health service". It appears that the life span of many Community Action programs is short-lived.

5. Money for programs for training residents from poor communities for careers, including all of the health professionals, physicians, dentists, nurses, dental assistants, etc. Further careers in the non-health fields, as teachers, engineers, mechanics, on-the-job training in industry, etc. We need to concentrate on our residents and their children, who are young adults, if we are to have any impact on poverty and poor people.

6. There should be Programs for Senior Citizens, in our urban poverty areas, that can make these citizens feel useful and wanted.

7. Health needs for the poor, includes care for the mentally ill and the mentally retarded.

8. Housing: Adequate housing cannot be divorced from health care and health planning. In the delivery of health care, there is not much need in sending a child or adult back into the environment that is harmful to his health. What is the use of treating rat bites, lead poisoning, or those diseases that come from overcrowding, if you send that child or adult back into the same slum?

[8] Mrs. Lindsey is a longtime resident of the Mile Square catchment area.

9. Poor people are tired of being surveyed and researched. The Federal Government has supported or sponsored research or surveys in poverty areas. We need programs for our unmet needs, not research and surveys.

10. Advice to the Planners from the Poor, who are to be served, until recently, was not a part of health care. A people, living in poverty, certainly knows what it needs far better than any outsider. When plans are being made to deliver health care to poor people, please listen to the poor.

The CHAIRMAN. As you know, Dr. Elam, this committee does have jurisdiction to look into the health problems as well as the food and nutrition problems. We have been concentrating our interest thus far on the nutritional problem. I am curious to know your judgment as to the importance of nutritional problems in the whole range of the kind of health matters you are dealing with, as in your work. Is it a major factor? Is it somewhere down on the list of priorities for meeting the problems of the poor who are also sick? Or where does the nutritional problem fit into the scale of difficulties that you have to deal with, either on a primary basis or a secondary basis?

Dr. ELAM. Well, I think that we would start by looking at the pregnant mother, and that would be one area, and this is tied in with her obstetrical care. We would look into, next, the youngster from about 9 months on, say, 7 to 9 months, which has to do with the growing child, and again, to mention the work of Cravioto and his work with the Indian population in Mexico, that nutrition does play a very major role in the overall development of the child, including his brain development, from which comes, as you know, intelligence.

So some of the areas of mental retardation, for example, which is under health, also, are preventable on the basis of adequate nutrition early and keeping it that way. The adolescent, as you know, Mr. Chairman, is notorious, any adolescent, for having a poor diet, because they follow fads. But when you compound that by a poverty way of eating, such as potato chips for breakfast, and pop and potato chips for lunch, and a hot dog for dinner, catch-as-catch-can, or indeed, erratic times for eating, he is more likely to come up with something.

Then we move into the working man or the working mother, that has been pointed out, how can a person work with this long history of malnutrition? How can he feel good, or if he doesn't feel good, he pushes on to work, because he can't afford to get 1 day off—he has used up his sick days—simply because it means 1 less day of pay in his weekend check.

We move into the area of the middle-aged person. The other area is the malnutrition problems of our senior citizens, so we tie it all together, Mr. Chairman, with the total health problem, and we utilize our health aids, who are community women who have lived there, on our staff, that work in our public health community nutritional aspect.

The CHAIRMAN. Now, Doctor, what could you say generally about the nutritional status of the patients you deal with? Or maybe I should make that broader, about the people in the area that you serve, which I take it is a poor area, economically poor area?

Dr. ELAM. Yes. We haven't done a specific survey on that, but again, it is tied up mainly with what we call family care. So we take both a preventative aspect, getting the mother to understand why it is important to give certain foods at, say, 7 months, why is it important for her to follow certain dietary patterns when she is pregnant?

One of the other areas that is in the nutritional area, Mr. Chairman, is the problem of obesity, particularly among our middle-aged population, and this again goes back to economics, because the diet, you know, is wholly a starch one, and so you fill up on bread and potatoes, and cheap meat, which is very high in fat content, and carbohydrates, and so we have this problem, because it is cheap, and here again, you see——

The CHAIRMAN. Does that tend to be a common food pattern?

Dr. ELAM. Yes, it is one particularly in women. It is particularly in women, because it is cheap, so the foodstuff is cheap, it is fattening, and they fill up on this kind of food.

The CHAIRMAN. It is possible for them to be both overweight and malnourished?

Dr. ELAM. Yes, very true, very true; this is the point I was trying to make.

The CHAIRMAN. Senator Mondale?

Senator MONDALE. Thank you, Mr. Chairman.

One of the points that you made this morning never occurred to me, and that is that protein is much more expensive than any other type of food, so you—if you want a high protein food, however we have been able to do it, it is expensive, and your comment, Dr. Elam, about even those in the middle-aged group, having the overweight and the malnourishment problem at the same time, one can't help but be struck by that fact.

I would like to ask essentially the same question that Senator McGovern asked. In your work at your center, dealing with health problems of those who come to you for help, how large does the hunger and malnutrition loom as an aspect of the health problems of the poor?

Dr. ELAM. Let me answer that through the back door. Usually, when he comes, he comes for a specific acute problem, of which malnutrition, clinical malnutrition is one aspect, but he doesn't come for that. That is a professional judgment.

On the other hand, following this same line of reasoning, the person, particularly an older person, or an adult, may have a chronic problem, which has an acute exacerbation, at which time you pick up the malnutrition.

Now there are clinical ways for doing this. For example, other than the obesity, which we will lay aside, is the skin color, the skin texture, blackness over the elbows, blackness over the knees; then you begin to get into his dietary patterns, and it is quite obvious that his is basically a high carbohydrate diet, because this is the cheapest food that he can come by.

Senator MONDALE. Would you say that is a widely prevalent problem among those who come to you?

Dr. ELAM. Yes, I would.

Senator MONDALE. Now your clinic tries to have available a whole range of services, I assume.

Dr. ELAM. Right.

Senator MONDALE. To deal with the problems, health problems, of those you serve, does it have a nutrition component? Suppose you find a person who comes in to you with a health problem, part of which is malnutrition; are you in a position to supplement his diet, through your clinic?

Dr. ELAM. No, sir. What we have done is to—let me give you an example. Such a person comes in for service, about a health problem, and it is also determined that he has a nutritional problem. A meeting is held by his public health team. In other words, the area is broken down into components.

Senator MONDALE. Is this a Public Health Service person?

Dr. ELAM. It is our own.

Senator MONDALE. Cook County?

Dr. ELAM. No; our Mile Square nursing service is broken down into public health teams.

Senator MONDALE. I see.

Dr. ELAM. And each team has a certain area.

The people on that team are made aware of this. Then somebody, usually the community aide who is from the area, will discuss this aspect of the person's problem, and work out a plan. Now usually, what is going on here, the block that we come to is money. The poor people are very fearful that anything, when you start to talk about adding to, he runs into the thought "if you are talking about me spending more money for food, that I don't have."

Senator MONDALE. In other words, if a person needs, say, some kind of medicine——

Dr. ELAM. We can give it to him.

Senator MONDALE. You can give it to him.

Dr. ELAM. Right.

Senator MONDALE. But if he is hungry, undernourished, what you can give him is advice.

Dr. ELAM. Right.

Senator MONDALE. And the cost comes out of his pocket.

Dr. ELAM. Right.

Senator MONDALE. And as I gather it, then, is this correct, in the panorama of health services we provide through OEO or medical centers, we do not include a nutrition component, so that if a child's hunger or health problem is partly hunger, you can provide nutrition as you would provide any other aspect of the child's health needs.

Dr. ELAM. Not at this time.

Senator MONDALE. Would a nutrition component be helpful to you? If you could add to your services funding and maybe hunger aids that you would hire from a community, who have worked with the family to advise them on a decent diet, make certain that they get the food, if they don't have it, in the right kinds, and so on, perhaps through OEO, would that be an important addition to your service?

Dr. ELAM. Yes, sir. In fact, we have had communication from OEO around this very issue. One of the problems that we ran into was that if we were to—we wanted to start this program this year, and since we are in an old building, and a temporary structure, I hope we would have a new one by 1971—the problem of storage and logistics came into it. So although we are very desirous of this very point you are making, logistically at this time, we couldn't do it.

Senator MONDALE. Right.

Dr. ELAM. But as we get the space, we would add this.

Senator MONDALE. Now are there medical centers funded through OEO that have the nutritional dimension to them?

Dr. ELAM. I don't know, sir. I don't know.

Senator MONDALE. I would like to ask the staff to check on that, because it does seem ironic that nutrition is a fundamental element of the problem of poor health, and we have established medical centers throughout the Nation, funded largely through OEO, although I think some of them through public health services or both, but nowhere in that program is available nutritional assistance, as I understand it, when that is part of the health problem.

So I would like the staff to check on OEO, and the other agencies, to see what the situation is now, and what might be done about it.

Thank you very much, Doctor.

(The information requested has not been received for the record.)

Dr. ELAM. It was certainly—you are quite right—not in the original, and in the original grant, the last 2 years, we finally got some communication this year around this issue, but that was not in the original plan.

Senator MONDALE. Well, we meet this problem in many other ways, you know. For example, a lot of educators complain that they can't educate the children, because they come to school hungry, and a doctor that I know of has testified you can't learn under those circumstances. The child would probably be a behavior problem, and everything else, so that we give funds for education, but not special funds to help the very poor. We give funds for health, but not funds for nutrition when nutrition is part of the health problem.

It seems that wherever we go through our programs, you see that nutrition falls between the cracks.

Thank you.

The CHAIRMAN. Thank you, Senator Mondale.

Senator Goodell?

Senator GOODELL. Dr. Elam, I appreciate your testimony and the wonderful work you are doing.

Can you tell us what the source of funds is for your particular center, your health center?

Dr. ELAM. We are funded 100 percent from OEO, through the Office of Medical Care, Chicago Board of Health, and the grant and the delivering agent is the Presbyterian-St. Luke's Hospital.

Senator GOODELL. What is the total amount of that grant?

Dr. ELAM. Roughly $3 million for this fiscal year.

Senator GOODELL. $3 million?

Dr. ELAM. Yes.

Senator GOODELL. How many personnel do you have working full and part time?

Dr. ELAM. Let me subtract something for a minute. We have got roughly 200 people, two-thirds of which are hired from the community. Obviously, the highest paying salaries, however, are from outside the community, such as me. We have got roughly 30 doctors, and I would say about one-third of those are full time, and the other two-thirds are either half time or quarter time.

Senator GOODELL. You are paid from outside the community?

Dr. ELAM. Pardon?

Senator GOODELL. Did you say "such as me?"

Dr. ELAM. No; I am saying living. I said the irony is that while two-thirds of the 200 live in the area we serve, the other third, with the highest salaries, don't live in that area.

Senator GOODELL. How many centers similar to this are there in Chicago?

Dr. ELAM. There is one, sir, that is, the Martin Luther King Center, which is attached to Mount Sinai Hospital, and some of its funds come from OEO, and its children's service, the whole pediatric services, from the children's division.

Senator GOODELL. How far is St. Luke's Hospital from this Mile Square?

Dr. ELAM. One mile, and we serve a mile square area.

Senator GOODELL. The statistic you indicated for the number of residents who go to Cook County Hospital—has that changed at all since you started this?

Dr. ELAM. For our people, it has changed; yes, sir. But you see, what happens is you get more people coming in, like you have the area that is what we call the Uptown area. That is where many of the American Indians and the white people from Kentucky, Tennessee, my home State of Arkansas—they are beginning to move into the Uptown area, and you have the Mexican population coming in from Texas. Then you have a massive Puerto Rican population, also. They are not all in Spanish Harlem in New York.

So you see, we have all of these kinds of pressures for us to expand the boundaries, and you know, if we did that, sir, then we become just another mill, and then we defeat the thing we are talking about this morning.

The answer is to have more health centers to cover a wider poverty area.

Senator GOODELL. I take it from what you say that you must live within the geographical boundary of the mile square in order to qualify.

Dr. ELAM. Yes, sir; we have to serve—we have to turn people away, if they cannot prove they live there, or they are eligible for the care. We also have to turn a person away not for an emergency, but routinely, if he once lived there, and moved away.

So it is strictly for a geographical mile square area.

Senator GOODELL. Can you tell me why, because I have learned a little bit more on why 40 percent from one community people are going, as you indicated, more than 15 miles away to Cook County Hospital?

Dr. ELAM. Yes; that was Altgeld Gardens, Robbins, Harvey. That is the southern part of the city. Out there, you have private hospitals, and one runs into the problem of race, because most of these people that come in, 27 miles round trip, 28 miles round trip, are black people from these particular areas.

Now, in between Cook County and them are a series of little hospitals, and they are under terrific pressure for changing for the reasons that I have put in the introduction. The staff has gotten old. The young doctors are not coming in. The white population moves out, and they are trying to hold their heads above the water. So you have that aspect of it, balanced against what a doctor should do, but it does affect it.

The reason for it is if a person doesn't have any money, we are again talking about attitudes of the staff. The attitude is that Cook County is for poor people, and this is for paying people. We think—"we" meaning us that deal with this problem—think that the answer is going to be twofold: more health centers in the urban areas that have

large areas of poor people, and a national health insurance plan of some kind.

I do my best thinking between 3 and 6 in the morning, when I am sounding off on these problems, and sometimes I get extremely pessimistic that while we are doing—we think and the community thinks—a very adequate job in a specific area, there is a bottomless pit across the street or 2 miles west of us. There just seems to be no relief in sight for this and the people keep coming into Chicago all the time. The West Side, the Southwest Side, the Uptown area, the Near North Side—and there is nowhere for them to go, Senator, except to Cook County, because they don't have money.

Senator GOODELL. Could you elaborate just a little bit? You said, I think, that the advisory committee under the grant from OEO specified 50 percent of local residents?

Dr. ELAM. The guidelines say that at least—the advisory board of any OEO project, any community action project must have at least 50 percent of its members from the area in which the service is delivered. Our advisory board is practically 98 percent local area residents.

Some of the businessmen with businesses are on the advisory board. All of the schools—there are six schools in our area—can send a representative, if they choose. Anybody with a legitimate business in there may have representation. But this balances out to roughly 98 percent; 95 to 98 percent of our advisory board, which tells me what they don't like, are local people.

Senator GOODELL. I take it is open-ended, then. You don't have any specific size of the board? Anybody who is in the area and wants to serve?

Dr. ELAM. There is some way that I think they limit it to 50 or 52. In nothing except an unusual crisis situation would we get all 50 people at one time.

Senator GOODELL. What is the selection process?

Dr. ELAM. To be a member of the advisory board—excuse me. The advisory board members are selected from a larger group, which is called the Mile Square Federation. The Mile Square Federation is made up of a series of block clubs, tenement councils, businessmen, et cetera, so out of the federation, they pick the advisory board.

I have nothing to do with it, and I want to stay out of it. I won't even suggest to them, because then they can tell me that I am telling them what to do. I need them to irritate me, so that we do good care.

Senator GOODELL. Being a great believer in this, I will resist the temptation to go on discussing the aspect of it, but I take it you feel this is a very valuable input and very essential in the operation of your center.

Dr. ELAM. Yes, sir, I do. Even though you might not agree with our tactics—the reason I say this is because if they are going to be a part of what we do, then we have to take into account the advice they give, and this is very important, because if they know we are taking seriously their advice, then they have not only a physical part of the operation, they have an emotional part, and then the community will support us in what we try to do.

Senator GOODELL. To what extent does your health center relieve the burden on the hospitals?

Dr. ELAM. Yes. I meant to answer. This is part of the nutrition that

Mr. Chairman asked. One of the reasons is the health center will see a person earlier with his illness, because it is there close by. Another one is that when you give continuity of care, he spends less time in the hospital. A third is that when you have a person with a nutritional problem, and his medical problem, and you are doing preventative or acute care, as an outpatient, this tends again to decrease the number of potential days that he is going to spend in a hospital, which means that if the person is on welfare, it is cheaper on the welfare department for us to be there, because he is spending much more time in the hospital, and it is much more costly.

Senator GOODELL. Why, I take it from what you said before the poor people from the mile square area now go to St. Luke's Hospital.

Dr. ELAM. They almost all exclusively go there.

Senator GOODELL. Why is this? Why wouldn't they have gone there without your health center being only a mile away?

Dr. ELAM. At that time, Senator, they were—Presbyterian-St. Luke has a health center in its hospital, also, and it is just called a health center of Presbyterian, which we are differentiated by being called the Mile Square Health Center. The difference is that in logistics, they serve the whole area of Chicago, in that health center, whereas we took a mile square area, or we take a mile square area.

I think the other one was the problem of money. I believe there is a differential there, that many of their people are paying patients to, some scale. We have just instituted a pay scale at the insistence—or in fact, Congress wrote it into the law, that we had to have some kind of sliding scale for those people that had incomes above, et cetera.

So we have moved into a small sliding scale, also.

But you are talking about two components here. One is financial, and one is services area.

The CHAIRMAN. What I am getting at, is St. Luke's now accepting more patients from your area, because they are getting paid for them?

Dr. ELAM. They always got paid for them through welfare.

Senator GOODELL. Right. Why are more going to St. Luke's now than used to?

Dr. ELAM. Oh, I will give you the history behind that. This community had surveyed itself about 6 years ago, and came up with its health needs, and had approached Presbyterian-St. Luke's Hospital, and wanted to know if Presbyterian-St. Luke's would put a health center in this area. It was at about this time a year later or 2 years later that the Economic Opportunity Act was passed by Congress, which opened the door for this to be done.

So you had the national scene coming into it. And again, we are talking about money.

Senator GOODELL. Well, I take it because they go to your health center, you refer them to St. Luke's Hospital. What I was getting at is, did a large number of the residents of Mile Square go to Cook County Hospital before?

Dr. ELAM. Before, right.

Senator GOODELL. And now they go to St. Luke's?

Dr. ELAM. Right.

Senator GOODELL. And what is the real reason for that? Does it seem if it is a mile away, they would have gone to St. Luke's earlier?

I realize you made a major point here that going such a distance is one of the ways that we serve the poor.

Dr. ELAM. Historically, we are dealing with an attitude. The attitude was, again, that poor people went to County Hospital, and as I was telling you, that——

Senator GOODELL. They just accepted this, you mean.

Dr. ELAM. They accepted this, yes, sir. And now, the attitudes have changed, and we have all changed, and we have gotten involved, and so we almost never send anybody to County Hospital.

Senator GOODELL. In the process of this, the attitudes and the policies of Presbyterian-St. Luke's changed, too?

Dr. ELAM. Dramatically.

Senator Goodell. That's what I was aiming at. You have opened this up so now it is much more accessible to the residents of the area.

Dr. ELAM. Very dramatically, as well as the attitude of the people, because they approached Presbyterian-St. Luke's development as a community, and they came out with this, and it has worked well.

Senator GOODELL. I take it, without going into the details of it, there was a dialog of communication between you and others and St. Luke's Hospital.

Dr. ELAM. Yes, sir.

Senator GOODELL. That finally changed these attitudes.

Dr. ELAM. Yes, sir. The persons that did these negotiations were Dr. Joyce Lashof, who is my immediate superior, who is still at the hospital, with Dr. Mark Lepper, who is vice president of the hospital, and Dr. James Campbell, who is president of Presbyterian-St. Luke's Hospital, and the Mile Square Federation, as a body.

Senator GOODELL. So your Mile Square Center being established there made a major contribution in breaking down this barrier with St. Luke's Hospital?

Dr. ELAM. Yes, sir.

