Proceedings of the National Nutrition Conference for Defense : May 26, 27, and 28, 1941, called by President Franklin D. Roosevelt Federal Security Agency, Office of the Director of Defense Health and Welfare Services, Washington, D.C.

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PROCEEDINGS

NATIONAL NUTRITION CONFERENCE FOR DEFENSE

MAY 26, 27, 28 1941

WASHINGTON, D. C.

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PROCEEDINGS OF THE NATIONAL NUTRITION CONFERENCE FOR DEFENSE

MAY 26, 27, AND 28, 1941

CALLED BY

PRESIDENT FRANKLIN D. ROOSEVELT

FEDERAL SECURITY AGENCY

OFFICE OF THE DIRECTOR OF DEFENSE
HEALTH AND WELFARE SERVICES

WASHINGTON, D. C.

United States Government Printing Office, Washington, D. C., 1942

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FOREWORD

The National Nutrition Conference for Defense, called by President Franklin D. Roosevelt, convened in Washington, D. C., on May 26, 27, and 28, 1941. On the invitation of the Chairman of the Conference, Paul V. McNutt, Administrator of the Federal Security Agency and Coordinator of Health, Welfare, and Related Defense Activities, over 900 delegates met to discuss the problems of nutrition for defense and to formulate recommendations for a national program of action.

The delegates included professional nutritionists, home economists, educators, physicians, public health officers, social workers, and industrial technicians. Industry, labor, and Government; the press and the radio; colleges, universities, and medical schools; farm organizations, consumer groups, processing and marketing organizations—all were represented at the first National Nutrition Conference to be called by a President of the United States.

During the depression of the 1930's, we devoted ourselves to the task of seeing that no one should starve. Through welfare programs we succeeded in assuring to low-income groups at least a minimum of subsistence. Few actually starved. But we know that a guarantee against starvation is not enough. Our nutritional goal must be commensurate with the wealth of our natural resources and with our ability to produce. The farms of America can furnish good food in abundance for our entire population. We have rich soil, vigorous manpower, and unsurpassed farm machinery.

Realizing both our needs and our ability to meet them, we started, in the middle of the past decade, to study the national problem of nutrition. Various Federal agencies, especially the Department of Agriculture, the Labor Department, and the Public Health Service, undertook the research requisite for national planning. Studies were made of the cost of living in cities and villages and on farms; research was carried out on deficiency diseases; and the diets of employed and unemployed workers, of school children, of pregnant women, and of other groups were studied.

In 1936 the Interdepartmental Committee to Coordinate Health and Welfare Activities in the Federal Government appointed a Technical Committee on Nutrition which issued a report the following year on the work being done by various Federal agencies in the field of food and nutrition.

The second half of the 1930–40 decade was marked by an expansion of governmental programs designed to make better nutrition a reality for the families in greatest need. Welfare agencies in some of the larger cities added nutritionists to their staffs to develop balanced dietaries for families receiving relief. The Federal Government initiated a number of programs of subsidized food consump-

tion for the purpose of distributing dairy products, green vegetables, and other protective foods more widely among low-income families. The first of these programs was developed by the Federal Surplus Relief Corporation which was organized in October 1933 by the Federal Emergency Relief Administration to purchase surplus price-depressing commodities for distribution among relief families. This agency was renamed the Federal Surplus Commodities Corporation in November 1935 and was transferred to the Department of Agriculture in recognition of a change in emphasis "from relief to the removal of agricultural surpluses and the encouragement of domestic consumption." During the four years 1935–39, the Corporation bought and gave to welfare agencies almost 3 billion pounds of surplus foods which were distributed to families receiving public assistance. In 1940 the dollar value of surplus foods thus distributed amounted to nearly $158 million.