Senator GOODELL. Let me ask one final question with reference to the nutrition aspect. To what extent is food stamp and school lunch available in the mile square area?

Dr. ELAM. I don't know, sir. If you like, I can send you that information. I will find it out.

Senator GOODELL. Are you aware that they have these programs in the school there, the School Lunch?

Dr. ELAM. Which of the schools in our area? We have six, I believe, and I would have to check this out. I am not absolutely sure. I would rather check it and send you that.

Senator GOODELL. OK. I appreciate it.

Dr. ELAM. I will do that. Should I send it to the chairman?

Senator GOODELL. Yes.

(The information requested had not been received for the record at time of printing.)

The CHAIRMAN. Thank you very much, Dr. Elam. We appreciate your testimony.

Our two West Virginia witnesses, we just found, were grounded by a snowstorm, so this will complete our hearing for today, and the committee will be adjourned until 10 o'clock tomorrow, when we will hear Dr. Margaret Mead.

(Whereupon, at 12:40 p.m., the committee adjourned, to reconvene at 10 a.m., on Thursday, December 19, 1958.)

NUTRITION AND HUMAN NEEDS

THURSDAY, DECEMBER 19, 1968

U.S. SENATE,
SELECT COMMITTEE ON NUTRITION AND HUMAN NEEDS,
Washington, D.C.

The committee met at 10:15 a.m., pursuant to recess, in room 1202, New Senate Office Building, Senator George McGovern (chairman of the committee) presiding.

Present: Senators McGovern, Percy, Goodell, and Mondale.

Also present: William C. Smith, staff director and general counsel.

The CHAIRMAN. The committee will be in order.

Our first witness today is one of the most distinguished social scientists, Dr. Margaret Mead, professor of anthropology at Columbia University.

Dr. Mead, if you would come to the witness table we would like to hear your statement at this time. You may proceed now in any way you wish.

STATEMENT OF MARGARET MEAD, PH. D., CURATOR OF ETHNOLOGY, THE AMERICAN MUSEUM OF NATURAL HISTORY, AND ADJUNCT PROFESSOR OF ANTHROPOLOGY, COLUMBIA UNIVERSITY, NEW YORK CITY

Dr. MEAD. I am speaking here as someone who worked in the whole food and nutrition campaign at the time of World War II and who has kept a certain amount of familiarity with what has happened since but I think, Senator, that my first area of competence and possible contribution to this committee is from the experience of the earlier period and the way that we have failed to duplicate although we have far greater resources and a smaller problem the work that was done in the early 1940's.

If I may, I deposited a statement with the committee which I am willing to expand but if I may I will speak extemporaneously here, is that all right and not just read the report?

The CHAIRMAN. That is fine. You may proceed in any way you wish.

Dr. MEAD. What seems to me to contrast between what we are able to do in the 1940's and what we are doing now, one, the size of the problem. Then we had a third of the Nation ill fed, ill clothed, and ill housed.

We were just coming out of the depression. Our resources were minimal compared with what they are now.

We had no computers to deal with research. We had no knowledge really of fortification and reinforcement which we have used so ex-

tensively. We were in the middle of a great war that involved all our resources and yet it was perfectly possible to mobilize a food and nutrition program that wiped out the major mineral and vitamin deficiencies diseases, altered the eating habits of most of the United States, worked out a cooperative program between all the Government agencies involved, industry, the mass media, the voluntary agencies in the United States.

Now, I think the historical accident that the impetus for this program came primarily from the Department of Agriculture is something that we have to deal with in thinking about the present because in those days the Department of Agriculture was the only Government agency that dealt with the whole life of any section of our people.

It was responsible from the cradle to the grave really for the well-being of people who lived in communities under 2,500 so that it was the Department which thought about total human well-being especially in the depression when it was necessary to work with the impoverished rural populations, particularly in the Southeast.

So that the impetus did come from Agriculture, particularly, because of the accident of personalities—M. L. Wilson, who was then Director of Extension—but the coordinating body brought in the rest of the Government and we had 23 to 24 different agencies continually involved in a coordinating committee which really coordinated.

We had scientific groups brought from the biological and the social sciences adequately organized to give the necessary types of advice: The Food and Nutrition Board and the Committee on Food Habits of the National Research Council.

I was the Executive Secretary of the Committee on Food Habits during that period, and we were able to bring together social scientists who could deal with a very large number of problems all the way from the organization of delivery systems—as they are now called and were not called then—to prevailing patterns of attitudes toward food in the United States. These have not changed very much since the 1940's.

We still find that people—we have had reflections of it in some of the operations that surround this committee's work—feel that if food is good for you it is not good, and if it is good it is not good for you, as a prevailing notion in the United States.

By the end of World War II we were tremendously pleased with our work on nutrition, and there were great numbers of very positive statements made about the program.

"Nutrition" had become a word that nobody dared to be against—like "motherhood." We had set up entirely new patterns of eating in many parts of the country where we had had the most deficient diets.

We had wiped out the major deficiency diseases. We had started a program of the fortification of foods which were responsible for the elimination of most of the major deficiency diseases that could be attributed to the absence of vitamin and mineral and in the face of the affluence of the early 1950's by 1960 it was possible to say that the major nutritional disease in the United States was overnutrition. This yet, was a period when millions of people in other parts of the world were starving and we were having controversies about how much contribution the United States should make to prevent their starvation. I think in the light of some of the discussions we should recognize that our contribution to the rest of the world is infinitesimal in terms of the prob-

lems even though from our point of view we may be contributing quite a little.

So we faced an American public who were constantly accused of overeating. And this was the most influential part of the public who spent their time trying to eat not too much. The food industries were specializing more and more in how to produce food that would not nourish and spending a great deal of money on producing nonnourishing food. Cooks spent an extra 2 hours producing food that looked as if it would be nourishing, but was contrived not to do so. This was the climate in the country at the time that we were faced with accounts of starvation of millions in other countries.

This presented the American people with a considerable dilemma and they answered it by turning their back on the whole problem so that in the last 8 to 10 years attention to the basic nutritional food problems of this country has deteriorated.

It is possible to say that our people are much worse fed today than they were 10 years ago. I think this has to be put against the fact that the group that are malnourished—undernourished or on the edge of starvation is about one-twentieth of our population. We seem unable to deal with it although we dealt with a third of the population in the 1940's.

Am I talking too much before you start questioning?

The CHAIRMAN. Fine. You may go ahead.

Dr. MEAD. The most important problems as I see it are to have both a nutritional program and enough food. I think it is important to realize that people don't eat nutrition. They eat food. But if they have the kind of food that does not contain the necessary nutrients they won't be properly nourished no matter how many bulk surplus commodities are made available to them. We have a continual interaction here between nutrition planning, provision for fortification and for education on the one hand and the quality and quantity of the food that is provided for the people.

Now the most important thing at present is to have a broadly based program that draws on all the interested agencies in the Federal Government and that is reflected in State and local governments, that is not localized in the Department of Agriculture which I feel has no longer the advocates for people's needs that it had in the early 1940's. The Department of Agriculture has become more specialized, more related to primary production. We need a program that can enlist industry—all the food industries—the voluntary agencies and also the mass media on a very much wider scale than is being done at present.

If our problem is stated as primarily a problem of those pockets of our population who are on the edge of starvation or severely undernourished without making it a completely national problem which can involve the whole American people I think we are likely to get the sort of factionalism that has developed in many areas between local departments of welfare and local advocates of the position of the poor. It is very important to widen this program to a recognition that the country must take responsibility for feeding all its people all the time, that they cannot let it lapse.

What we do in the United States is first to say that we face a terrible crisis. Then we roll up our sleeves and we do something about it and we can do something about it very well and very fast.

The worse it seems, the better we do something about it. We then say we have done a wonderful job and relax and go somewhere else. This is what we did with our campaigns against venereal disease and this is what we did with nutrition.

We relaxed and went home. Nutrition research turned to very elegant small problems of toxic foods and trace elements, very important but not related to the problem of feeding people. We now have to present this whole issue to the American people in a way that they will all get back of it.

I think, to make the question of whether people should starve or not, a partisan issue is unbearable. We found during the depression that, no matter how hungry a child was, they were unwilling to say their parents could not feed them and that the one thing that humiliated every American parent beyond anything else was the inability to feed their children.

We are putting the American people at present in the position that they have to recognize they have not been able to feed all Americans and this has very severe repercussions.

You get angry denial and horror and turning away from the whole issue. I would also like to emphasize very strongly that feeding the rest of the world and feeding our own people are very closely interwoven.

If we refuse to play a role in the food shortages of the world, if we take land out of production when the world is going to be short of food, then we cannot be expected to be able to deal with our own problems. If we refuse to deal with our own problems and have a very bad conscience about what is happening in many isolated areas and in the ghettos of the United States, then we will not be willing to help feed the world.

So that I don't believe that any opposition between what we do abroad and what we do at home is practical if we want to muster sufficient public opinion pressure back of what needs to be done in a food and nutrition program in this country.

That, in brief, Mr. Chairman, is what I would like to discuss in more detail.

(The prepared statement by Margaret Mead, Ph. D., follows:)

STATEMENT OF MARGARET MEAD, PH. D., CURATOR OF ETHNOLOGY, THE AMERICAN MUSEUM OF NATURAL HISTORY, AND ADJUNCT PROFESSOR OF ANTHROPOLOGY, COLUMBIA UNIVERSITY, NEW YORK CITY; AUTHOR OF "FOOD HABITS RESEARCH: PROBLEMS OF THE 1960'S," NATIONAL RESEARCH COUNCIL, PUBLICATION 1225, 1964

In 1939, at the end of the Depression and before the United States was involved in World War II, surveys and investigations revealed that one-third of the people of the United States were "ill clothed, ill housed and ill fed." The onset of World War II complicated the questions of housing and clothing but the national leadership recognized that an undernourished and malnourished population was a weak population, and set about to work to remedy this with the motto "America needs us strong."

A nationwide program was mounted, coordinated and inspired by Dr. M. L. Wilson, Director of the Extension Services of the United States Department of Agriculture, providing for coordination among government agencies concerned with food production, food distribution, food research, and the health of children, expectant mothers, the men in the armed services and industrial workers. Advisory committees and boards of natural and social scientists were organized and financed. Nutritional committees were set up in every state, under the leadership of experienced home economists, competent in the details of choice and

preparation of foods, budgeting and planning. The food industries and the vitamin manufacturers were involved in demonstration projects on the use of reinforced foods, greater consumption of milk and balanced diets. The mass media were systematically brought into the program; radio, especially, became a continuing and potent force in promoting better use of foods. The rationing system was so related to regional supplies and regional preferences that it worked in spite of the complexities of size and diversity of the United States. Educational programs reached every level of the population, and nutrition became a value which advertisers incorporated in their appeals, a cause which no one could afford to be against.

At the end of World War II enormous progress had been made. The people with the poorest diets, notably in the Southeast, were eating better than they ever had before; reinforced foods were a commonplace throughout the country; it was almost impossible to find a case of pellagra, once one of the characteristic deficiency diseases of the Southeast. Vitamin supplements were widespread. The idea of the seven basic foods developed as a framework for good nutrition had become a guide post in school lunches, group feeding and home planning.

The affluence that followed World War II, with full employment, high wages and an abundance of available food made the picture seem even rosier. By the early 1950's it was possible to say that America's major nutritional problem was over-nutrition. Attention shifted to the problems of overeating, and obscure clinical manifestation of malnutrition.

Uneasy under the accusation that Americans were, in fact, overfed, when such a large part of the world's population was starving, American attention turned resolutely away from the question of malnutrition in the United States. Almost the entire elaborate apparatus of research, education and monitoring of health and home practices disappeared. Where in the 1940's the motive power for better food and better nutritional practices had come from within the Department of Agriculture, so that research and education interacted with programs designed to dispose of surplus commodities or promote the growth and sale of special products, by the 1960's the centers within the U.S.D.A., devoted to the care of the American people, had withered away. The Bureau of Home Economics was abolished. The Farm Security agency, once the center of concern for the subsistence farmer, shrank to a ghost of its former self. The Extension department became increasingly concerned with large scale commercial farming. In other agencies it was the same story. Funds once available for nutrition education in high schools were diverted to physical education. In the universities, nutrition departments turned away from the needs of hungry and undernourished people to bio-chemical research. Departments of home economics fell apart. As Americans so often do, we had made a great effort, had great success, and then we completely lost interest.

Meanwhile, mechanization drove people by the thousands from the unproductive farms into the cities. Those who were left behind and those who migrated fell into deep poverty. The programs once operated in close relationship to the leadership of nutritionists and home economists were now sporadically deployed in response to positive and negative political pressures over the country. School lunches and stamp plans and surplus commodities ceased to be answers to growing hunger and extensive malnutrition. Deficiency diseases and the consequences of malnutrition, a high infant death rate, failure to learn in school, began to appear more and more frequently. But there was no adequate research, no national leadership, hardly any local programs to deal with the growing problems.

It is now estimated that we have almost 10,000,000 Americans who are malnourished, and undernourished, and that many of these are on the edge of slow starvation. Thirty years ago, in the midst of a Great War, we were able to tackle the sorry condition of a third of the nation. Today we seem unable to deal with a twentieth of the nation, in spite of our greatly increased productivity and far greater technical resources.

It is no wonder that the public has reacted with horrified surprise or angry disbelief to the exposure of what has been happening here in our own country, while our eyes were turned in patronizing sympathy toward the famine and suffering in other countries. A failure of any family to feed its children is something to which both American parents and American children have always reacted with overwhelming shame and denial. Though it was sometimes done grudgingly, Americans of all political persuasions have always agreed that when it was within our power to feed any group of hungry people, "We can't let them starve."

This has all been lost sight of in the local contests that have gone on in poor counties where the agricultural workers who are no longer needed are being starved out; in the towns and cities where the distributing methods make it intolerably difficult for those in need to use the various federal distribution plans; in the failure of health authorities to recognize nutritional disease—somehow the central issue that people are hungry and sick from malnutrition, that infants and children are being irreversibly damaged, that foods are being synthesized and alloyed in ways dangerous to health has been forgotten.

We need to start over, clear the decks of the accumulated petty attacks and counterattacks within and against the agricultural establishment, which is now too devoted to the production end to be a fitting center for a food and nutrition program that is concerned with people rather than products.

We need to face the simple facts: the American people are less well nourished, as a whole, than they were 10 years ago. Those with the fewest resources and least education, those who live in the worst areas and belong to the most disadvantaged groups, are suffering the most. Their need is urgent. The national need is urgent. Evidence is accumulating of the irreversible damage that is done to the mental ability of children who are malnourished. Our future depends upon the capacities of our people to manage a highly technological and demanding society.

The problem of meeting the food and nutrition needs of the American people is not a production problem. We do not live, as people of many other nations do, on the edge of genuine scarcity. Nor is it a problem of transportation, as in China. Nor is it a problem of profiteering in times of scarcity as in some Asian countries. Our problem is one of distribution alone, how to see that the necessary food, containing, either naturally or by supplementation, the necessary nutrients, reaches all of the American people, whatever their age or sex, their economic status, their race or their location. We need to be sure that the right kind of food, in the right quantities, is available, to the people who need it, and that they have the means to buy it, the knowledge of what to choose and how to plan and prepare it. We knew how to do all of these things in 1945; it would take a relatively short time to learn how to do them now.

During these dismal years when our people have grown worse nourished, and hungrier and when research on people's habits and people's needs has all but ground to a halt, there has been one set of advances—in our knowledge and ability to supplement and fortify foods in ways that will produce optimum nutritional effects and optimum acceptability. Experience of food supplementation and fortification has demonstrated that the route to a better nourished population is by way of commercially available nutritious products, cheap enough, plentiful enough, well enough distributed so that they are available to those who need them. Properly distributed foods, reinforced and fortified to meet special situations, locally deficient diets, poor food habits, unbalanced supplies in federal distribution plans, school lunches which bear a disproportionate nutritional load, must be combined with money enough to buy them if this threat of malnutrition is to be removed.

We need a national food and nutrition program now. It is important to remember that people can't eat nutrition; people need nutritional knowledge and guidance to get the most out of the food they eat, but they must have food. It is hopeless to expect the solution to come from the distribution of surplus commodities, when the details and politics of a financial program are put above the needs of living men, women and children.

A food and nutrition program must be national; it must involve federal, state and local agencies, governmental and voluntary agencies, the mass media, industry, and all the relevant disciplines, especially specialists in distribution and consumption.

Food and nutrition for the American people and maximum contribution to the world's hungry and starving are inextricably connected. A nation that refuses to grow food when food is needed, and refuses to give of its abundance to those who are starving, wherever they are, becomes a nation insensitive to the needs of its own people. To cherish our own, we must do our full part in helping to care for the world.

The CHAIRMAN. Thank you very much, Dr. Mead. While this point is still in my mind that you made about the reluctance of people to admit that they are unable to feed themselves or feed their children, when I was home just a few days ago, I talked with the superintendent

of schools in my hometown which is a town of about 12,000 people and he surprised me by saying that they were going to drop out of the school lunch program and run their own program, they were going to take the money entirely out of the local school budget even though they could not afford it and offer every child a school lunch paid for entirely from local funds.

He said the reason for that is that this is a small town and that I refuse to ask parents to fill out these forms where in order to get reduced price lunches they have to list their income, they have to list any gifts they get from relatives, any inheritance, any kind of assistance that they receive from other sources.

He said the people in this town, rather than to go through that kind of personal humiliation, will not participate in the program, so we are dropping it just as a matter of public relations.

Isn't that a unique reaction in your judgment?

Dr. MEAD. Well, do you mean unique in terms of other communities in the United States?

The CHAIRMAN. Yes.

Dr. MEAD. No. Americans value autonomy, independence, ability to provide for their own to an extraordinary degree. Some people think they value it too much. We find it in our old people who rather live alone in a miserable little room, than to become dependent.

At any point where we define people as dependent and especially fathers of families as dependent and unable to care for their own they either leave, as they do among the urban poor if they are unable to provide for their families, or they proudly refuse in many instances to list themselves among the poor because this is a demeaning position.

The CHAIRMAN. Well, in terms of a wholesome, healthy relationship among students, school administrators, their parents and the community, in your judgment, laying aside the economic factors to them, would it be more feasible to offer every child a school lunch without regard to his economic status and to do it at public expense?

Dr. MEAD. Yes, definitely. It is very foolish to talk about integration and democracy in our schools and then provide a school system where we stigmatize some of the children in that school as the children of parents who are unable to provide for them, and especially in terms of food.

Americans are willing to face the fact that everybody does not have a Cadillac. They are getting less willing to face such facts but are still willing to do so. But on food which is the necessary basis of life the fact that someone cannot provide it for his children is very stigmatizing.

The CHAIRMAN. On the basis of your experience and your knowledge of this whole field over the years, Dr. Mead, would you as a matter of fact recommend that this committee seriously consider advocating to the Congress that we provide at least one nutritious meal a day for every schoolchild in the country without charge?

Dr. MEAD. Well, I think there are two ways possibly that this could be done. One is there are a few suburbs that could live without it rather cheerfully but I think it should be in every community that could prove that there was any nutritional need in the community. They can prove this by citing the income distribution of the community without any further discussion.

I think we need to recognize at present that if you know the average income on the census tract basis of any community you know they have not adequate food. You do not have to prove it by elaborate biological tests. Any such group community should be entitled to a school lunch for every child within that community.

You would thus treat the whole situation or the whole town as an area that needs food and do not stigmatize special groups in it.

The CHAIRMAN. Then it really seems to me that even in communities where there is a fairly good economic base that you probably have many youngsters that are not getting a balanced nutritious diet.

Maybe the ignorance on the part of the family or on the part of the child who is responsible when there is not a school lunch program, for planning his own lunch at noon and through this program we might teach nutritional education by demonstrating what a good balanced meal is.

Dr. MEAD. We reeducated a tremendous number of the American people, the public, caterers, restaurant planners in the 1940's, school lunch programs both acted as distributing and educational agents emphasizing the pattern of the seven basic foods and a balanced diet.

These ideas got over on a very large scale and school lunches were a way of getting them over, but I think it is also important at the Federal level to work out cooperative plans with industry because it was not the school lunch program that got rid of pellagra.

It was the fortification of basic foods and in the end the fortification had to be done by industries which would take the trouble to produce the appropriate food products and see that they got into the appropriate outlets.

One of our great problems today is providing foods that people can afford, that they want to eat, that are accessible in the right spots so that they can buy them. The stimulation between Federal programs and industry that went on in the 1940's was responsible for getting rid of vitamin and mineral deficiencies. We could do the same thing with proteins now.

The CHAIRMAN. Dr. Mead, could you describe a little more in depth what the administrative format was of the nutritional effort in the forties and how the private food industry was enlisted?

We have had some indication of a reluctance on the part of at least part of the food industry to really become involved in nutritional concerns.

I suppose that is understandable when you consider that their principal accounting is to their boards of directors and the profit structure which they have to be concerned with.

I wonder if you could go a little more in depth into what the administrative format was within the Government, and how that dovetailed with private industry efforts and how private citizens were enlisted in this effort in the 1940's?

Dr. MEAD. I will do this with a recognition that this is 1968 and that forms that were appropriate then would have to be transformed before we could use them now.

I am not of course advocating a return to earlier forms but then to use models that can be so transformed. We have to realize that we had back of the effort first a National Conference on Food and Nutrition

backed up by the establishment of the basic dietary requirements that had been worked out by nutritional sciences.

The CHAIRMAN. Was that organized by the President?

Dr. MEAD. It was a national Presidential Conference, yes. It made it possible for the President of the United States to proclaim the state that we were in. This was one important point.

The second important point I think was that the minute the war started there was the backing of certain other Federal controls, working with the Office of Price Administration and with the War Production Board for instance.

Very early in the war scarce supplies of various sorts of food and materials could only be obtained if industry also complied in various ways with nutritional requirements.

So that the Government had forms of pressure which were directly economic in terms of participation in the program. Our problem in the early 1940's was whether to accept quite as much enthusiastic cooperation as we were sometimes offered because it was so directly to the interest of the very young industries manufacturing vitamins to promote programs. They were back of a great many programs that were instituted nationally.

So were the big specialized food councils. So was the dairy council which was back of drinking more milk. We found kinds of agreements among the great food councils, holding companies for the different parts of the food industries, and the vitamin industry. Everybody agreed that a balanced diet was a fine idea. They were willing to put in a considerable amount of funds through the mass media promoting a balanced diet which in turn promoted the use of the products they were working with and promoted fortification and reinforcement.

I think we face the same position today in the need for protein reinforcement. Considerable experimentation has gone into this field for foreign use in other countries with practically none here.

I think it should be a cooperative effort on the part of industry and a widely based governmental activity to back the necessary research and experimentation in protein reinforcement of food.

To come back to your earlier question, what happened in the 1940's was that a Coordinating Committee on Nutrition was set up in Washington under the auspices of ODHWS which was a precursor of the present alliance of HEW and OEO. Dr. M. L. Wilson was coordinator and the program reached into every part of American life, into industry, into the armed services, down to the smallest communities.

I followed the Nutrition Committee's activities down to towns of 5,000 in different parts of this country. There was continuous interaction with the mass media—radio of course was the principal help in those days. Radio did a tremendous amount with the kind of marketing information that is necesary if people of limited incomes are going to be able to get food to feed their families.

The CHAIRMAN. Dr. Mead, how does the United States compare with some of the other developed countries both in terms of the extent of the population that is suffering from malnutrition and also in terms of what is being done about it?

Dr. MEAD. I am not an immediate specialist in comparative figures so what I am saying to you is general but I am sure could be backed up by statistics. When I was in England in World War II the American consul in Manchester had just come from Spain and he had been an American consul in Spain for many years where of course the conditions of the people were extremely bad.

It was right after the Spanish civil war. He said to me, "You don't know what it means to wake up at night and know there is not a single child in Great Britain that is crying from hunger."

This you can certainly say is true for the United Kingdom, and for the Scandinavian countries and for the people in the Soviet Union who are fed on extremely monotonous diets but nevertheless a tremendous effort is made to see that everybody gets food basic to health and the effort is directed toward the entire country.

It is only if the effort is directed toward the entire country that you can say this. From the standpoint of any other modern industrialized country the dire need that exists in parts of the United States is appalling.

This is true for infant mortality, it is true for the delivery of medical services. When it comes to food and nutrition we actually have people in this rich United States now who are starving.

I think that this would be impossible to duplicate in most of the modern industrial countries.

The CHAIRMAN. How have they achieved that position where they can say, as you say, without anyone succesfully challenging it, that there is not a single hungry child in the entire United Kingdom or Sweden or the Soviet Union?

How has this been done? Has it been done largely through the market system or entirely through that or public distribution programs?

Dr. MEAD. It has been done with a combination. I think you always have a combination. Whether food is handled through government rationing plans as in wartime or handled commercially, nevertheless, it is necessary to see that the food distribution system reaches every part of the country.

You have to be certain to control your major staples in a way that assures having an adequate supply for the nation, you have to have cooperation between the health services and agricultural services and educational services so that they all come in and combine to provide the food and where necessary under government subsidy. With the exception of the Soviet Union, I have been principally speaking of countries with mixed economics where you have food for pregnant women which is carefully supervised so that they are certain to get what they need, provision for infant welfare stations, and school lunches, provision for those individuals who are temporarily unemployed, and for the old and the retired and the sick. But at the same time there is a concerted relationship to the other producing parts of the society; I don't believe that this can be done by the government alone, but I don't think it can be done without a very strong central nonpartisan push from the government.

The CHAIRMAN. It is interesting to me, Dr. Mead, to listen to your description of the hopeful efforts that were launched in the 1940's and the success that that effort enjoyed and consider that today we have actually regressed from that point.

What is your explanation for that? Why did the momentum go out of the nutritional drive 20 years ago? That has not happened in other areas to my knowledge of similar importance where we have continued to move ahead on scientific and technical breakthroughs all down the line.

Dr. MEAD. Well, we don't move ahead in those areas where we have had to mobilize very strongly public opinion only in the face of something that is stated as an emergency.

I think if you look at our history—and the venereal disease program is a very good example—first we had a campaign spearheaded by Dr. Paran who showed how bad the problem was.

Then we had a tremendous flurry of working out scientific means of meeting the problem. Then we announced this was all settled. We closed our case findings clinics and went home and today we have a great deal of venereal disease because we didn't keep on doing something about it.

We did the same thing with food and nutrition. We were horrified at the state of food and nutrition particularly in the Southeast. This was the principal pocket of terrible malnutrition and it occurred through the population.

There were cases of pellagra among people with considerable income. It was something that affected both races and different classes in the South and after the long years of the depression was particularly frightening. We went to work and mobilized everything just as we did in all the other tasks that we faced in World War II when the War Production Board had that nice motto, "The Possible We Do at Once and the Impossible Takes a Little Bit Longer."

We did it and said it is done. Immediately after World War II, we had affluence, very full employment, a great deal of self-congratulation, a weariness with the problems of the war.

We began getting a government that used no social science whatsoever and was not interested in any social scientific analysis of what was happening in the country. We became increasingly resistant to the demands for foreign aid partly because it brought up problems that were very difficult and partly because we had this very curious situation of overfeeding the articulate section of the American people, of overnourishing them so that most people most of the time had the experience of refusing food.

Every party, every cocktail party, every school picnic, every coffee-break the whole articulate verbal section of the American people were trying not to eat something. It is very difficult to have such behavior as the style of life and simultaneously realize that the section of the population which you don't see and know nothing about has nothing to eat and that people are subsisting on very, very poor low diets.

The CHAIRMAN. In the Citizens Board of Inquiry Report, "Hunger U.S.A.," one of the statements that most shocked me was a statement quoting the Surgeon General of the United States. You know the study and earlier this year he said "We do not know the extent of malnutrition anywhere in the United States. I cannot say what the extent is because we don't know." He went on to say, "It has not been anybody's job. The Childrens Bureau is now mounting a nutrition study and we have been trying to get ourselves to do this kind of work in the United States."

Would you say that that is an unacceptable condition to exist? In a country like this?

Dr. MEAD. Totally unacceptable but quite explicable. Because even during the war when we had the impetus of a controlled war economy and it was possible to put Federal pressure on in various ways, even then the problem of coordinating the number of agencies in Washington in which the pieces of responsibility were located was very difficult.

We did have good coordination and this worked, but, the Childrens Bureau was responsible for children; the Bureau of Agricultural Research was responsible for one kind of research; the Bureau of Home Economics group in the Department of Agriculture, which has since been abolished, of course was responsible for what people really ate, how they cooked it and how they got it.

Parts of the armed services were concerned with sections of things. We had to deal with one part of the armed services that cared about liquids and another part that cared about solids and I could not put them in the same boat—although if you tried to stock a lifeboat without considering both liquids and solids you would not get very far.

There was a tremendous fragmentation among Government agencies then and it was the kind of fragmentation that could very easily fall to pieces without some continuing leadership and responsibility.

The CHAIRMAN. In your opening remarks you made reference to the Department of Agriculture, and if I understood you correctly you indicated that the kind of broad social humanitarian concern that motivated that Department 20 years ago has decreased, that perhaps we ought to look to some other focus for leadership in the battle for nutrition here in this country.

Is that because of the structure of the Department, its mission within the Government? Is it a matter of personalities? Is there anything about let us say the structure of the Department of Health, Education, and Welfare, the Public Health Service or some other agency that in your judgment would make it a more logical focus for any nutritional concerns within the Government.

Dr. MEAD. The good personalities I think always have to be regarded as a very fortunate accident. We seldom have sufficiently bad personalities to explain the failure of any program. I think the impetus by Henry Wallace in Agriculture and followed by M. L. Wilson was important in terms of personality and in spite of the fact that Mr. Roosevelt never was very sympathetic to food programs and thought people ought to tighten their belts in emergencies and had a slightly ascetic point of view so that the leadership of Wallace and Wilson was in spite of a specific leadership coming from the White House.

I think it is much more the structure of the Department, on the one hand that it has become increasingly involved with a kind of agriculture that is big business in the United States as we have been moving toward larger and larger farms—the subsistence farmer is no longer as viable as he was in the 1930's.

In the thirties if we gave them enough help we could set subsistence farmers and very small farmers on their feet and I think this is now much more difficult to do.

Furthermore a large proportion of our problems have moved to the cities and the Department of Agriculture never had anything to do

with the cities or if it did it was usually not very felicitous. Even the social scientists who worked on rural problems never read a social studies book if the subject was a population of more than 2,500.

Now when our problems moved to the city because due to automation and mechanization—poor agriculturalists are moved off the land and become the concern of a different group of people and different political group the Department of Agriculture was moved out of concern for them in these two ways and I think we have to look at this structurally.

At the same time we have, of course, new agencies concerned primarily with city populations, with the whole poverty program and, with HEW's new developments.

The real question, and I don't have an answer but I think it needs to be outlined, is how to combine the food producing parts of the country which also contain some of the worst poverty areas, with a nationwide program that has to involve the cities as the major population component. This is a new problem.

The CHAIRMAN. Isn't there also the political problem, Dr. Mead, of how you get the Congress to appropriate large amounts of money for food distribution purposes in this area without identifying it with the necessity of utilizing agricultural surpluses? That is, can you get the same kind of motivation to feed hungry people that you get to support agricultural prices?

Dr. MEAD. Well, you know, I think the American people behave much better when you appeal to their best instincts. I think it was Harry Hopkins who imported into our national activities the notion that you can only get Congress to do good things for bad reasons.

He came out of a world that distrusted everything political and so all through the New Deal and following World War II we were always appealing to Congress, to feed children in order to sell surplus commodities.

I don't think you are going to really feed children by selling surplus commodities. I think you have got to feed children because they are children and because they are hungry.

Congress has always been for motherhood and against cancer and the whole history of the appropriations to NIH, in the period following World War II showing that appeals made directly in terms of the crippled or the diseased received good support. I don't believe that a bargain between the self-interests of farmers and the self-interests of other groups is ever going to feed children. The trouble with the United States is at present that they have made a kind of dichotomy between self-interest and nobility and put nobility second.

The CHAIRMAN. I am glad to hear you say that. I agree with that. I think that is one of the reasons why we have had so much difficulty selling a good foreign assistance program to the Congress.

We have tried to sell it for a bad reason and that may be part of our problem here. Dr. Mead, is it fair to say that we had a nutritional policy in the country in the 1940's that was generally accepted that no one should be permitted to go hungry whereas today there is no such assumption as a matter of Federal policy?

Dr. MEAD. I don't think that we could say there is a Federal policy that people should be permitted to go hungry, no.

The CHAIRMAN. I realize that.

Dr. MEAD. It is just a lack of policy.

The CHAIRMAN. Did we have such a position affirmation accepted as a matter of public policy 20 years ago?

Dr. MEAD. We did. We did in the beginning of the Federal relief plans, in social security, in the thinking that has gone back to the extension of medical services. We had the development of a policy that every American must have adequate food, adequate housing, adequate medical care, and adequate education. This was the policy and it has lain in back of many of our efforts in the past few years but food just got left out of the thing virtually.

The CHAIRMAN. Thank you very much, Dr. Mead.

I know Senator Percy will have some questions that he will wish to direct to you.

Senator PERCY. Thank you, Mr. Chairman. Dr. Mead, I would like to first express deep appreciation to you for being here today and commend you for the vision, courage, and leadership that you have provided in many fields. I know we have benefited greatly by your help in this field. First, before I ask any questions, I would like to comment on our unwillingness to admit that there is a hunger problem.

I arrived in Ceylon a few years ago, just after the U.S. Government aid program had made large grants of dried milk to the Ceylonese people and I was quite interested in their reaction. It was bitter against the United States; first, for exposing to public eye the fact that this might look as though there were hungry Ceylonese children, and, second, because this dried milk was a gift. They knew we had a surplus of milk and were trying to get rid of it. Rather than giving them the dignity of selling it for what it was worth—maybe a penny a gallon on the world market—we gave it to them, and they looked suspiciously at it. I remember the cartoon on the front page of the most prominent newspaper on the day I arrived, of Mr. Dulles standing there with a glass of milk and a dollar bill between his teeth. The caption was, "What do you want for your dollar, Mr. Dulles?" I think we have a lot to learn about how we can help people around the world.

I would like to also concentrate on how we can help people at home. I have just joined the Senate Committee on Government Operations and probably will be working overtime in the Subcommittee on the Reorganization of Government.

Mr. Nixon has made several proposals and indicated that he will renew reorganization laws. I would like to ask you about the role of all sciences with respect to Government. We have a Presidential Advisory Board on the Sciences.

With the appointment of Dr. Lee Du Bridge we have now had I think six science advisers. Do you feel that the social sciences have had a fair shake since the original appointment of a scientific adviser to the White House or is it your impression that it is mainly the biological and physical sciences that have had this great rise at the fountainhead of power in the U.S. Government?

Dr. MEAD. It is mainly the biological and physical sciences.

In World War II we had a fairly good scatter throughout the Government of social scientists in reasonably important key positions who were therefore able to receive social sciences advice from the total social science community and review the kind of help they needed.

With the beginning of this White House adviser in science which

coincided with tremendous growth of the physical sciences and with an almost total disinterest from the executive branch of the Government in the social sciences—with the exception of economics—we have had a break, an almost complete break between what the social sciences could do and what they have been doing and have been asked to do.

I think this is one reason that we are in the kind of bind we are on the subject of race, on the subject of urbanization, and on the subject of food, on the subject of education.

These are fields which are primarily concerned with those who are expert or becoming more knowledgeable in the study of human behavior and they have been unrepresented right straight through in this representation the physical and biological sciences have had.

Senator PERCY. Would you go so far as to say that there is almost a feeling of frustration by the social scientists and the humanists in this country that there has been a preoccupation with the technical sciences both for war and for space exploration? Are we neglecting the problems of man here on earth that involve the knowledge of the social sciences and is the social scientist best able to interpret to the Government what the needs of our own people and the people of other countries are?

Dr. MEAD. Yes, I would say this. I think one of the great responsibilities lies on the physical sciences themselves who have traditionally been arranged in an hierarchy in very strict order on the structure of the sciences in this country.

When I worked on the food problem, and this I think is important in answer to your question, Mr. Wilson asked the National Research Council for help in the social sciences.

The fact that we were in the National Research Council which was protected with an umbrella of the honorific standing of the natural sciences gave us possibilities that we would not have had if we had been based outside.

It was a sheer accident because what the National Research Council usually meant by anthropology was majorly the study of man's physical being; nevertheless it provided a kind of base.

We need a request from Government originating hopefully from a combination of the executive and legislative branches that will make it possible to focus contributions from the social sciences in a way that will not overemphasize any dichotomy between the physical and social sciences and humanity.

Senator PERCY. May I just offer a piece of gratuitous advice then to social scientists, and I speak to such friends not only as yourself but Dr. Sol Tax and Dr. Chauncey Harris and others with whom I have sufficient close liaison—that I can say that this inferiority complex which developed because of neglect by Government should be cured right now.

The new administration has said that this is a chance for new creative thinking and for new teams to come in and the utilization of social scientists should be one of its first actions.

I will have some suggestions to make on domestic reorganization but, in the meantime, I think we are deeply privileged to have Dr. Du Bridge, a man who, though himself a physical scientist, recognizes the great need for the humanities and social sciences.

I served with him on the board of Cal Tech for many years. His was always the loudest voice on the board to say that technical scientists need social scientists to tell them what they are doing to the world and man. No one is a stronger supporter of strengthening the social sciences than Dr. Du Bridge at Cal Tech. I hope he can do the same thing for the U.S. Government.

Dr. MEAD. That will make us very strong in making recommendations to him but, Senator Percy, I would like to say that I would like to see Congress have better social sciences advice also and I would like to see Congress as well equipped with staffing and research responsibilities as the executive branch.

I think this would take us a very long way further if there were such resources for Congress as well as for the White House.

Senator PERCY. Thank you very much indeed.

Your presence here this morning is an indication to us that we need you very much indeed. Could I take a hypothetical case? We all say that a lot of things we need to do but we just don't have the money.

We know we need to end the war in Vietnam but there is a difference of opinion as to how much money would be released when the war is ended.

I would accept our present Budget Director's estimate in testimony he gave before our Joint Economic Committee that in his judgment ending the war in Vietnam ought to release about $20 billion a year.

We can do a lot with $20 billion. But we all know that the Defense Department is going to come in with its built-up requirements. It is going to show that we have depleted our inventories; that we have neglected housing for military personnel; that it has a whole retinue of scientific and technological gear that it wants to develop and produce.

There will be a hue and cry for a thick IBM system; and that can soak up $20 billion a year for some time to come, I presume.

Aren't there a few goals that we ought to articulate that would involve the social sciences?