Other Federal programs of subsidized food consumption developed during the late 1930's included distribution of milk at reduced prices for low-income families, free school lunches, and the Food Stamp Plan which was inaugurated by the Federal Surplus Commodities Corporation in May 1939. By Executive order the name of the corporation was changed to Surplus Marketing Administration on June 30, 1940, to indicate that its primary function was the improvement of distribution facilities. The number of areas in which the Food Stamp Plan was operating increased rapidly so that by May 1941 nearly 4 million persons in 346 areas were participating and the monthly value of surplus food stamps issued had risen to nearly $10 million. Each month more than a million undernourished urban families were in this way enabled to obtain appreciable quantities of protective foods which they could not afford to purchase at prevailing market prices.

Federal programs to facilitate wider food distribution among low-income families and to promote research in nutrition had thus paved the way for more comprehensive efforts to improve nutrition. As the defense program got under way in 1939–40, the strategic importance of food became evident. On May 28, 1940, Miss Harriet Elliott was appointed Consumer Commissioner of the Advisory Commission to the Council of National Defense with broad responsibility for coordinating health and welfare activities with the program of national defense. By late August of that year, representatives from the chief Federal agencies concerned with nutrition had been appointed to an over-all Nutrition Policy and Planning Committee with Dr. M. L. Wilson, Director of Extension Work, United States Department of Agriculture, as chairman and Dr. Helen S. Mitchell, Research Professor of Nutrition, Massachusetts State College, as secretary.

During the closing months of 1940, emphasis on the country's nutritional needs received new impetus. The world situation served to stimulate public interest in food and nutrition not only as a defense measure but as part of a long-time plan for the development of a stronger, healthier nation. On November 28, 1940, the Council of National Defense, with the approval of the President, designated "The Federal Security Administrator as Coordinator of all health, medical, welfare, nutrition, recreation, and other related fields of

activity affecting the national defense." This Executive order resulted in the transfer of responsibility for the nutrition program from the National Defense Advisory Commission to the Federal Security Agency. The over-all Nutrition Policy and Planning Committee, augmented by representatives from four national organizations concerned with nutrition, became the Nutrition Advisory Committee to the Coordinator of Health, Welfare, and Related Defense Activities, the enlarged membership including:

NUTRITION ADVISORY COMMITTEE TO THE COORDINATOR OF HEALTH, WELFARE, AND RELATED DEFENSE ACTIVITIES

Chairman: M. L. Wilson, Director of Extension Work, United States Department of Agriculture.

Secretary: Helen S. Mitchell, Director of Nutrition, Office of the Coordinator of Health, Welfare, and Related Defense Activities.

Edna P. Amidon, Office of Education, Federal Security Agency.

Melva Bakkie, American National Red Cross.

Margaret Batjer, Work Projects Administration, Federal Works Agency.

John M. Cooper, Chairman of Food Habits Committee, National Research Council.

Loda Mae Davis, Office of Price Administration and Civilian Supply, Office for Emergency Management.

Martha M. Eliot, Children's Bureau, United States Department of Labor.

G. J. Hucker, Geneva, N. Y., representing Institute of Food Technologists.

J. B. Hutson, Office of Agricultural Defense Relations, United States Department of Agriculture.

Beula B. Marble, Chestnut Hill, Mass., representing American Dietetics Association.

L. A. Maynard, Ithaca, N. Y., representing American Institute of Nutrition.

E. M. Nelson, Food and Drug Administration, Federal Security Agency.

Milo Perkins, Surplus Marketing Administration, United States Department of Agriculture.

C. E. Rice, National Youth Administration, Federal Security Agency.

W. H. Sebrell, Public Health Service, Federal Security Agency.

Flora L. Slocum, Social Security Board, Federal Security Agency.

Helen Stacey, New York City, representing American Home Economics Association.

Louise Stanley, Bureau of Home Economics, United States Department of Agriculture.

Russell M. Wilder, Chairman of Food and Nutrition Committee, National Research Council.

CONFERENCE STAFF

Secretary: George St. J. Perrott, United States Public Health Service.

Assistant Secretary: John C. Leukhardt, United States Public Health Service.

Assistant Secretary: Edith Rockwood, United States Children's Bureau.
Information: Betty Lindley, National Youth Administration.
Editor: Marjorie Shearon, United States Public Health Service.