I am thinking first of early education, early education at ages 3 or 4 for every child in America—not just the very poor in Headstart or the very rich in nursery schools, but the average American. I would say it would cost about $5 billion a year to have these children at the ages when they are highly creative in their outlook on life and to supplement the education of the home; and in many cases provide the only education because they are not getting any in the home.

As a social scientist and an anthropologist, how important would you say it would be for us to move out of emphasis on higher education and massively attack the problem of early education for all American children? How valuable would $5 billion spent in that program be?

Dr. MEAD. I would like to go back a little bit from what you have said. When we say that we would have $20 billion or not have or a section of this, we are speaking not only of our present tax structure but our present utterly unsound notions that we can afford anything that is sold in the market provided our employers give us the right wages, but we can't afford the things we pay taxes for as if the country was not affording the whole thing, and as if we could not raise our resources or lower them in terms of need.

I think we have to recognize that this is a rich country, and we have almost infinite productive capacity at the moment. We can do what we want to do. We are not limited as Britain is in having to import such a large proportion of what we need.

We are not India with a population that is weighing us down. We are not China without the transportation to get food from one part of the country to another.

We can do whatever we want. I think this old argument of guns and butter or battleships and schools ought to be given up.

We ought to simply say what we want to do, and that the ending of the Vietnam war will give us an opportunity to reassess what we want to do with our tremendous resources.

Now to go back to your particular question, we know that the early years of a child's life are definitive in most cases in what they can do later.

This is true in nutrition. We are now accumulating evidence that malnutrition in the mother or child can do irreversible damage in ability to learn and so lower the capacity of our entire population.

Children who grow up in pockets, either rural pockets or ethnic pockets or ghettos in this country are very often people who are personally disabled in terms of their ability to take advantage of even the best school system. We need programs designed to take hold of the mother-child pair before birth and go from health care to early education in which the mother is included. You can't just put babies in rows and educate them, although they did try this in the Soviet Union in the early days. They tried separating the children from the parents and found this did not work. We need a program which will include the parents. The dispossessed group in this country, people who live without hope and ambition for their children, comprise about 30 million people whose children we are placing in jeopardy.

Senator PERCY. I accept your amendment that we don't have to wait for the end of the war to get on with these programs. I think that further strengthens your feeling that these are urgent things that we ought to get underway.

Many public schools at least check with the parents to see if their newly enrolled child has seen a dentist or a doctor. Would it materially advance the health of our young people if we could get them into an early education atmosphere?

Dr. MEAD. It would enormously advance it. This was one of the significant things that happened in Britain during World War II and even happened in Bali in Indonesia after World War II.

When I went back to Bali and looked at the faces of the Balinese children, it looked as if all their noses had been wiped right across the island because when you get good nutrition you get rid of colds.

The same thing is true in Britain. Children every one of whom were dribbling all the year long suddenly had wiped noses so that you could see the effect of nutrition. Early medical care to check up on disease which if not caught early will become irreversible and a reviving of hope in the parents—hope which these 30 million people in the United States at present have lost—would make a tremendous difference. But I would also like to mention here that we can't wait until these babies grow up.

We must catch the mothers at the same time as the babies but we also have our adolescents. We need some sort of system where every 16-year-old and/or 18-year-old is given a checkup to find out what he has not learned, his health defects, what needs to be done to his teeth and his eyes and what sort of education. This is absolutely essential. We can't wait for the years that will take for better cared for babies to develop into American citizens while we let the rest of the population go hang.

Senator PERCY. Mr. Chairman, I think this is a very useful point to bring out. We wonder and almost despair about how we can reach some of the parents of our children today; particularly those in the low income category. How do you reach them when there is not a stable family unit. I have never yet seen a woman that could not be reached through her children.

This is now the fourth year of an experiment we have undertaken in Chicago.

There we have tried to help 125 children in a private Headstart program in the greatest center of poverty in Chicago. What has happened to those children is unbelievable. But what has happened to their ghetto parents is even more unbelievable:

They had seen what we had done for their children. They were skeptical at first, but they came to the classes on birth control, to the classes on dietary control and we instructed mothers for the first time in what it means to feed children nutritional food—which many times is far cheaper than what they were paying for the prepared foods they were buying off the shelves of the supermarkets.

In West Virginia my daughter's experience in teaching a Headstart program has been one of the most thrilling things she has ever done. It makes us weep to think that as a country we are overlooking this almost totally. The miniscule start we have made with Headstart cannot even measure what we could accomplish if we could go into these programs with both feet.

I would like to ask you whether the failure of our welfare programs to a great extent depends on the huge number of cases every caseworker has.

The caseworkers I talk to are paperwork clerks. They really don't have a chance to do remedial work. Wouldn't it in the end be less expensive to have caseworkers only engage in social work and have others do the paperwork?

Dr. MEAD. I agree with you that working through the children one reaches the mothers. We have seen this all over the world, even with people just coming out of the stone age. Mothers want their children to live and want their children to grow. If you can present these goals to them you can catch their imagination no matter how ignorant or cut off from the world they have been.

However, I think you also have to recognize that there are two other points. I think our whole welfare system has to be overhauled and scrapped and it will do us no good to just fix a piece of it.

It looks like a move in the right direction when we get rid of the means test in New York City and find there are not more people cheating than there were before.

It is a help; it frees the caseworkers for doing the sort of thing we are discussing. But this is not good enough. The fragmented welfare system that puts totally disproportionate burdens on commu-

nities and makes them hate everything about the newcomers and their needs, is totally inadequate. We could instead develop something on the order of a negative income tax much more cheaply. We have the equipment to do it. This would release the caseworkers and clerks and the great army of people to deal with human beings instead of with papers as you say.

I would also like to add one other point. That is that we have to be certain that we have the very most skilled and most dedicated human being coming from the most privileged groups in society to work with the least privileged.

This is the only way that we could make a circle rapidly enough to bring these children up. You can't expect teachers who themselves came from deprived homes, whose parents scrimped and saved to send them to college, who scrimped and saved to buy a house in the suburbs and who don't understand the bond issues—you can't expect that group of teachers to provide what we need as stimulation for the children that we are bringing into Headstart.

We can't run the country by giving every poor unit poorer people to run it, to teach it, to give the medical care. We need a system where we take from the most experienced, the most privileged, and bring them into contact with the least.

Senator PERCY. We have been called the best fed nation on the earth. It is a shock therefore to realize that there are millions of malnourished people in this country.

We have been called the healthiest people on earth, although my visits to poor neighborhoods belie this belief.

Could you comment on the level of health care available to the poor, both the rural poor and the inner city poor, and its adequacy in this the richest Nation on earth?

Dr. MEAD. It is totally inadequate.

What we suffer from in this country is maldistribution of our riches which means underconsumption of our riches by large portions of the population.

We continue to focus on production and then cut it down when this comes to agriculture and if we say we have only so much money. It is a question of the plans and resources that we have and if we worry about production instead of worrying about consumption we will stay exactly where we are. We are already incredibly rich when we look at production.

We are so rich that we can afford, even with our big urban population, to scrap some of our agricultural potential. We are so rich that then it often pays large industrial establishments again to take a rest which is called a strike and inconvenience half the people in the country, because there is not an adequate market for the things that we need.

Our problem today is distribution at every conceivable level and the medical care available to the ghetto and available to our rural isolated populations is appalling, absolutely appalling.

Senator PERCY. May I reinforce what you have just said with a few facts? The Hill-Burton Act is a fine program. Just as FHA has done a magnificent job for middle-income and affluent people in letting them buy their own homes over a period of 25 years, the Hill-Burton program has done a fine job in helping build hospitals for moderate-income citizens.

It is hard to find quality hospitals, however, in the inner city serving the ghetto persons. In fact, you can't find doctors and dentists living there and you can't find medical facilities there.

In Chicago they can say "Well, the poor can go to Cook County Hospital"; and in Watts they can go to the Los Angeles County hospital. I went recently to both inner city areas and tried to get to the county hospital.

It takes 2 hours to get from Watts to Los Angeles and it is expensive. In Cook County, the same thing is true. And when you go out there you wait about 5 or 6 hours and in Cook County 80 percent of the people who go are rejected as not qualified for bed care.

The poor have an inner feeling of being rejected. As Dr. Elam from the Miles Square Center in Chicago, testified yesterday the poor are most of all afraid of being rejected.

This is why a lot of them are afraid to go to a plant gate and apply for a job. They don't want to go back home and say they have been rejected. And they are afraid of being rejected at our huge county hospitals.

I have introduced legislation to provide, under Hill-Burton, authority to build neighborhood clinics in the inner city; to bring the doctors to the poor; and to hire the indigent as medical helpers.

Would you say that social scientists feel something like this should have a high priority?

Dr. MEAD. Yes; Senator Percy, but I have to think about the fact that the inner city in its present form is a new phenomenon in this country. We have always expected that the very poor immigrants—in the old days they were immigrants—to come to the city to live under appalling conditions, to use the appalling conditions as an incentive to get out.

So they came in and lived on the old East Side of New York, in little Italy, and lived under dreadful conditions. I suppose even the rats were helpful because they encouraged them to work hard and get out and they could get out.

So the need was primarily for emergency services in a sense and you could not adapt them to a particular group because by the time you did that group had gone and another group had come in.

We are now in the situation today where we have these great trapped populations unused to living in the city, unneeded in the city, who are related to where they live in quite new ways. The problem is how we are going to set up the kind of neighborhood centers which will have a relationship to a population that is trapped rather than to the old ethnically based populations that we worked with before; how we are going to set up programs to deal with the rural poor without including the fact that the rural poor are leaving the countryside, I think that the programs have been set up under the leadership of Dr. Jack Geiger at Tufts University where he has matched rural areas where people are leaving and urban areas where people are coming so that he could work out what you do for the rurally deprived who have never had medical care, who are going to the cities—what you do before they leave, what you do before you get them in the cities. If we put these two things together as you did in your statement this would be a great advance in our planning.

Senator PERCY. One last question. My distinguished predecessor, Paul Douglas, worked with great persistence and was rebuffed many times in the area of research for fish flour as a very cheap and readily available nutriment.

Do you look on this as an area that has potential both in our foreign aid program as well as in this country?

Dr. MEAD. There are several problems here. One of the problems is where we are getting the fish and what we are doing in some instances to the resources of the countries that are protein short already when we take them in.

It is a little bit like what we do when we say we are giving such wonderful medical education to people from other countries, only we take their trained medical personnel away from them and drain their people, who need it more than we do.

I think this has to be considered. Also, I don't believe that in the end in countries with mixed economies that government use of food supplements which is labeled as government's is the best way to do it.

I think the best way to do it is for government to promote research and put at the service of the food industries the information needed so that you know what populations need reinforced foods, in this case protein reinforcement. Let private industry go to work and produce the food in a form that people will buy it and eat it.

Nobody in this country wants to eat food that has been labeled as what the Government gives you for nothing and is good for you.

They want to go to the store and buy what they see on TV. This they feel is what human beings eat and not people who have had a means test.

Senator PERCY. I am happy to say that in Illinois I think we have the largest commercial producer of this fish flour and we are hoping that their sales are going to expand considerably. We also have an abundant supply of alewives in Lake Michigan which we can provide fish for years to come.

Mr. Chairman, I would like to yield to my distinguished colleague from New York and if there is any time at all later for further questioning I would very much appreciate Dr. Mead's comment to a question concerning Biafra.

The CHAIRMAN. Thank you very much, Senator Percy.

Senator Goodell.

Senator GOODELL. Thank you.

Dr. Mead, it is very, very nice to have you with us this morning, and I think your statement has placed this whole problem in perspective better than any we have had thus far. We have had some excellent testimony, but yours placed it in historical perspective and certainly in perspective in terms of the capability we have to meet this problem today if we just have the national focus and policy to bring us all together in the program.

I would like to explore very briefly with you some other aspects of the problem where I think you are quite an expert.

We are constantly faced with the answer, where we talk about getting better food to the poor, that there are certain ethnic economic group eating habits that interfere in this country. Can you explore this a little bit and comment some on the similarity of poverty diets

with some of the religious and social taboos which interfere with this situation. What we can do with that?

Dr. MEAD. In World War II, in that period we felt that it was very important to understand ethnic eating habits. The Southeast had dietary habits that were very different from the rest of the country which the North thought were Negro habits and the Northeast had food habits that Negro southeasterners thought were white habits, and we explored these various sets of customs and prejudices.

We still had ethnic communities like a very large number of Italian-Americans who didn't like the kind of spaghetti that got produced in World War II. They said it stuck to the plate instead of sticking to the fork. It was still very important to worry about this type of prejudice.

We also did quite a lot of work in acceptability of various forms of dehydrated food for our feeding programs abroad. These were all very unappetizing, the first ones. The foods were grown and didn't look like food for people to eat. This was the time of early fish flours and things of this sort that were produced.

We got groups of Yugoslav women and Bulgarian women and Greek women and Dutch women and Norwegian women, and said, "Turn it back into food"; and this was much quicker than any other method of working out acceptability.

Also the way we administered the point system in rationing in World War II was exceedingly important in adapting regional customs to preference for pork or for beef, for fatback as compared with lean meat. If we hadn't had the point system in rationing, our rationing system would have broken down because it was not possible then to produce food that would be eaten with anything like the same enthusiasm all over the United States.

However, I think today most of this has changed. I think too much emphasis on ethnic food habits is just a form of resistance to doing anything. It is a very easy explanation to say that these people have a lot of funny prejudices and are still foreigners or have odd religious ideas. The minute you get national television and national television advertising, if you have outlets where people can buy the things that get on television at a price they can afford or you have an adequate system of income support that gives them money, we can easily get high acceptance all over this country.

And may I illustrate this on another level. The International Rice Institute in the Philippines has developed a rice that they call Miracle Rice that has a tenfold superiority over the rices that are being used in Asia. This is not the point at which you worry about food habits. You worry about food habits if something maybe has a 10-percent gain but not a tenfold gain.

The minute we can bring all our other forces to bear, national advertising of adequate food that is nutritional, the information that people can buy what is advertized in the neighborhood store, I think most of these ethnic prejudices will wilt away. They are being used today primarily as ways of saying, "It isn't that they haven't the food, you know, but they won't eat it," which is about parallel in 1968 to the theory that you ought not to give the poor a bathtub because they put coal in it, which was heatedly argued in the beginning of the century. Food habits are no longer so relevant.

Senator GOODELL. I agree with that. We have also had the comment made a couple of times that there was some question about the ethics of fortifying food. We do know that some of our Government agencies are concerned about what you might call overfortification.

These agencies feel that the general population gets a balanced diet and gets nutritional needs and since fortifying food is more expensive, to require fortification of various types of food is, in effect, placing a burden on the entire populace when most of them don't need it and therefore you should not do it.

Dr. MEAD. Is this being argued in terms of the tax burden or the stomach burden on the populace of getting too many vitamins or something?

Senator GOODELL. It has been argued in various ways and we have had that presented in different ways. I think it was presented yesterday in terms of protein fortification being expensive, more expensive than vitamin fortification, and therefore, if you were going to require the production of foods that are fortified in protein, the price in the market would go up and then the people who need it most would choose the cheaper item and tend not to get the fortified food. If you require all the food to be fortified, then the general populace is paying an increased price for bread or whatever the commodity might be. This is the argument made.

Dr. MEAD. As we obtain adequate information, it will be possible to spot those items which form a larger proportion of the diet of the low-income groups.

The USDA Report of Food Consumption in Households for 1965 (published July 1968) provides considerable information on the consumption of specific items, of food groups, and, also, of nutrients as calculated for income groups beginning with "Under $1,000 after taxes in 1964." These reports are published for different regions of the United States.

Now, there are tremendously large numbers of people on low incomes in this country who are not classified as the poor. They may be living well below the welfare level; they wouldn't be reached necessarily through any kind of welfare program; but, nevertheless, they need better nutrition.

It's possible to put fortification in foods that occupy a larger proportion of diet when people are poor, that is people of a low income. We never said poor in World War II. We always said lower income brackets. There are a large number of people in this country in low-income brackets. In certain groups we still find the urban self-respecting, working class where more money goes into elements of self-respecting prejudice than goes into food. We find whole groups of the population that skimp on food and feed the family on certain types of staples.

The consumption of bread goes down steadily, for instance, or at least did—everything I say is "it did" because we haven't been doing any work—but on the whole the role played by bread in the diet goes down, the role played by all carbohydrates in the diet goes down as people have higher incomes and more choice and can choose a varigated diet so that, if you reinforce macaroni, spaghetti, bread, cereals, basic cereals, you are not discriminating and giving too many proteins to the people that have the protein already because that isn't the diet they eat.

Any attempt which is directed toward, a target population, without a degree of inclusiveness that gives them digntiy, I think, is likely to fail.

Senator GOODELL. Would you require, then, a minimum fortification of these various foods that you described that are consumed in larger proportion by the poor?

Dr. MEAD. Well, if you look at the food reinforcement programs in the 1940's, we used to suspect industry of wanting to fortify them. I don't think it is necessary to require it. I think if you have a sufficiently good combination of the people that work on the reinforcing materials and make money out of it and a good enough arrangement between what Government will support and approve of and back up in terms of health standards and food standards and a general climate of opinion it will reward the industry that sells the new fortified materials as we do today. Fortification rich in vitamins and minerals is a wonderful selling point that both educates the public, improves nutrition, benefits the people that sell the food. I don't think we need to think of this as a point of opposition between industry and a government that makes a demanding set of standards.

It could be a very creative, vibrant partnership instead in which you recognize there are a lot of people to whose interest it is to fortify foods.

Senator GOODELL. Ideally I agree with you, but we have had points raised by some of the manufacturers that if you are going to provide minimum requirements to see that everybody who produces bread is going to meet those minimum requirements, it is going to cost a little bit more to produce that loaf of bread, and they don't want to be in a situation of trying to compete with someone who puts it on the market for 2 or 3 cents less and sells more bread as a result.

Dr. MEAD. They said all those things in 1940, but you had a complementary relationship in which those who sold milk wanted to get in and those who sold bread and flour wanted to get in and the meat people wanted to get in and the fruit and vegetable salesmen were just coming up, and the industries that produced the vitamins and the minerals in the form that could be used wanted in.

There is no reason why Government cannot cooperate with a goal that is shared by everyone. Government did the advertising, free advertising for the Dairy Council by insisting that people drink more milk. They did free advertising for reinforced bread, and industry made the money out of it and they got themselves a good advertising-selling appeal, and every time they made the selling appeal the people in the United States were better educated about nutrition.

Senator GOODELL. Let me ask you this. I happen to agree that this should be a national policy and that the Government should move aggressively and vigorously in this area as they did in World War II.

Meanwhile, we have something like 2 million youngsters participating in school lunch. We have 6 million youngsters from poor families, but only 2 million of these participating in the school lunch program.

First of all, we have to expand the school lunch and reach individuals. Do you see a problem or ethical problem, particularly, in fortification or reinforcement of foods that go into the school lunch program as distinct from general foods? Largely, you know, this is supplied by our commodity surpluses.

Dr. MEAD. Well, I don't believe that school lunches should be based on commodity surplus anyway.

Senator GOODELL. I don't either.

Dr. MEAD. I don't believe you feed children with financially defined surpluses and this is what we are trying to do. I believe we should have a school lunch program for all the children in the United States and not lunch programs based on the present kind of discrimination.

We talked about this earlier. We do have a problem at present with the industries' concentration on producing unnourishing, nonfattening foods and persuading people to pay large sums for soft drinks that are guaranteed to have no calories and so won't nourish you. Industry has done this in response to the increased threat of overnutrition for the affluent in this country and, as it was in a sense a reasonable response to the effect that we had set up a pattern of eating which threatened every person with a decent income in this country with an early death from eating too much and eating too rich food. We will have to do something about this to deal with the problem you are talking about.

If we could divert industry from producing unnourishing food to producing specifically nourishing foods so that their energies went into this field, we would still have a problem. This is the reason we have got to deal with this nationally and at every economic level.

We still have a problem in presenting to the affluent child too much food in every conceivable form. I think it is possibly from that point of view that people are saying that you shouldn't overfortify the school lunch. We will need an educational program of the ways in which other meals and habits of teenagers' eating have to be tackled at the same time.

Senator GOODELL. In this connection, it is a simple example to take soft drinks. There is some debate over the years, I understand, in the Food and Drug Administration about requiring some reinforcement of soft drinks. Apparently this issue was, "We don't want to encourage the drinking of these beverages so we won't fortify them."

I presume from your viewpoint the manufacturers of soft drinks, if they went into a television campaign in cooperation with the Government, could sell reinforced soft drinks at every level that the American people would like to buy, including the poor.

Dr. MEAD. I would like them to be distributed pricewise so that there was greater fortification for the cheaper ones, you see, and if you are really going to buy something that is guaranteed not to nourish you, this should be very expensive. If industry does this, and it will be perfectly possible for them to do it, so that people are willing to pay 50 cents for something that is guaranteed to have nothing in it which is of the slightest use, but people who could only afford 20 cents are assured that everything sold below a certain cost level, no matter who it is bought by, will be fortified, I think we could use the price range as a protection for both rich and poor.

This stuff about soft drinks, of course, is part of the puritanism that is inherent in our entire nutritional establishment that we haven't gotten over and are going to have to work with: anything that is good is no good for me. This is a basic tenet of American puritanism about food.

People obviously enjoy soft drinks. Therefore, they will argue they

are bad for you, and it is terrible to put something good into something that is bad for you. You can expect to get this kind of argument. It has been going on for a very long time everywhere, and the only way we can deal with the argument is to get out of this moralistic position. This is sheer moralism.

But you also have to watch this kind of thing. Before World War II we had taught a large number of mothers in this country that orange juice was good for babies, and if you could get fresh oranges, this was fine. We had also taught them, and the Dairy Council helped with this, that milk in containers was better than milk that you got from a store in an open tin can that we couldn't properly supervise as to cleanliness.

During World War II we developed nutritionally worthless orange drinks. All through the defense industry towns that were mainly composed from rural migrants from the South who knew very little but had learned a certain amount about good nutrition this abominable orange drink was sold in containers and mothers substituted it for milk, and we had a very, very serious situation that we had to do a lot of work to combat.

So you have to have continual monitoring, monitoring by social scientists, by health authorities, by nutritionists and especially by home economists who are really trained to look at what people eat.

One of the things that has happend in this country that is very bad has been the downgrading of home economics everywhere all through the country. In many cases the nutrition has gone up socially because it deals with nonhuman things and deals with beautiful scientific problems and home economics has been downgraded. We don't have enough concerned people watching what is happening of this sort. All these factors will have to be looked at.

Senator GOODELL. One final point. I think your recommendation that the lower priced items be reinforced is theoretically good, but how do you get a manufacturer to do this? He produces, say, a candy bar or soft drink or even a cereal which is unfortified. He produces it more cheaply than he does the fortified product. He has to face competition in selling that item. He pretends to put the price at the lowest level he can to meet the competition and his costs are higher for the reinforced food and, therefore, it costs 3 or 4 cents more. How do you deal with that?

Dr. MEAD. Why do manufacturers reinforce all kinds of things today when nobody makes them do so? Because we created in the food and nutrition program a climate of opinion so that it pays. This is where Government comes in.

Government has to take an initiative in creating a climate of opinion with the mass media so that an idea like fortification pays and so you can say to a mother, "If you have a limited food budget, be sure that your children drink our special kind of "XY ade" because then even though you don't have so much to spend on food they will be safe."

And you can simultaneously say to a mother, "If you are spending appallingly large amounts on food and your kids have big allowances and can get out to the dispensers at any moment and are eating too much and ruining their teeth and threatening their future as we find with the sweeteners that are used in these things, you had better buy something else."

You can differentiate your population in terms of the proportion of their budget that they can spend on food without demeaning them.

Senator GOODELL. What you are recommending is that we have an agency in the Department of Agriculture 1969 to do what the Department of Agriculture was doing in World War II, to really get across nutrition education?

Dr. MEAD. No, I am not. I think Agriculture should be put over with Commerce. I am not, however, making a statement about bureaucratic arrangements. Agriculture today is concerned with production. It was once concerned with the agricultural population in all its aspects, education, health, the whole works. It isn't today. Agriculture today is an industry. It should be treated as an industry, controlled as an industry, helped as an industry, and the concern for the health, education and welfare of the people of the United States should have a focus that is people, rural and urban.

Senator GOODELL. I agree with that.

Now you are saying in other words that what was done in the 1940's by the Department of Agriculture today should be done in another agency, Health, Education, and Welfare or an agency that is devoted to needs of the people themselves?

Dr. MEAD. It should be differently localized. Just as I am not exactly going to take on combining Commerce and Agriculture, I am not going to take on any one of these strictly bureaucratic points here because I haven't been working in Washington closely enough and I am not in close enough touch with the political situation. But I think that it is no longer appropriate to treat the Department of Agriculture as concerned with the whole population. It is concerned with the production of food. We need some agency, some spot which is concerned with the whole population everywhere where there is no urban and rural line whatsoever, no line between Mississippi and Massachusetts.

We need an agency that can take an equal role in the protection of all the people in the United States, that can devise a climate of opinion in which the people anywhere in the United States are responsible for people anywhere else, as we are perfectly willing to do in a national disaster or even a spoiled cranberry episode. We are willing to have the tax structure of the United States deal with the results of a hurricane or the condemnation of cranberries.

There is no reason why we can't have a climate of opinion spearheaded and established by a Federal agency which treats every single person in the United States regardless of age, sex, economic status, location, or race as equally the concern of the whole.

Senator GOODELL. I yield to the chairman.

The CHAIRMAN. Senator Goodell, thank you for yielding.

At that point, Dr. Mead, you spoke earlier about the nutrition council that was named in the 1940's, that elevated this whole problem to a very, very high priority in the Government and was apparently able to cut across departmental lines and reach into the private sector in such a way as to give support and motivation to them.

Would some such focus as that or perhaps a top level Government coordinator on the White House level be in order in your judgment? I realize you don't want to get into any specific administrative recommendations here, but from what you know of the operation of these

programs in the past, do you think we need somewhere in the Government either a person or an agency or a council perhaps involving both Government and private people, something of that kind in order to cut across the bureaucratic problems that we have today?

Dr. MEAD. I think we do. I think it is going to be far more difficult than it was in the early 1940's, that one of our problems in this country today is that we don't realize how difficult things are on the one hand and don't realize our resources on the other.

To bring all of the Government agencies together today and without the backing of national morale that comes with a war is going to be difficult. Two inventions will have to be made. One is where to localize a central focus in the Federal Government, which will have congressional support and bipartisan congressional support because otherwise we won't get anywhere. We will have this endless shooting back and forth while the coordinator of nutrition reads the introduction to the Agriculture bill to find out what is going to happen in Congress.

We need some form that can be bipartisan, legislatively supported as well as executively supported, so that the problem is not only to coordinate the different agencies of Government—we have a big batch of them now—but we still have relationships to the armed services and relationships to industry and to the mass media, and I think you have to have a focus, somewhere and it has to have very high stature.

It doesn't have to be so heavily financed as it has to be heavily staffed with people who care about what they are doing.

The operations in World War II were not terribly expensive but they were very skilled and they involved all the different parts of the economy and all the different political interests.

The CHAIRMAN. If I understand what you implied here a while ago, the reason it worked so well was partly because you had a Henry Wallace or M. H. Wilson of high stature and commitment heading it up and you also implied that the President wasn't very much interested.

Dr. MEAD. We did it in spite of him. President Roosevelt cared awfully that the people in the United States were underfed, but he was very unwilling to worry during the war about problems of nutrition and feeding because he felt that people could tighten their belts and suffer.

So, for instance, we could never get soap rationed in the country, and as a result of not getting soap rationed, we condemned millions and millions of peoples of the world to fat deficiency after the war. We couldn't do anything about it because all the people who were supporting Roosevelt were supporting him on a lot of other policies that were so good that when he balked on a good policy, we couldn't do anything about it. This is one of the dilemmas that we always face and faced fairly recently.

The CHAIRMAN. Just a couple of questions, and I think Senator Percy has another question or two he wanted to raise.

Is it correct to say that in the 1940's the most acute food deficiency in the country was in the vitamin field, and we largely corrected that with the fortification of basic foods like milk and bread, but that today the most acute food deficiency is in the protein field and there has not been a similar response to that problem?

Dr. MEAD. I believe so on the basis of all the information we have at present, which is not adequate. Nevertheless, if you know how much

money people have to spend on food and you know what protein costs and you know it isn't in the surplus commodities which is all they are getting, you can figure out they have a protein deficiency without the least difficulty.

We also have perfectly good ways of making biological assays.

The wonderful thing about food, and I think this really applies to some of the questions that Senator Percy has asked, too, is that it is the one place where you can check up at both ends. You can analyze the food. You can analyze what people do with the food, they eat it, and then you can analyze them to find out whether they are utilizing what they eat. Biology and economics work together.

In housing there is practically nothing comparable that you can say except you must not put people in some place where they will suffocate. You can't take a man and give him a series of tests and say he is badly housed until you get to the point where the rats eat him or the children are eating paint off the walls, but in nutrition you can make tests that will tell you just the degree of deficiency that you have.

When it comes to something as gross as protein, you don't need that kind of test to show that there are many areas in the country where people have severe protein deficiency and are showing the symptoms.

The CHAIRMAN. I have just one final question. What about the practicality of a system of family allowances or the negative income tax or some such principle to deal not only with these nutritional problems we are talking about but other human needs? Would that in your judgment be the most practical way to get at the problem?

Dr. MEAD. I feel that for a country as rich as this, one has to conclude that is so. There isn't any use of our taking parallels from countries which are in bad economic straits where family allowances may be the only thing they can do or two Government meals a day may be the only way to save the population. With a country as wealthy as this, a negative income tax would give us the kind of base we need so that if they could all proceed from a good base they could recover the kind of nutrition they had before.

It would be possible to see that they have the kind of education they need to utilize the income they have. I would separate this from family allowances. Family allowances would exclude a very, very large amount of our population that is suffering most, the aged and the drifting single population. It would encourage, in some instances at least ideologically, encourage a large birth rate at the time when we want to discourage this.

So that I think that a negative income tax right across the board, in which everybody in the country participated in a variety of ways, would be a much better thing to do than to deal with family allowances.

The CHAIRMAN. Senator Percy.

Senator PERCY. Before I ask about Biafra, I would like to comment on the refreshing suggestion you have made of transferring the Department of Agriculture to, say, Commerce where it could be treated as a business. I am not sure the Secretary-designate of Commerce would welcome the transfer of it into his Department. But if it is done, certainly one of the first things we would try to do is get away from the ridiculous situation in which we find ourselves, where in one department we spend hundreds of millions of dollars to subsidize

the production of tobacco and in another spend millions of dollars to discourage Americans from using tobacco.

I would like to ask a question on Biafra because, though it does not relate to the exact work of this committee, it is a question of priorities. We have a certain food surplus in this country. We have malnourished Americans. As a humanist and anthropologist what would you recommend in the way of priorities today? Should a substantial contribution in our food surpluses be made now to the people of Biafra—if we can get the food to them—even though it might mean taking it out of our country where we have malnourished people but don't have the distribution facilities now to get it to those people?

Dr. MEAD. I want to treat this very carefully as not a question about Biafra, that is, that you are using Biafra as an illustration at the moment because otherwise we get into such complexities that we don't get anywhere.

I am assuming that you are discussing the fact that somewhere on the planet there is a known, extreme case of starvation and in some cases we can get food to starvation areas and in some cases we can't, and this is a separate problem but, if we could get it there, should we.

I think that we should also be willing to declare the Delta and situations like the Delta as emergency areas and so deal with the people on this planet wherever they live. I have recommended to some of the groups that have bogged down on the Biafran question because the Nigerians won't let them describe the Biafrans in the way that the Biafrans consent to be described before you give them any food that we begin to deal with longitude and latitude. When people are starving within a given longitude and latitude anywhere on this planet it should be studied independently of any government. It should simply be dependent on the need and availability of food somewhere and the mechanisms for getting it there.

Then I would treat the situations that are revealed in the Delta, Biafra, east Africa, parts of India in the same way. Then we can go on to the problem of can we get it there, would the harbors take the ships or can the planes land.

Senator PERCY. Because I think we are in a period where there are few committees meeting in the Congress I would like to express a feeling of deep frustration as a legislator to know what to do about this situation. Here we are, between Thanksgiving and Christmas, counting our blessings and yet probably most of the young children in Biafra have already died. There are hundreds of thousands dying and millions facing starvation. I don't see how, as the most wealthy nation on earth, we can sit here and say, "It's a condition beyond our control." I think that it will be on our conscience for generations.

With your permission I would like to put into the record a copy of a letter that I sent to the President on December 10, in which I made three suggestions.

First, that the United States ask the International Committee of the Red Cross and the Joint Church Aid Mission to expand their facilities in Africa to accommodate greatly increased food cargoes for Biafran and Nigerian relief.

Second, that the United States ask all governments and relief agencies to transport food immediately by air to these staging areas and to offer the use of C–130 aircraft to move the food systematically and expeditiously to Biafra. DC–6's which can only carry eight tons of cargo have been used. C–130's can carry up to 22 tons and the Uli airfield in Biafra can take the C–130.

Third, that the United States inform Biafra that she must open Uli airfield for these relief flights during specified daylight hours and that she must guarantee to Red Cross observers on the scene that only food relief flights will land during these hours.

Lastly, at the same time, the United States has an obligation to inform Nigeria of her responsibility before world opinion to abstain from attack on the airfield or on incoming aircraft during the specified hours.

It is urgent that a committee of the U.S. Senate dealing with human needs of the American people look at the conscience of the American people and see that our Government moves heaven and earth to make available some of our huge food surpluses right now to the starving people in Biafra.

Dr. MEAD. But in the light of what you said earlier about the question of gifts and the last clause in your letter, how can the U.S. Government give orders to Nigeria and Biafra in the world that exists today?

Putting everything we can for the use of the International Red Cross and the church aid, I completely agree with; but it must be put at their use so that it is international, and I do not see how we can condemn the Soviet Union for its attitude toward Czechoslovakia, and ourselves give orders to Nigeria and Biafra simply because they are potentially dependent upon our economic aid and our backing on the world scene.

Senator PERCY. I think there is a difference between demanding and using those eloquent, persuasive powers that the President is known to possess. I hope that he will use those persuasive powers in the most diplomatic manner possible; but a successful manner that will resolve this question.

I think, that when the United States is condemned across the world for what, in the eyes of many people, it has done in Vietnam, we can afford to put a great deal of executive time and energy behind this particular problem, which I think is eminently right in the eyes of the citizens of the world.

Dr. MEAD. When it is eloquence, skill, supplies of food, I would agree with you completely.

The CHAIRMAN. Thank you very much, Dr. Mead.

This has been most helpful to the committee, and I hope you will continue to give us the advantage of any additional thoughts you might have as the hearings proceed. We do appreciate your testimony.

Is Mr. Charles Dunn in the room? Mr. Dunn, are you able to come back at 2 o'clock?

Mr. DUNN. Yes, sir.

The CHAIRMAN. I think in view of the time, it now being past 12 o'clock, that if it is agreeable with you, the committee will adjourn now and meet again at 2 o'clock this afternoon.

I would just like to announce that on January 8 the committee will hear Secretary Freeman; on January 9, we will hear Dr. Joseph English, who is the head of the Emergency Food and Medical Services Program in the Office of Economic Opportunity; on January 10 we will hear Secretary Cohen of the Department of Health, Education, and Welfare. We will come back again on January 16, at which time we will hear Dr. Arnold Schaefer, who is the Director of the Nutritional Survey that is now underway in the Department of Health, Education, and Welfare, and he will make the first report on the progress they have made with reference to that State-by-State survey.

The committee will be adjourned then until 2 o'clock this afternoon.

(Whereupon, at 12:10 p.m., the committee recessed, to reconvene at 2 p.m., the same day.)

AFTERNOON SESSION

Senator MONDALE (presiding). Is Mr. Dunn here?

Will you take the witness stand, please?

I regret the chairman of this committee, Senator McGovern, cannot be with us this afternoon. A tremendously heavy schedule prevents that. He asked me to Chair in his place.

We are delighted to have as our witness Mr. Charles Dunn, assistant to the distinguished Governor of North Carolina, Mr. Dan Moore, on this critical question of domestic hunger.

Mr. Dunn.

STATEMENT OF CHARLES DUNN, ASSISTANT TO GOV. DAN MOORE, OF NORTH CAROLINA; ACCOMPANIED BY MISS ELIZABETH W. JUKES, CHIEF, NUTRITION SECTION, NORTH CAROLINA DEPARTMENT OF HEALTH

Mr. DUNN. Thank you, Mr. Chairman.

In the beginning, I would like to recognize Miss Elizabeth Jukes, chief of Nutrition Section of North Carolina Department of Health.

As you noted, I am assistant to Gov. Dan Moore, of North Carolina.

A part of my assignment throughout his administration has been in working in the broad field of increasing human opportunity. A part of this assignment has dealt with the problem of hunger and malnutrition in North Carolina.

I am here today to speak to you of the problem as I see it and of the need for strengthening efforts at solution on all levels of the government and by the private segments of our society.

I would emphasize that I am not an expert in this area. I am a citizen concerned with the problems of people. I have had the privilege of working with a governor concerned with these problems. My suggestions are simply for your consideration and information in dealing with the overall problem in his Nation.

At the beginning, let me tell you briefly why my presentation is in this form. I am trying to emphasize I think the problem is of such scope and magnitude that the solution lies in no single area of government. It really is going to take concerted efforts by all the levels of government.

I would like to give the committee the background of our activities in North Carolina these past few years, to indicate something of the manner in which we view the problem, and some of the things that have been going on.

Until recent months, the problems of hunger and malnutrition in this country did not impress me as being major. I recognized that there were in North Carolina and in other States people who did not have enough to eat, or who, for various reasons, did not eat the proper foods. I knew that we had numerous Federal programs, State agencies, private groups, and concerned individuals working in this area, and, I felt, they were pretty well taking care of the problems associated with hunger and malnutrition.

This is not to say, however, that I felt all was well with all Americans. I recognized and—at the Governor's direction—had worked with programs to aid the underprivileged, the poor, the infirm, and needy.

In fact, the Governor's concept of "total development" was based on providing new and better opportunities for all North Carolinians, regardless of their economic or social status, their race, or their native ability.

The Governor had provided substantial increases in appropriations for all areas of education, and especially for the community college program. Every category of assistance program also had received sizable boosts during the Moore administration. And, new and better jobs were being provided in the most successful industrial development program in the history of the State.