While organization of Federal nutrition activities was in progress, the States began to set up their own machinery for developing local programs. At the suggestion of the Land Grant College Executive Committee, State nutrition committees were formed during the fall and winter of 1940–41. The president or dean of home economics in the land grant college usually took the initiative in calling the first meeting of each State committee. Dr. Mitchell, in her dual capacity as Director of Nutrition in the Federal Security Agency and as secretary of the Nutrition Advisory Committee, worked closely with the State nutrition committees in a consultant and advisory capacity during this formative period.

Rapid expansion of defense activities early in 1941 made it evident that food and nutrition would be at least as important as metals and munitions in the national effort to marshal all our resources. Food for better health, higher morale, and greater production was an obvious necessity. Our farms and dairies would need to increase their output to meet the larger demand for protective foods, not alone for our own population but for the democracies across the seas. Since it was realized that Nation-wide interest and cooperation would be required to initiate and carry out a broad program for more food and better nutrition, the Nutrition Advisory Committee, on the authorization of President Franklin D. Roosevelt, began to develop plans for a National Nutrition Conference in the spring of 1941. Surgeon General Thomas Parran, stressing the urgency of national planning for nutrition, said:

I regard this meeting as of first importance. Every State and every community in this country has citizens who do not get the food they need for proper health and vigor. This Conference must tell us how to translate our knowledge of nutrition into everyday reality for all the people. Forty percent of the American population are not properly fed. The ill-health results mean a slowing down of industrial production, a danger to military strength, and a lowering of the morale of millions.

America must speed up human power as well as mechanical production. Both England and Germany have learned this lesson. So must we. I hope that this Conference will make recommendations to solve nutrition problems at national, State, and community levels as an essential part of defense and as a part of a continuing national health and welfare program.

On the evening of May 25, immediately preceding the opening of the Conference, a radio forum was conducted for the purpose of presenting to the Nation a set of simple, readily understandable nutrition allowances applicable to the entire population. Dr. Russell M. Wilder, of the Mayo Clinic, Chairman of the Food and Nutrition Committee of the National Research Council, declared:

It is no longer a question of a few experts in our colleges and research centers talking about vitamins and minerals. What we must do now is make people understand that nutrition is not an academic matter but a thoroughly practical consideration concerning every single person in the country—producers, processors, marketers, consumers, nutrition experts—everyone.

Each meal must be planned with an eye to economy, nutrients, and palatability. For such planning the housewife must have diet instructions expressed in plain, everyday language.

Dr. Wilder, in the radio program, announced the findings of the Food and Nutrition Committee of the National Research Council which included 28 leading experts in the field of food and nutrition. The recommendations of the Committee were embodied in the following statement on:

RECOMMENDED DAILY ALLOWANCES [1]

A guide to serve as a goal for good nutrition and as a "yardstick" by which to measure progress toward that goal has long been needed. In 1935 the League of Nations had made the only previous concerted effort to formulate such a "yardstick." The Committee on Food and Nutrition, of the National Research Council, was set up in 1940 to advise on nutrition problems in connection with National Defense. One of its first concerns was to work out recommended daily allowances for the various dietary essentials, for people of different ages.

The difficulty in such an undertaking lies in the lack of sufficient experimental evidence on which to estimate requirements for the various nutrients with any great degree of accuracy. Judgments as to requirements are necessarily based on incomplete and often conflicting reports of research and clinical findings and on data derived from work on animals. Experiments with the various vitamins also differ with regard to procedure and interpretation. These variables explain the wide divergence in "requirements" as set forth in current literature on nutrition.

The Committee's aim was to develop a table of allowances which would represent the best available evidence on the amounts of the various nutritive essentials desirable to include in practical diets. With this in view, literature on the subject was critically appraised, and in addition judgments as to the various requirements were solicited from a considerable number of nutrition authorities, representing various fields of research. On the basis of this evidence, a chart of recommended daily allowances for specific nutrients was worked out. The values as here given thus represent the combined judgment of nutrition authorities in various parts of the country. This does not mean, of course, that every contributor would fully agree with all the figures as given. It does mean, however, that the values are ones they were willing to accept tentatively, until standards derived from more exact data can be obtained. The term "Recommended Allowances" rather than "Standards" was adopted by the Committee to avoid any implication of finality (table 1).