The Governor, in particular, had shown concern for needy children. In his public school recommendations to the 1965 general assembly, the Governor said, in part:

My seventh and final recommended step in assistance to public education would be to remove hunger from the classroom. You cannot teach a hungry child: nourishment for the body is an absolute prerequisite for nourishment of the mind.

He went on to tell of an experiment with Federal funds in 87 schools, which showed a more adequate diet for needy youngsters helped their attendance and participation.

Senator MONDALE. What was the source of the funds for that experiment? Federal aid to education?

Mr. DUNN. I believe so. I am not positive.

Senator MONDALE. Please supply that for the record.

Mr. DUNN. All right, sir.

(The information requested follows:)

Mr. Pollard, acting supervisor, school food service, reports the money came from the regular national school lunch funds under section 4 provisions.

The success of the North Carolina program brought about the appropriation of additional Federal funds under section 11. These were to be used in the same manner.

Mr. DUNN. The Governor told the legislators that as of that time there were 141 schools where economic conditions prevented sufficient local support and did not allow full participation in the free lunch program. He said:

As you know, the State has never given financial support to the school lunch program. However, if additional Federal assistance does not materialize in this session of Congress, I recommend that the General Assembly appropriate $808,732 to provide State support for school lunch programs in this schools having the greatest need.

The money was appropriated, but, because of Federal restrictions, it could not be spent as intended. It had to be spent on a per pupil basis throughout the system, and therefore did not meet the need.

Senator MONDALE. In other words, the Governor wanted those funds spent first for those that needed them?

Mr. DUNN. Yes, sir.

Senator MONDALE. And the Federal restrictions they were under required they be spent on a per pupil basis. Is that correct?

Mr. DUNN. Yes, sir.

When we first went into office 4 years ago, the problem of hunger in the schools was brought to the attention of the Governor. It was

estimated $800,000 would feed the children in these units for a 2-year period.

Senator MONDALE. Was it your understanding that the State could not spend its funds to help those who could not afford school lunch programs?

Mr. DUNN. My understanding was that any funds the State spent had to be spent on a per pupil basis, and could not be given to selected school districts or to selected pupils.

Senator MONDALE. It was my understanding that local school districts could decide how much they wanted to support the cost of school lunches over and above the basic ratio, that they could, if they wished, supply additional funds to help the impoverished child who could not afford school lunches.

I was not aware there was some restriction requiring across-the-board support, regardless of the income of the family of the children.

Mr. DUNN. In our educational setup in North Carolina, the State provides 70 percent of the moneys.

Senator MONDALE. I think that is right. There are very few States that have districts, local school districts, that have provided funds to help school lunch programs. Very few.

Mr. DUNN. But our information is that the money could not be spent as intended in the legislative act, but it was later spent on a per pupil basis.

Senator MONDALE. Which means in a given school district a child from a family of income of $200,000 a year would be given a 10-cent subsidy, and the same would be true of a child of an unemployed father?

Mr. DUNN. Basically.

The school units in our more affluent sections shared proportionately with the schools in our less affluent.

In the same talk, the Governor also encouraged the counties not currently taking advantage of the surplus food program for needy families to participate, so that the children and other members of the family can get three nutritious meals 7 days a week.

The Governor's interest in this area has continued. Through my association with him, I came to know something of the problems of not having enough food in the home, and of children not receiving the proper care.

I recall an elderly couple coming into the office, complaining because all they had to eat most of every month was dried beans and peas.

I wondered at the time if they were among those who supplemented their diets with canned dog food, because horse meat is cheaper than beef or pork.

I recall reading letters sent to the Governor telling of children not being properly cared for and physically suffering because of it.

In view of the Governor's concern, we took personal interest in these cases—"cases" sounds too cold—we took personal interest in these people with problems. We referred these people and their problems to the proper State agency, and then followed up on their actions.

Unfortunately, the limitations of existing programs prevented all

from being helped to the degree they sought. Yet, many of these people were helped, because the Governor took the time and made the effort.

But, for every one who came to the Governor's office—or who went directly to a State agency—there were others who accepted need, malnutrition, hopelessness, as a cruel way of life.

Hunger and malnutrition has been recognized as a problem by the Moore administration. The size and the scope of this problem, however, was probably underestimated in the early months by some of us in the Governor's office.

I think perhaps we put too much faith in the Federal programs, in existing State agencies, and private organizations which were working in this area, and which had been doing so for varying periods of years.

If the Governor had been made aware earlier of the seriousness of this problem, if we on his staff had taken the time to find out, if we had been told, then more could have been accomplished, even as had been done in mental health.

As it turned out, the impetus for greater involvement by the Governor's office came from news accounts of the report, "Hunger U.S.A." The report by a citizens' board of inquiry, including Dr. Raymond Wheeler, of Charlotte, and George Esser, of Durham, listed 27 North Carolina counties as "hunger counties."

The Governor immediately directed that the problem of hunger be looked into, and if the implications of this report were true, that steps be taken to correct the situation.

He suggested at the time that every effort be made to involve to the fullest every State agency or department working in this area, and that the total State effort should be closely coordinated.

Various State agencies working in the area of food and nutrition services were contacted and invited to an informal conference. Some of these people had been meeting previously to discuss approaches to the problem.

In addition, we invited representatives of the department of mental health and the State planning task force to attend the conference.

In the Governor's office, this group was referred to as "opportunity group II." It was the second group of its type to focus coordinated attention on selected major people problems.

Opportunity group I was set up earlier to assist local governments in stepping up programs for housing, recreation, employment, et cetera.

At the initial meetings of opportunity group II, we found questions about hunger and malnutrition generally answered by more questions.

While records showed no death caused by starvation, there was general agreement that malnutrition was found all too frequently in North Carolina. The problem, however, was certainly not limited to the 27 counties referred to in the "Hunger U.S.A." report.

Insofar as numbers were concerned, other counties apparently had more people suffering from malnutrition than did the 27. And, it was obvious that the problem was not limited to any one area. It could—and can—be found all across the State, in urban as well as in rural areas.

While generally recognized as being serious by those working in the area, the scope of the problem of hunger and malnutrition could not be documented.

We found that various groups were working with nutrition education, but that many citizens had no knowledge of the importance of vitamins, much less a balanced diet.

The two food assistance programs being utilized were only partially effective. A very low percentage of those qualified to participate in the surplus food program and the food stamp program were doing so. And, many of those participating did not know what to do with the commodities received.

Because local initiation was necessary, no program existed in a few North Carolina counties. And some counties even discontinued their programs during certain months of the year.

All in all, we found that a lot was going on, but effectiveness in dealing with the overall problem was limited. This situation continues.

The discussions by opportunity group II initially led to two conclusions. First, hunger, and especially malnutrition, is a major problem in North Carolina. Just how big the problem and why it existed to such a degree could not be deduced from existing information. Some type of survey was needed.

The second conclusion, however, was that we had to begin immediately to seek ways to better utilize existing programs. The problem was of such apparent magnitude that every day's delay in doing something meant added hardship and lost opportunity for some North Carolinians.

The Governor, acting on the recommendation of opportunity group II, wrote to the head of every State department and agency with responsibilities in this area. He called upon them "to be of every assistance possible to individuals and to local governments in solving the problems resulting from lack of food and inadequate diet."

Several of the departments and agencies immediately followed up on this by passing on similar instructions to their people working in the counties and communities.

The degree of success of this approach is impossible to judge, but I am hopeful that it did have an impact that was felt by the people in need.

In addition, the Governor personally wrote to the chairman of every county board of commissioners concerning the problem. He said in his letter:

> Because of your position of leadership, I am writing to request that you look into the problem of hunger and malnutrition in your country. I urge you to review efforts under way to see if assistance is readily available to all people in need, and if it is being utilized to the fullest extent possible. North Carolina now must make every effort to ride the people of the plague of hunger and malnutrition.

The Governor also spoke of county responsibilities in a major address on local government responsibility to the North Carolina Association of County Commissioners.

This approach also had some success. Several county chairmen wrote the Governor saying they were reviewing their programs and seeking ways to make them more effective.

One county chairman said he had appointed a study group consisting of the welfare director, the health officer, the community services consultant, the assistant school superintendent, the agriculture extension agent, and the county manager.

The group was charged with formulating a plan of action, and with coordinating its implementation among all appropriate agencies.

Unfortunately, all counties did not show this interest.

The overall program has experienced some success. In the last year, the number of counties in North Carolina having food programs—either food stamps or commodity distribution—has increased to 97. There are 100 counties in our State.

This represents an increase or 14 counties, and an additional three counties which had restricted programs—issuance only during winter months—are now distributing year around.

Participation is up in the programs about 23 percent in the food stamp program. Nutritional committees have been set up in additional counties to educate recipients on shopping techniques and on preparation of food.

At the same time, opportunity group II, utilizing the personnel and the resources of the nutrition section of the State department of health; initiated a study of the effectiveness of food programs in two counties.

This survey was conducted under the direction of Miss Elizabeth Jukes, nutrition officer with the State department of health. It was conducted among people known to be eligible for either the donated commodity or the food stamp program.

The objectives of the survey were—

(1) to determine the kind of people who use the programs, and the use people make of the programs;

(2) to determine the reasons why people do not participate in the programs;

(3) to suggest ways that the programs can be made more readily accessible to those eligible;

(4) to determine whether participants have used instructional materials or have been taught how to use the commodities or what foods to buy with the food stamps; and

(5) to determine whether the participants in the food stamp program have changed their buying habits as a result of the program.

Surveys were completed for 433 households eligible for the food stamp program, and 462 households eligible for the donated commodity program.

The food stamp program was primarily rural. Some 76 percent of those taking part in the program had gardens, and 63 percent of those who did not take part in the program had gardens.

More than half of each group were rural nonfarm residents; 150 families had no person employed. Therefore, 281 families had one, and some had many people employed. This was because it was the season when employment was available.

Among the food stamp recipients, a large portion of the families included children. Only 64 of the people were 65 years of age or over, of a total of 2,142 people in the food stamp county living in the families interviewed.

Among those in the county distributing donated commodities, 69 percent of the families receiving commodities received some source of public assistance. Seventy-nine percent of these families lived in urban areas, and only 43 families, of a total 250, had family members employed.

This group was made up of an older population: 153 were 65 years of age and over; the additional 184 were 25 to 64 years of age. The age and the urban setting no doubt explain the reason that only 27 percent of these people had gardens.

Eight percent suggested a change in the hours the warehouse is open, or help with transportation problems.

Some 24 percent suggested a larger variety of food, or more convenient packagings. These requests were primarily from people living alone.

In the food stamp program, 41 percent of the active group and 22 percent of the inactive group asked that the cost be lower.

Twenty-six percent of the inactive group said they stopped because stamps cost too much, and another 26 percent stopped because their income increased.

The problem of transportation is great. All but 90 of the 250 of the families receiving food paid for transportation. They paid from less than 50 cents to more than $2.50 a trip. The largest number, 76, paid from $1 to $1.49.

Food stamps cost a large portion of the income of the families interviewed. Of the 140 families with an income of under $100 a month 15 paid from $70 to $99 for food stamps; 77 paid from $30 to $69 for food stamps; 44 paid from $10 to $29 for food stamps; 4 paid under $10.

It was necessary for 43 percent to borrow money from the landlord and 7 percent from other sources in order to buy the stamps.

What do people like about the food programs?

Donated foods: 16 percent, food kept family from hunger; 13 percent had more money to purchase foods family liked; 10 percent had money for other necessities.

Food stamp: 33 percent could buy more food; 4 percent could buy foods they liked.

What do people dislike about the program? Fifty-three percent had no dislikes about commodity program; 19 percent mention a specific food disliked.

The inactive group stopped because incomes increased, or because of transportation problems. The majority said they would like to have the foods again.

What transportation did they have? Taxi, 10 percent; friend, 51 percent; walk, 9 percent; relative, 26 percent; own car, 3 percent.

The number using taxis may reflect their urban residence. Most people depended upon friendship for transportation. This service was not always free.

What changes in program would make them more accessible to people?

Twenty-three percent wished that more foods would be distributed that they liked or could use, instead of those disliked or unusable, due to dietary restrictions.

Had people had assistance with use of the food program? Forty-nine percent had no help in using donated foods except for printed recipes; 80 percent of the active food stamp group said no one had taught them what foods to buy.

People had little information about the effect of food on health.

Fourteen percent of the inactive group and 21 percent of the active group gave an answer suggestive of the basic four food groups. More people ate more adequately who were on some therapeutic diet.

This indicates the need for more education concerning the importance of food to health for the general population.

In summary, the survey found serious problems associated with the utilization of the present food assistance programs. And, of equal concern, the survey found a serious lack of knowledge on how food resources can best be utilized for their nutritional value.

This survey demonstrated something of the scope of the problem of hunger and malnutrition. It indicated something of the tremendous job before us in North Carolina.

Yet, the survey portrays only the problems of getting at and solving the major problems of hunger and malnutrition. The answers are not included.

In seeking the answers, it is imperative that this fact be recognized: In spite of prosperity and plenty, there is still hunger and malnutrition in North Carolina, and, I am of the opinion, in other States, as well.

In spite of all the good efforts of government and private groups, many people—adults and children—know hunger and suffer from malnutrition.

This should not be, and especially not for children, who need proper food along with proper love to develop to their full potential.

For all the good accomplished by the surplus food program and the food stamp program, they are not doing the job that must be done in providing food for those who cannot yet provide for themselves.

For all the progress made in proper food and nutrition education, it has not been enough, for too many know nothing of what constitutes a proper diet.

Neither the programs nor the education effort will ever be enough until the problem of involuntary hunger and malnutrition is no more.

Education of individuals in the proper use of food may well be the key to the solution of this problem.

Perhaps our efforts have become too middle-class oriented. We are ready and able to help those who want to help themselves, or, at least, those who are motivated to help themselves.

Our obligation, however, is to help all in need, even if we have to go and find them, even if we have to do away with our model kitchens and utilize outmoded ones.

We must reach the people in need by a greater person-to-person effort. We must find ways to get neighbors involved in helping each other to learn. We must utilize to a far greater extent the capacities of the news media—especially televisiont—to get the message into the homes of the needy.

I would like to see a food-use education committee established in every county of the State, involving not only professionals, but private citizens.

I would like to see recipes and directions prepared and distribtued which would utilize pictures and simple enough wording so that they could be understood by people with little or no education.

Maybe food preparation courses could be set up in lower income communities, in churches or schools, or even in private homes of low income families.

And, in my opinion, it would be extremely beneficial if private clubs would take it upon themselves to go out into low income neighborhoods of their communities and help teach others proper food preparation for balanced diets.

Possibly people could even be hired to do this, through a Peace Corps-type program.

The existing food assistance programs, while extremely helpful to many, are not being utilized by all in need.

I would like to emphasize that need. Our present programs are not being utilized by all the people who could utilize them.

Some attention should be given these programs at the Federal level to make them more meaningful. Maybe even a combination of the two—surplus food and food stamps—would help.

Requirements for participation might be lowered, and a reduction in the cost of food stamps would help. Block grants to the State to assist county governments in administering programs would be beneficial. Built-in programs for education, I feel, are essential.

Local governments could help more in some cases. Certainly those counties which have no program should initiate one, and all should be operated consistently on a year-around basis.

Like bookmobiles, foodmobiles would help helpful in distributing surplus food to needy families who have no means of transportation.

More caseworkers and more warehouse locations, and additional hours of service, including nights and weekends, would be extremely helpful in many cases.

Local governments also should provide sufficient staff to obtain maximum benefits from the program.

The State at the present time is something of the man in the middle. If changes are not made to make the programs more effective, the State must become more involved.

If the gaps in the present Federal food assistance programs are not closed, then the State should step in and provide its own food assistance program.

If county governments cannot meet their responsibilities, then probably the State should come to their aid and provide for a uniform program in cooperation with the present Federal efforts.

Regardless of which level of government does it, a more meaningful food assistance program must be made available to all needy citizens, if hunger and malnutrition is to cease being a major problem.

Finally, I believe that the people of the United States must recognize their responsibility for the hunger and malnutrition in this country.

Every one of us must take the time to look around and see the manifestations of this problem, and then we must make the effort to do something to correct the situation. We must reach out and give a helping hand whenever we can.

We must be concerned enough to act either directly on a person-to-person basis, or indirectly, by letting the various levels of government know that we expect something to be done to properly help people in need.

If we really believe what the preacher says about "doing unto others as you would have them do unto you," then this problem of hunger and malnutrition gives us an opportunity to show it.

Thank you, Mr. Chairman.

Senator MONDALE. Thank you very much, Mr. Dunn, for this very fine testimony.

I hope you will express to Governor Moore our appreciation for your contribution, and for the most useful facts revealed on the basis of the survey which Miss Jukes conducted. This will strengthen our record and help make more specific some of the limitations of the present programs.

The committee staff said he is not aware of a similar survey available to us, and this is most useful.

We are also appreciative of the fact that Governor Moore has not worked alone in Washington, but with the resources of the State of North Carolina, and has demonstrated courage to call upon counties and local school districts to do more, as well as those in the private and volunteer sector.

These are surely efforts that are long overdue. There is more than enough for all of us here in Government to do, and need for all citizens to do.

I find this effort most encouraging. Yet, as you point out so clearly, we have just begun. There is still much tragic hunger and malnutrition. You describe it as major, and I think it is.

As you point out, there are not pockets of malnutrition in North Carolina. It is a generalized problem found throughout the State, as indeed it is throughout the Nation.

Your testimony is most useful for that purpose.

As I understand your testimony, about 97 of the 100 counties now have some kind of food program, food stamp program. Some are not on a year-around basis. Three counties, you testified, have only a seasonal program, and there are then three counties, am I correct, with no program whatsoever?

Mr. DUNN. At the present time.

Senator MONDALE. In those three counties, are any efforts underway through private, volunteer, or other organization to bring food to the hungry?

Mr. DUNN. I would not be able to answer that specifically. I would assume that to some extent the normal assistance programs perhaps of the welfare department are being utilized. But so far as anything that would take the place of either the food stamp program or the commodity distribution program, there is not.

Senator MONDALE. The reason I ask is that the direct amount of the commodity distribution program—the statute under which that program is operating—authorizes food distribution through volunteer organizations. It is not limited to formal governments, county or local.

To my knowledge, that volunteer section has never been used. I think it is ironic that that is the case, because surely there are many private volunteer organizations that could be most useful in the distribution of food and education of the people about diets and the rest.

One of the basic elements of the success of our foreign feeding program has been church groups and other volunteer organizations that have become very deeply involved in assisting in donation programs overseas, child feeding, and the rest.

Yet, we have not used the resources of our private volunteer efforts in the distribution of food at all, from what I can tell.

This is a case where the Governor has urged his counties to get at it. In three cases, they would not respond at all, and others only haltingly.

I wonder—you might suggest to the Governor that he be the pioneer

State to start using private volunteer organizations, church groups, and the rest, to test that Federal law, and go around those counties.

Mr. DUNN. I think this is a possibility, and I will be glad to suggest it to the Governor.

Senator MONDALE. What about those three or four counties that have seasonal programs? What is the rationale for a seasonal program? Are there some months when it is more convenient to be hungry than others?

Mr. DUNN. The idea behind this is that the agricultural employment is seasonal, and the feeling is during the harvest season or during the season, there, that there are jobs available, and the program is not as vital then as it is during other months.

Senator MONDALE. Do you agree with that rationale?

Mr. DUNN. Personally, I do not. I think the program should be operated on a year-round basis.

Senator MONDALE. I assume every person on welfare, food programs of one kind or another, is able to work, but unwilling to do so.

Mr. DUNN. I am sorry.

Senator MONDALE. In other words, if you have food programs only in certain months when there is no employment for the able-bodied people, that assumes that the only basis for the hunger problem in those counties is the unavailability of work. What about the person who is unable to work?

Mr. DUNN. Well, I do not want to be put in a position of defending this possibility, because I think—I don't think it is right, and I would assume the rationale would be that there are jobs available, or that there would be other assistance programs that would carry through.

Senator MONDALE. As I understand it, the direct commodity distribution program is not available in those counties that have food stamps.

Mr. DUNN. Yes, sir.

Senator MONDALE. How many of the counties in which there is a food stamp, have a food stamp program, and how many have a direct commodity distribution program?

Mr. DUNN. Food stamp, 23, and the rest have the commodity distribution program.

Senator MONDALE. Twenty-three with food stamps, and about 74 with direct commodity distribution programs?

Mr. DUNN. Yes, sir.

Senator MONDALE. If you had your choice, based upon appraisals and reviews that you have made, in which counties are the hungry and malnourished better fed, the food stamp counties, or direct commodity counties?

Mr. DUNN. I think, Senator, that is a difficult question, because I think that other factors are put into it.

I mean the availability of the various programs, of course, is a contributing factor, but the way these programs are administered, the supplemental effort that is made through education.

For instance, in some of the commodities——

Senator MONDALE. Do you find the food stamp program inherently more adequate than the direct commodity distribution program?

Mr. DUNN. I would see some advantages to the food stamp program. I think this gives more independence to the recipients, to sort of shape their own diets, provided they do not misuse the funds.

Senator MONDALE. What about the problem of coming up with this large quantity of money at one time? Doesn't that pose a major hurdle for most of these people?

I notice your survey indicated 14 or 15 percent quit because they could not come up with the money.

Mr. DUNN. Yes, sir, I think the cost of the food stamps is maybe high; that a different formula should be worked out.

Senator MONDALE. Say given a county that had a direct commodity distribution program, and they shifted into a food stamp program, do you find that the same number of families are served as before?

Miss JUKES. It was said that only about a third of the people who had taken part in the food stamp program go on to take part—the other way—who had taken part in the commodity program then start with the food stamp program.

Senator MONDALE. In other words, in a model county, if we had 3,000 families receiving food on a direct commodity distribution, and then shifted into a food stamp program, based on your survey, only 1,000 families would continue.

That is what I was afraid of. What happens to those 2,000 families, then?

Miss JUKES. They fade into the gray area, back again.

Mr. DUNN. This is why I think——

Senator MONDALE. I think we ought to have figures to show what happens. That is what I have been afraid of.

I think for the families that can produce that monthly down payment, the variety of food available to them may be somewhat superior, but for the average family, impoverished family, I do not see how they come up with the money.

If your figures are accurate, then the amount of families being served actually is dropping, rather than increasing, with the food stamp program.

Miss JUKES. However, we have also found that the people often spend as much money for food, as much or more than the food stamps cost them.

It is a case of being willing to give away that much cash all at once. It seems like a lot of money when the income is so low.

Senator MONDALE. I did not understand you. Say that again.

Miss JUKES. The people who do not have the food stamps pay as much money for food as they would have to pay to buy the food stamps, but they do not buy their regular food all at one time, so that it does not seem like so much money to them.

Senator MONDALE. In other words, a family that is receiving direct commodity food would continue to spend money for food, in addition?

Miss JUKES. Right.

Senator MONDALE. And the survey shows they will actually spend as much or more as the food stamps, but wouldn't they then have a more adequate diet, if given adequate education, because they will get the direct commodity distribution food plus what they supplement with their own income?

Miss JUKES. Yes, sir. Some people refuse some of the donated commodity foods because they find the foods unfamiliar, or perhaps unacceptable, or, in a few cases, it is a problem of dietary restriction.

Senator MONDALE. Recently haven't the foods available through the direct distribution program improved in scope and in protein content and nutritiousness, and the rest?

Miss JUKES. Actually, they supply all the nutrients one needs for the day, so the net effect is a donated commodity program providing the people their grocery order.

Now, the limitation—we don't supply the variety of foods that could be purchased in the grocery store but so far as nutrient quality, it is very good.

Mr. DUNN. I think there is some merit to both of these programs, the way they operate now.

Senator MONDALE. Actually, it seems to me that they ought to be able to operate side by side in the same county.

Mr. SMITH. They cannot operate side by side, unless the Secretary of Agriculture declares an emergency in that county, and they go into a food stamp county with commodities, but he has to declare an emergency, and it is his discretion as to what constitutes an emergency.

The only legal guideline is, first, is it a national or other disaster.

So you have to define "disaster," but that power has never been exercised.

Miss JUKES. I think the counties might object, because of the cost, if both programs were going on at the same time.

Mr. DUNN. Yes, sir; the counties resist it.

Senator MONDALE. According to counsel, the Secretary could pay for it himself, in the case of a national emergency.

Now, your survey indicates that under either program there is a certain number who do not participate for a host of reasons, transportation, money, where the food stamp programs are involved.

Are there many who just do not know about the program?

Miss JUKES. I am sure that is true. I believe there was something like a third of those who were taking part in the food stamp program who heard about it from the welfare department, and there are undoubtedly others who do not know about it.

In fact, in some counties, only the people who are on public assistance rolls may take part in either one of these programs.

There are other people in the same economic level who would legally be able to take part, but are restricted because of local restrictions.

Senator MONDALE. In all the counties with direct commodity programs, is there only one single central place to which the food is distributed?

Are there States that have tried the mobile food unit idea?

Mr. DUNN. Generally there is just one. Some counties have more than one location, but it is a matter of coming for food.

Senator MONDALE. You indicate transportation is a major problem in your testimony.

Mr. DUNN. Yes, sir. My understanding is that there are some families who have no transportation at all, and they may live on one side of the mountain, and the distribution center is on the other side, and it is a major job getting from their home to the other place to pick up the food and go back.

Senator MONDALE. Why couldn't they use schoolbuses on Saturday, or county vehicles on Saturday for counties to distribute these commodities at more decentralized locations? Couldn't the Governor urge that?

Mr. DUNN. I don't know. This may be possible.

Certainly some county vehicles, it seems like maybe even buses, could be provided to make routine stops.

Senator MONDALE. I think that is a good idea.

We have a mobile library, why not a mobile food unit?

It seems to me you could use schoolbuses or other county vehicles on a Saturday to distribute to these remote spots, without a lot of expense.

Mr. DUNN. I don't know what would be entailed to accomplish this. I think there are some legal restrictions against use of the schoolbuses, but it certainly looks like some vehicles could be utilized for this purpose.

I don't know what it would take, maybe some encouragement from both State and Federal levels.

Senator MONDALE. If we use the same ingenuity in finding hungry people as in finding draft dodgers, it will work out pretty well.

Mr. DUNN. This is part of the problem. Government needs to assume more of an aggressive approach.

We say that we have got fine programs, and we have. "Come and use them," and there are people who cannot, who are not motivated for various reasons to come and take advantage of these programs.

In a sense, I think we have an obligation to go and find those people.

Senator MONDALE. What about the adequacy of either program, assuming that the people participate, are able to clear those hurdles, between direct commodity and food stamps?

Surveys show—I think "Hunger U.S.A." report shows even if a family has the money to qualify and participate in food stamps, the amount of food available is only about half of that needed for an adequate diet.

Would you agree with that?

Mr. DUNN. I think these programs are designed to supplement regular diets.

Senator MONDALE. So you have the irony of the fact that these food stamp programs require the poor to pay a much higher percentage of their income for the stamps than is required by families, normally, as a percentage of their budget, for food, and even then they only get about half of the nutrition needed.

Mr. DUNN. No. My understanding of the food stamp program is sort of a flexible arrangement. They do not pay as much as they would normally pay. This is designed to supplement.

Senator MONDALE. Let me ask Mr. Smith to comment on that, so you know what I am getting at.

Mr. SMITH. The Food Stamp Act requires that the Secretary of Agriculture charge a family's normal expenditure for food.

There has been some in the past, and there still is, some discrepancy between the amount the Secretary charges and the purchase schedule, and that requirement of the law, if there is such a discrepancy, stems from the fact that the Department of Agriculture actually charges more for food stamps than people normally would spend for food.

Senator MONDALE. The national average is about 19 percent of the average family's income is spent for food. Now, is that the average you are supposed to apply for the impoverished?

Mr. SMITH. I am not sure you can talk in terms of national average, because the food stamp level is based on income level.

The question is, at one given income level, What does that family spend for food, normally?

Senator MONDALE. Would the percentage be higher as the person's income goes down? I assume that would be true.

Mr. SMITH. That would be true; yes, sir.

Senator MONDALE. If you are a millionnaire, and he spent 19 percent of his income for food, he would be living pretty well.

Miss JUKES. If I might add to that, many of the people that we happen to have chosen, because it was a very rural county, were farmworkers. They were tenant farmers, so their income was in effect forwarded to them by the landlord, and then settling was done at the end of the crop year, so therefore, in some cases, the landlord gave the tenant money enough to buy the food stamps.

This is the reason that the figures in the survey are as they are, that the income was like the cost of the food stamps, because the landlord gave this much money to the recipient.

It was not like a person on a regular low income, who would have a regular monthly amount, and a portion of this would be on a formula asked for the food stamps.

Senator MONDALE. Would you say there is a substantial number of North Carolinians still suffering from malnutrition and hunger, despite the existence of these programs?

Mr. DUNN. Senator, I do not have any idea of the size of the problem, whether we are talking about half a percent, 1 percent, or 5 percent. I think even 50 people is a substantial number.

I think one of the things we really need to know is the size of the problem, and I do not think there is a great degree of absolute hunger. I think there is some malnutrition that may be from a lack of food, or may come from a lack of proper food, or not knowing what to do with the food.

I see the problem not only as one of getting the food products to these people, but also one of education.

Senator MONDALE. But if one can draw conclusions from your survey, there are hundreds and hundreds of families who have dropped out of the program, either because they have shifted from direct commodity to food stamp programs, and they cannot afford stamps, or transportation, or for other reasons.

These families are either, then, getting some help in some other way, or, presumably, have no assistance whatsoever in their malnutrition and hunger problems.

Mr. DUNN. They are not eating as they should eat, many of them, or they are eating foods that they can get out of the garden.

Senator MONDALE. And they tend to be the poorest of the poor; am I correct?

Mr. DUNN. I would assume so.

Senator MONDALE. Because by definition they are the ones who cannot afford the downpayment or transportation, or they are the ones most ignorant of the programs.

Would that be it?

Mr. DUNN. I think so.

Senator MONDALE. Would it then be fair to say that those who need it the most are the least likely to get it?

Miss JUKES. At least some of them.

Mr. DUNN. You have some people that really could do better with what they have, if they had the knowledge, and in some cases even the desire.

I mean as we talk about the food stamps, some people would rather have a dollar in their pocket than $2 in food stamps, and I think there are some people who would rather have a little money in their pocket than to have the larder stocked with food.

But I think these are relatively few.

I still think the basic problems are those who cannot afford to buy sufficient nutritious foods.

Senator MONDALE. Thank you very much, Mr. Dunn.

This is very useful testimony.

The committee stands in recess until January 8.

(Whereupon, at 3 p.m., the committee adjourned, to reconvene January 8, 1969.)

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APPENDIX

National Council of Negro Women, Inc., Workshops in Mississippi

A REPORT ON OPERATION DAILY BREAD, OCTOBER 1968

Mary McLeod Bethune, Founder; Dorothy I. Height, National President

Prepared by Jean Carper

INTRODUCTION

Sunflower County, Mississippi—about 20 miles east of the Mississippi River in the flat delta land, where the soil is said to be some of the richest in America.

This is the home of U.S. Senator James O. Eastland whose white mansion surrounded by $3 million worth of land sits but a few hundred yards from the gray shabby homes of his plantation workers. Last year Senator Eastland received $211,364 in government subsidies for not planting cotton.

This is the home of Fannie Lou Hamer, indomitable spirit of the Freedom Democratic Party, a mainstay of the black community, and chairman of the Sunflower County section of the National Council of Negro Women.

This is the home of Allie May Allen who sits like a skeleton atop her bed, sick and vacant-eyed, while her nine children, some bloated from malnutrition, wander aimlessly about the house and ask for food.

This is the home of Sally Carthen, a mother of 20 children, who after twenty-five years on the plantation was evicted when she registered to vote and now lives on a monthly welfare check of $55.

This is the home of Mrs. Lucille White, a worn-out woman of 42, grown old on the plantation, who imploringly pressed the following note into the hand of a NCNW staff member: "Is there any thing you can do to help me? I would like to have a better job and would like to have a home bild on low income. Am alone."

This is Sunflower County, the home of prosperity and poverty and misery and hunger.

This is where the National Council of Negro Women held its Operation Daily Bread Workshop to explore the problems of hunger for three days—on October 11–13, 1968. On those days, 16 women, mostly representatives of NCNW affiliates from various parts of the country, met with many of the impoverished in Mississippi who had invited them to explore what could be done to alleviate the dreadful hunger.

"We're the ruralest of the rural and the poorest of the poor," intoned Fannie Lou Hamer ("Amen! Amen!") in welcoming us into that white wooden church in Ruleville, the church with a moat of Mississippi mud which must be crossed by a wooden plank leading to the steps.

"There are people starving. There are people dying here in Mississippi," said Dr. Aaron Shirley who traveled from Jackson to speak to us. "Someone's always making a report. Doctors sent by the Field Foundation came down here and studied and told us there was severe malnutrition. That got national attention. Then Mississippi appointed a group of physicians, and they toured and found no one starving. Now there's a new report from out of state and they can't make up their minds. People come down here and say 'Dr. Shirley, show me those youngsters who are starving, take us around, show us the bad things you talk about.' And I take them and show them the kids who are suffering from protein and iron deficiency, and they say, 'That's terrible,' and shake their heads and go away. Then a new group comes down and they say, 'Dr. Shirley, take us around and show us the things you are talking about.' And they say it's awful and they go away and we never hear from them. This is the first time that an organization has come in and said, 'Show me,' and then asked, 'What can I do?' Amen! Amen!'"

NCNW'S SELF-HELP CAMPAIGN AGAINST HUNGER—A PIG AND A GARDEN

In June, 1968, the NCNW, in response to workshops with the poor in both 1967 and the spring of 1968, launched a self-help campaign against hunger in three of the poorest counties in the South—Sunflower, Bolivar and Macon. Part of the impetus for the direction of the program came from Mrs. Hamer, a woman beaten and shot at for her civil rights participation, who one day casually remarked that she was able to maintain her independence because she always kept a pig and a garden. That way she always had meat and vegetables. She might be harassed and physically harmed but at least she would not starve to death. "When you've got 400 quarts of greens and gumbo soup canned for the winter, they can't tell you what to say or do." The line of thinking developed: What if others had pigs and a garden? These would not only help them break the chain of political oppression, giving them some dignity and freedom, but would give them food for themselves and their families, helping relieve the terrible problem of starvation and malnutrition.

As a start, NCNW, through its national office and at the wish of the poor in these three counties, decided to provide seeds and pigs for families to help them feed themselves. This is part of a comprehensive program to combat hunger in the area. This summer in Sunflower, several plots of ground were planted with turnips, greens, kale, mustards, collards, with seeds paid for by a fund of money which NCNW has made available and is kept in a bank in Ruleville. The national office purchased and distributed 50 young female pigs, called gilts, to needy families in the area. It was to see first hand the need for this attack on hunger, how the garden and pig raising program was progressing, what more needed to be done, and to try to discover the real roots of hunger which might lead to expanded programs that the 21 women traveled to rural Mississippi.

A PIG IN THE BANK

On the first afternoon it was not so much the women who came great distances who were the center of attention as it was the pigs which had just arrived the previous day. They were quartered on a farm about a mile from Ruleville behind a carefully built fence. It is said that one of the women virtually constructed it by herself. In the middle of the mud, where the pigs had already started rooting was a small sturdy building with a cement floor and a red roof, which the women had also built, providing the pigs with a better shelter than some of the people had for themselves. Outside the shelter was a plaque, a small cement slab, in which someone had carefuly written with a finger while the cement was still wet, the dedication: "Mrs. Fannie Hamer, October 11, 1968."

We were told that the 50 white Yorkshire gilts and five burnt-brown Jersey boars came at a bargain price of about $25 each. They were about three months old. The pigs were chosen and purchased by Mr. Willis McAlpin, a retired farmer from Iowa, who is now with the Heifer Project at Prentiss Institute, Prentiss, Mississippi. The Heifer Project is a worldwide organization which distributes livestock and technical assistance on livestock raising and is financially supported by 14 religious denominations and various national organizations. Mr. McAlpin was also on hand to see the pigs in their new quarters and to give voluntary technical help on how to care for them.

The first lesson was in terminology. "I say they're not gilts; they're shoats, and you should see how much they eat," said a local woman. "They're really gilts," said Mr. McAlpin, "which are young females. Hogs that are being grown for slaughter are called shoats." The fact that the pigs are gilts and not shoats is central to the purpose of the program. For the idea is not to provide instant food by butchering the new pigs/hogs but to breed them, thus establishing a "pig bank" which is self-sustaining and will provide approximately 300 to 400 new piglets out of the first litters.

The present gilts will be bred in February when they are seven months old. Each sow can be expected to have a litter of six to eight. In a lifetime, the sows will probably give birth to five good litters, thus multiplying themselves 40 times to provide about 2,000 new pigs. Out of each litter of pigs, the family which raises the pigs must donate two pigs to the pig bank. These pigs in the bank then will be distributed to other needy families to raise. The families desiring pigs sign up for them. The pigs that are not used for replenishing the

pig bank can then be slaughtered when they are about a year old and they weigh 225 to 250 pounds. Since half of a hog is waste, each slaughtering will provide about 125 pounds of food for a family.

In little over a year's time, if everything works out as planned, NCNW's new program should provide over 30,000 pounds of badly needed meat to feed the protein-starved adults and youngsters in this area of Mississippi. And the important part is that the people themselves have a stake in it; they are not relying on handouts; they are enhancing their own dignity and freedom by learning that they can feed themselves through their own efforts—and that they can continue to feed themselves through a self-generating pig bank. As Miss Dorothy Height, president of the NCNW said: "To many this represents their first chance—a new kind of opportunity—to do something important for them and their families."

FEEDING, BREEDING, AND LEARNING HOW TO CARE

What are the pitfalls? What could go wrong? Pig raising like other animal husbandry and plant-raising seems to be a combination of art and science. And while raising pigs may seem like a simple matter, unless the pig recipient, most likely ignorant of the fine points of pig raising, is properly instructed, the pig program could disintegrate. As Miss Janet Lacey, a Britisher who came directly from London to rural Mississippi for the workshops, pointed out: During World War II in Great Britain when the food shortage was at its worst the Government allowed families to raise pigs. Nobody told them how to care for the pigs and the program was a total failure. The pigs grew up scrawny, actually malnourished and often carrying the trichinosis parasite (which can be passed to man, causing paralysis, nervous disorders and death) because Britishers simply fed them raw garbage.

The NCNW's program to fight hunger is fortunate to have the expertise of Mr. McAlpin who has agreed to supervise the growth of the pigs by setting up a training session for the owners and by looking in on the pigs periodically (perhaps once a week at first, then once a month). He is assisted by Mr. Myles Foster, a local resident, who is donating his time to act as chairman of the pig project.