In using these recommendations, it is important that the Committee's purpose and general policies in formulating them should be understood:

The allowances for specific nutrients are intended to serve as a guide for planning adequate nutrition for the civilian population of the United States. The vitamin figures are calculated requirements for food as eaten and do not allow for any extensive losses in cooking. The quantities as given were planned to provide a reasonable margin of safety, but it is recognized that they may not always be attainable under all circumstances. These allowances are to be

[1] For the members of the Committee on Food and Nutrition, see Appendix C, p. 252.

distinguished from the minimum requirements recently proposed by the Food and Drug Administration for use in connection with the labeling of foods. The Committee realizes that the values proposed will need to be revised from time to time as more knowledge of nutritive requirements becomes available.

In addition to the three factors of the B complex included, other members of the group, such as vitamin B_6, and pantothenic acid, should be given consideration. But at the present time no specific values can be given for the amount required in the human dietary. It should be added, however, that foods supplying an adequate amount of thiamin, riboflavin, and nicotinic acid will tend to supply an adequate amount of the remaining B vitamins. Similarly diets providing adequate amounts of protein, calcium, and iron will tend to supply other needed minerals, though these are not listed. There is urgent need for continued research on the requirements for all dietary essentials, especially for children.

The allowances for adults are given for the 70 kg. man and the 56 kg. woman at three levels of activity. They will need to be proportionately increased or decreased for larger or smaller individuals. It will be noted that the allowances for thiamin, riboflavin, and nicotinic acid are proportional to the caloric intake. This relationship has been established for thiamin, and it has been assumed to hold also for riboflavin and nicotinic acid since, like thiamin, they are part of the enzymic system involved in the metabolism of carbohydrate.

The allowances for children are given by age groups, and for boys and girls separately after 12 years, since from that age the growth curves and levels of activity for the two sexes differ. The values given are in each case for the middle year in the group, and represent amounts needed for children of average size and activity. The needs for individual children may be proportionately larger or smaller depending upon size and activity.

It is to be understood that these allowances are for persons in health, and that needs may vary markedly in disease. For example, in febrile conditions there is usually an increased need for calories, thiamin, and ascorbic acid. The need for these or other constituents may also be greatly altered in other diseases, especially those of the alimentary tract, which interfere with normal absorption.

It should be remembered that the amounts of the various nutrients provided for in these recommended allowances, with the exception of vitamin D, can be obtained through a good diet of natural foods, including foods like "enriched" flour and bread which have been improved according to recommendations of the Committee. It is the expectation of the Committee that nutrition workers in various parts of the country will translate these allowances into appropriate quantities of foodstuffs available in their localities. Such allowances, expressed in terms of everyday foods, can then be widely used in practical nutrition work (tables 2 and 3).

TABLE 1.—*Recommended daily allowances for specific nutrients* [1]