Mr. McAlpin outlined the essentials of pig survival and health: They must be fed—preferably good quality grain feed and be fed often since their stomachs are small. They need plenty of water and should be kept clean. They need an adequate amount of room so they won't be forced to live in a mud hole (contrary to popular opinion, wallowing in mud is not a pig's favorite pastime). They need shade because they can't stand too much heat. In addition they should be vaccinated against anthrax, a disease that can kill in 30 minutes, and they should be "ringed," that is, have a small metal ring inserted in their snouts to keep them from rooting up and ingesting parasitic worms. As a result of this advice during the workshops, it was determined that the pigs would be vaccinated and ringed before they ever left the central pen to be distributed to the families. It was also decided that each pig should somehow bear an identification mark so when families sent their pigs for breeding, they would know which one was theirs. Mr. Foster agreed to look after these details and by the end of the workshops had already rounded up a group of local men to do the ringing.

On Mr. McAlpin's advice, the NCNW also decided to provide money to buy proper bales of woven wire for fencing each pig allotted to a family's home. The wire provides about 80 square feet of space for the pig to roam in. The cost: about $20 per roll, or a total of $1,000. The money for the mixed feed will also come from the NCNW's Mississippi fund. One pig will eat perhaps three pounds of feed per day. A hundred pounds costs approximately $3.50.

One of the most serious problems could be getting the pigs bred at the right time, "and if that fails, the program is dead," Mr. McAlpin said. The pigs will have to be transported back to a central breeding place where the five boars will be raised, and the females will have to be left there for three weeks, for there is one day in three weeks during which the female can become pregnant. Another obstacle on this point is communication. Whereas long-time farmers think nothing of the natural breeding process and discuss it matter-of-factly, the people receiving the pigs are not long-time farmers and show some embarrassment and reticence when talking about the subject. Under the direction of Mr. McAlpin and Mr. Foster, explicit plans will be made in February to see that the pigs are transported and properly bred.

MISSISSIPPI NEIGHBORS—"OUR HEARTS ARE GLAD"

On that first muggy afternoon of the workshops in Mississippi, some 60 women—16 who had been invited to observe, staff of NCNW, and the others who had come from nearby homes—stood around in the yellowish mud and talked about pigs, gilts and shoats. Some of the women who were to receive the pigs laughingly pointed out: "That one's mine." Miss Height confessed she had taken up reading Purina ads. And there were so many people taking pictures of each other and the pigs that one New Yorker remarked: "If we take any more pictures of those pigs they will think they are celebrities."

"Honey, those pigs already are celebrities to us," boomed Fannie Lou Hamer.

While we all stood in a circle and told each other how glad we were to be there and sang: "We are climbing Jacob's ladder," the pigs, oblivious to it all, noisily tumbled over each other, grunting and squealing, in their attempts to get water which had just been "struck" on the land and came gushing up through a new pump purchased especially for the "new celebrities."

That night the out-of-town women were served a dinner, which appropriately enough, included ham, in the church where we were all officially welcomed and met to discuss why we were there. For anyone who had never before visited a Southern church in which the rhythmic clapping during the hymns is a religion itself, where every agreeable statement is met by cries of "Amen!", where a soloist in the audience is moved to sing, and where camaraderie and community spirit are as thick and comforting as pea-soup, the sessions in the church were overwhelming. "Our hearts are glad because you found us worthy of becoming our neighbors," said Mr. Mockabee in welcome. Dr. Shirley reviewed the terrifying incidence of hunger in Mississippi and its effects, including the highest infant mortality rate among blacks in the country. He also reminded us that during the Depression these people in the rural areas, unlike those in the cities, were not destitute, for they had chickens, pigs, eggs and gardens. "It's important that they have these things today—if they had land, a garden, they could feed themselves." (Although it is sometimes charged that many Negroes have land which they just don't use—out of laziness or ignorance—in fact, this is not true. Negroes in the South are systematically prevented from renting or owning land, even though hundreds of thousands of acres lie fallow. Time and again we heard from the poor, "If we only had a little piece of land." Because of this discrimination, community rather than individual gardens were started through the NCNW program in the summer. Few poor Negroes have even a small plot of ground to cultivate, but some larger plots of land were found and rented in order to plant the vegetables. Many families then worked the ground and will share the food.)

Mr. McAlpin and Mr. A. J. Godbolt, Assistant County Agent from Bolivar County, answered questions from the audience on the care and feeding of the pigs. Then, after much singing and talking and shaking hands, the rural leaders let us go—but not without warning: "You've had it pretty good in the welcome, but tomorrow you're going to visit the poorest of the poor." For many of us—most who had never been to rural Mississippi before or seen poverty—the visits were an awakening and a shock.

THE POOREST OF THE POOR—"IF ONLY WE COULD HAVE AN ACRE"

We drove throughout the counties in separate cars (rented by NCNW)—four or five to a car—and had as our driver-guides local women, themselves poor, who also knew the poverty of their neighbors. The cars went separate routes so as not to cause a convergence of twenty or thirty people at one house. Before entering any house, the local women went in first and asked if the family minded if we came in. There were very few refusals, and those usually were for reasons such as illness, for it was explained that we were there trying to help—and not to pry or to criticize.

In general it was mud, ramshackle porches, bare floors, and small rooms crammed with endless beds, bumpy with uncovered mattresses of corn shucks, broken windows, rain-stained ceilings and walls, bare cupboards, bare refrigerators, scrawny or bloated children with listless eyes, and flies and insects—and dirty tubs of water—and more flies. Everywhere the aura of despair and hopelessness. No jobs, no houses fit for habitation, no money, and little chance of getting any and, worst of all, no food.

In many instances the residents themselves were as indignant about their poverty as any outsider would be. "Look at that hole in the roof," said one with disgust. "And the windows are broken. How we supposed to live in a house like this."

"I haven't even got a sink—just that big hole there—and we have to carry water a half a mile from down the road," said another.

Two cases were typical—their names have been changed for this report:

Mrs. Moore, like most Southern Negroes had been raised on the plantation, shopped at the plantation general store where coupons or just "accounts" are the general tender of exchange. Now a woman of 50, she had worked in the fields, picking and chopping cotton since she could remember—"I started at five in the fields, I think"—and had enjoyed the "privilege and protection" of living at the grace of a white man in a plantation shanty. Under the plantation system the laborers are allowed to live in houses on the plantation and their "rent" is automatically deducted from their earnings, which are pitifully small—about $7 a day. The coming of the giant cotton-picking machines and automation in general have all but eliminated the need for cotton field hands on the large, wealthy plantations. But if the Negroes stay in line, even though there is little or no work to do, they are allowed to remain in their homes on the plantation without payment of rent. With no money, no skills, no available jobs, no filing of Social Security records by the boss, subservience to the master becomes the only means of survival, and the system becomes an effective instrument of political oppression. The black man who dares to speak out or even exercise his constitutional rights usually finds himself and his family thrown out onto the road, and often deprived of the few possessions he did have. "They wouldn't even let me back in my place to get my clothes or a picture of my mother. I just had to leave everything there," said one woman who was evicted after she registered to vote, following the 1964 civil rights legislation.

Such also was the case of Mrs. Moore, who registered to vote in 1963. When word of her action reached the white racist community—who kept close tabs on Negroes' activities—Mrs. Moore was visited by the owner of the plantation where she had grown up, and had toiled for more than a quarter of a century. Her family had lived there. Her children had been born there—the first when she was only 12. There she had carried her babies into the field when they were but a few days old, carefully lifting them up and down the rows as she picked the cotton. There one had died in the hot summer sun at the age of two weeks. There, in that house, Mrs. Moore had given birth to 20 children—16 of whom are still alive—and four of whom still live with her.

"He (the plantation owner) came with tears in his eyes to the house," she recalls, "and said he didn't want to put us out, but he had to. The Klan come to him and told him they would kill us all—me and the four children—if they found us there." Mrs. Moore left, and since then she has literally been running from house to house. "We live in a place a few months, then they find out, then we move on." She has moved five times in one year. Now she has found a five-room house back off a country road across the railroad tracks where she has lived for a month. A white man, she says, consented to rent it to her—most likely because no one else would want it.

The house sits in a giant mud hole. The water like a cesspool is clearly visible under the house's foundation, and she worries what it will be like when winter comes and the water freezes and sends the cold up through the cracks in the floor. The roof leaks when it rains, sending rivers of water down the wall and across the floors. She has stuffed old quilts in the holes of the broken windows to try and keep out the flies. There is one tiny coal stove in one room—the only protection against the onslaught of the coming cold. "I've got to find something better," she mumbles over and over, but you know that she won't.

The rooms are furnished only with beds, except for two wooden chairs in a room that would ordinarily pass for a dining room, if it too did not contain two beds. There was nothing in the refrigerator but a carton of cracked eggs, which had presumably come from the two chickens scratching in the back yard. The four children—ages 14, 13, 12 and 9 and unusually handsome despite their poverty—were sitting as were most of the children we saw, totally absorbed in an old television movie—perhaps their only refuge from their surroundings. What do they eat? "Oh, sometimes they get free lunches at school," said Mrs. Moore. And at home? "Grits and corn bread and sometimes pork belly and greens—mostly what we get on food stamps when we can get them."

Mrs. Moore has not been able to find a job since 1963. There simply are none—no industries which hire "black folks," no work in the fields with the closing in of automation. Even the whites who hire domestics choose the young black women and "work them to death for $3 a day." Mrs. Moore's only income is from welfare—$55 a month from which she must pay $20 for rent and $22 for food stamps (worth $66 in merchandise) plus expenses for fuel and lights, and other miscellaneous needs. Often she does not even have the lump sum of $22 for the food stamps, so some months are almost completely barren of food. "One time me and the kids was so bad off, Mrs. ——— had to buy my stamps for me." When we all had lunch together at a restaurant during our tour, Mrs. Moore collected the scraps from our plates (there were none on hers) and took them home.

Mrs. Moore, although she is articulate and vigorous, is typically trapped in that cycle of poverty, fed by racism, which pollutes the air of Mississippi, making even the skies on a sunny day, as we rode from dwelling to dwelling, exude a curious atmosphere of bleakness.

Past the lush fields of beans and cotton on the wealthy plantations. Past the green and red cotton pickers and other machinery which, though lying idle for the moment, are said to pick 17,000 pounds of cotton a day, compared with the average 250 pounds per day picked by the men they have replaced. Past the acres and acres of fertile land that lie vacant—turned to weeds—to keep the prices of cotton and other crops jacked up for the wealthy farmers—while people are starving within a stone's throw for lack of a plot of ground to plant some greens and corn. "Look at all that land," said our guide sadly. "If we could only have an acre—half an acre." But the plantation owners won't rent it because they receive more money from the government for keeping it barren.

On an adjoining plantation we made another visit, one of the day's most pathetic. Mrs. Moore was living in relative comfort compared with Mary Lou Carsten, her nine children, and three grandchildren born of her daughter, not yet 16. When we entered the house, the woman, 30 years old but looking easily 50, was sitting crosslegged on a bed with a faded red chenille bedspread draped over her legs. Although she must have been 5 feet 9 inches tall, her flesh was so shrunken that she couldn't have weighed much more than 100 pounds. Her head, grotesque and large on her emaciated body, hung so heavily that she seemed barely able to hold it upright to say hello. Her voice was barely audible. Life had been drained out of her at 30. We were told she had been sick, that doctors had been unable to determine the cause—and it seemed obvious that she was dying.

The stench in the house with only three rooms for 13 people was sickening, especially in the room where the children sat clustered watching the inevitable TV. One little boy, in the fourth grade, sat isolated in a dimly lit corner of one room trying to do his lessons. The legs of the toddlers were bone-thin and bent, presumably from malnutrition. A baby, half-covered by a soiled sheet, was a mass of crawling flies.

This woman obviously could not work, nor were her children we saw old enough to do so even if there was work to be had. How did she live? She had no husband. Are you on welfare? "No," she said. They wouldn't let her have it because she had had babies by different men. She thought that we was going to get a welfare check of $58 a month starting soon. The family's only income was what her 18-year-old son brought home from working on the plantation—about $15 a week after expenses such as rent, light, medical bills, were deducted.

When we tried to make conversation with the little children, who squatted on the floor and toddled around the porch, they just looked at us with dulled eyes. As we left the woman on the bed raised her over-sized head and managed a half-pleading smile at the neighbor who had taken us there. "Seems I just can't get enough to eat these days," she murmured.

After we were back in the car we asked our guide what they did eat. Our guide told us that she, poor herself, had been going around to the neighbors begging scraps of food and clothing and taking it to this family so they could survive.

It is obvious that Mrs. Carsten, only half-alive, could not raise a garden or livestock even if she had them—and there are others like her in the counties. Thus, as part of the garden and pig-raising program, the participants have agreed to share at least 10 per cent of their meat and vegetables with people like Mrs. Carsten who are sick, old, disabled, and otherwise unable to even raise food for themselves. The pigs will be slaughtered and the meat cured and the vegetables canned, and then taken to such people in need.

WHAT IS NEEDED?—A JOB, A HOME, A PLOT OF LAND

On Saturday night the women from the National Council and a group of about 130 local residents gathered again in the church in Ruleville. We divided into five groups, each with a NCNW representative to lead the discussions. The object: to find out what more could be done to alleviate hunger and poverty and discover what, according to the impoverished themselves, was needed. The answers from the poor were almost uniform in the five groups: first came jobs; second, decent housing.

One discussion leader opened with the question: What if you were handed a million dollars like the Millionaire on television, what would you do to help the poor? Amid "Amens" one poor man said: "I'd get the poorest of the poor and buy them a home and then get them a plot of land." Another group wished for factories where old people and young people could work, and for land. "Land, how can get land?" they asked. One group reported that a major concern was over the exodus of the young people from the community to the cities. "How can we get our youngsters to stay here? What can we do to attract and hold them here? To keep them with us?" "Everyone can say 'amen' to that," agreed Mrs. Hamer, and everyone did.

Other worrisome problems that make life hard in Mississippi, according to the poor people are lack of job training, inadequate welfare, only white social workers, the high cost of food stamps which they thought should be free, the inability to own homes because jobs are so precarious and wages so low they could not get mortgages. All agreed that day care centers, legal aid, better medical care, cooperatives were needed as well.

Throughout the sessions, one theme was apparent: these people didn't want paternalistic handouts; they wanted the dignity of doing it themselves, of guiding their own destinies, of not having things done for them. One woman summed it up by telling about the man who at Christmas prayed for God to send him a turkey. He waited and waited and none came. So then he prayed, "God, send me to a turkey." "That's the way we are," she said. "They say we're lazy, we won't work. Lazy! We've worked all our lives. The only time we saw the inside of our houses was on Saturday night—'cause we was up at 4 a.m. in the fields picking cotton. Sometimes at night, it was so dark they needed a light for the weighing-in. We've made it possible for a lot of people in Sunflower County to be rich—and we have nothing. Now we're trying to learn. You are helping us to help ourselves."

Some of the people at the church that night had been on welfare for a long time and admitted they needed help, but had never attended a meeting of this kind. Many as a result were drawn into the local section of the NCNW. That one night 24 new members were recruited, bringing the total membership to 300. The Sunflower County section is fast becoming an important social force in the community, even though it has been in existence only since July.

CAN WE HELP?

On Sunday morning the women with NCNW had about 45 minutes alone before a general session with the poor in the counties—and about 45 minutes alone after the session to compare observations and outline future needs and offer suggestions before returning to their various homes. This was actually very little time (more had been allotted, but the needs of the poor in talking to us were so urgent that the schedule was scrapped). But the important point was to get some of the ideas of the NCNW team in the open so they could be developed more thoroughly before the NCNW Convocation on Hunger to be held in February, 1969.

Some of the most basic and pressing needs, felt by the women as a result of their experience in Mississippi, can begin to be met if a few who care will help.

A BLUEPRINT FOR ACTION

If a total hunger project for Sunflower County could be defined, that is, a blueprint made for a massive effort, affiliates of NCNW might each take a part and know specifically what they were to do to help. Such a comprehensive program would be like a demonstration project against hunger in one county.

A BUILDING AND EQUIPMENT

One of the most apparent needs is a central building which could be used as a day-care and community center, as well as a place for the distribution of badly

needed clothing and a place for community food-processing. As Miss Height commented: "These people can't operate forever around Mrs. Hamer's porch." Lacking such a center, the meeting place has thus far been Mrs. Hamer's small frame house. For example, last summer at a community canning at Mrs. Hamer's house, several persons put up hundreds of cans of peaches and gumbo soup. Many had never before know how to can. So crowded, however, were the facilities for this mass project that the glass jars had to be dried on sheets out of doors, and not nearly the number of people who wished to participate could be accommodated.

Such a center would contain food-processing and food storage equipment. For instance, a freezer would enable the women to store many of the greens which are now growing and will soon be ready for harvest. There are two possibilities for obtaining such a building. One would be a pre-fab to be erected somewhere on a vacant lot. The other is a red-brick building, formerly a store, already standing vacant in Doddsville. It is possible, though not certain, that purchase of the later building could be negotiated. Even so, the building would require renovation inside before it would be ready for use.

CHICKENS AND A TRACTOR

The point was brought up that raising chickens in addition to pigs could provide immediate food and relief from hunger. Again one problem is the lack of a central operating place from which to distribute the chickens.

It was also suggested that small farm machinery and tools, such as hoes and a small tractor, be purchased for use in the fields. The women who work in the fields called this suggestion "terrific," and in fact, crucial to the success of the anti-hunger campaign.

"SEND A BOX" TO MISSISSIPPI

There are many persons who, though they live outside the perimeters of poverty, once acquainted with the needs of Mississippi families are moved to want to combat hunger and poverty through direct action. A very practical idea, many of the women thought, was to "Send a Box" to Mississippi. Such a project could be patterned after the very successful "Ship a Box" to Israel program, conducted in this country by the National Council of Jewish Women. Boxes could contain specific items of food, clothing, vitamins and other small household needs. Mrs. Benita Valien, a Washington, D.C. Sociologist who traveled with the group to Mississippi, has agreed to work out plans for setting up a "Send a Box" program.

IN CLOSING—ONLY A BEGINNING

In closing the workshop, Miss Height noted that "In another year it will be possible to find out not only what happened to the gilts, but what happened to us." Already the impact of the experience in Mississippi was clearly evident. Most of us would never be the same again. Even Polly Cowan, chairman of the workshop, who has been to Mississippi many times, described it as a "cultural shock," which requires "cultural adjustment" upon the return home. Nor in at least one case was shock caused by the distance from home. One woman on the NCNW team lived right in Indianola, the town in which we stayed, the county seat of Sunflower County. Yet she had never realized the poverty and hunger that existed but a few miles from her house. The very afternoon that our workshop ended, she continued and met with a group of local women, a chapter of a national sorority, to ask them to participate in NCNW programs in Sunflower County.

A New Yorker, a board member of a foundation, is seeking funds from the foundation to help pay for the badly needed community center building. A New York TV newscaster has offered to approach three large corporations which she thinks might help in the Mississippi hunger program with either money or goods. Another woman is attempting to persuade her sorority to pay for the small tools and tractor the women in Sunflower County say is so critical to the food-raising.

It is apparent to anyone who traveled to Mississippi that the need is dire and that this is only a beginning. But to the starving and desperate of the Mississippi we saw, it is at least a beginning—more than they have seen before. It gives them hope and courage. As Miss Height paraphrased a quotation: "If you give a man food he can eat for a few days. If you give a man tools he can feed himself forever."

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