	Calories	Protein	Calcium	Iron	Vitamin A [2]	Thiamin (B_1) [3]	Riboflavin	Nicotinic acid	Ascorbic acid [3]	Vitamin D
		Grams	*Grams*	*Mg.*	*I. U.*	*Mg.*	*Mg.*	*Mg.*	*Mg.*	*I. U*
Man (70 kg.):										
Moderately active	3,000	70	0.8	12	5,000	1.8	2.7	18	75	([4])
Very active	4,500	----	----	----	----	2.3	3.3	23	----	----
Sedentary	2,500	----	----	----	----	1.5	2.2	15	----	----
Woman (56 kg.):										
Moderately active	2,500	60	.8	12	5,000	1.5	2.2	15	70	([4])
Very active	3,000	----	----	----	----	1.8	2.7	18	----	----
Sedentary	2,100	----	----	----	----	1.2	1.8	12	----	----
Pregnancy (latter half)	2,500	85	1.5	15	6,000	1.8	2.5	18	100	400–800
Lactation	3,000	100	2.0	15	8,000	2.3	3.0	23	150	400–800
Children up to 12 years:										
Under 1 year [5]	100 kg.	¾ kg.	1.0	6	1,500	.4	.6	4	30	400–800
1–3 years [6]	1,200	40	1.0	7	2,000	.6	.9	6	35	([4])
4–6 years	1,600	50	1.0	8	2,500	.8	1.2	8	50	----
7–9 years	2,000	60	1.0	10	3,500	1.0	1.5	10	60	----
10–12 years	2,500	70	1.0	12	4,500	1.2	1.8	12	75	----
Children over 12 years:										
Girls, 13–15 years	2,800	80	1.3	15	5,000	1.4	2.0	14	80	([4])
Girls, 16–20 years	2,400	75	1.0	15	5,000	1.2	1.8	12	80	----
Boys, 13–15 years	3,200	85	1.4	15	5,000	1.6	2.4	16	90	([4])
Boys, 16–20 years	3,800	100	1.4	15	6,000	2.0	3.0	20	100	----

[1] Tentative goal toward which to aim in planning practical dietaries; can be met by a good diet of natural foods. Such a diet will also provide other minerals and vitamins, the requirements for which are less well known.

[2] Requirements may be less if provided as vitamin A; greater if provided chiefly as the provitamin carotene.

[3] 1 mg. thiamin equals 333 I. U.; 1 mg. ascorbic acid equals 20 I. U.

[4] Vitamin D is undoubtedly necessary for older children and adults. When not available from sunshine, it should be provided probably up to the minimum amounts recommended for infants.

Source: Committee on Food and Nutrition, National Research Council.

[5] Needs of infants increase from month to month. The amounts given are for approximately 6–8 months. The amounts of protein and calcium needed are less if derived from breast milk.

[6] Allowances are based on needs for the middle year in each group (as 2, 5, 8, etc.) and for moderate activity.

TABLE 2.—*Dietary "Pattern" to meet the recommended allowances*

Milk, adults 1 pt., children 1½ pts. to 1 qt.
Egg, 3 or 4 times per week.
Meat, 1 serving (1 oz. at 1 yr. up to 3 ozs. for adults).
Vegetables, 2 servings. One green or yellow.
Fruit, 2 servings. One citrus or tomato and one other, as apple, prunes, etc.
Potato, one or more servings.
Butter or fortified oleo (100–500 calories).
Whole grain or "enriched" cereal and bread, at least half of the intake.
Sugar, fat, etc., to complete calories.

Sample Low-Cost Dietary

(As per Chicago Standard Budget Costing 32¢ per Day)

Breakfast	Lunch	Dinner
Tomato juice	Baked navy beans	Pot roast and gravy
Oatmeal with top milk	Cabbage salad	Baked potatoes and oleo
Toast with oleo (+A)	Bread with oleo (+A)	Carrots
Coffee for adults	Prunes	Bread with oleo (+A)
Milk for children	Milk	Gingerbread
		Tea or coffee for adults
		Milk for children

TABLE 3.—*Approximate food value of low-cost diet on preceding page*

Foods	Amount	Approximate measure	Calories	Protein	Calcium	Iron	Vitamin A	Thiamin (B_1)	Riboflavin	Ascorbic acid
	Grams			*Grams*	*Grams*	*Mg.*	*I. U.*	*Gamma* [1]	*Gamma* [1]	*Mg.*
Milk	480	1 pint	336	15.8	0.58	0.15	528	244	1,000	6
Meat	100	¼ pound	150	21.0	.01	3.00	50	120	225	----
Potatoes	350	3 medium	300	7.2	.05	3.66	144	432	162	12
Baked beans	200	1 cup	200	13.2	.09	4.00	110	235	130	----
Cabbage, raw	100	1 cup	25	1.1	.04	.43	88	70	72	35
Carrots	100	½ cup	40	1.2	.04	.64	2,100	60	58	----
Tomato	200	⅝ cup	50	2.4	.02	.80	2,000	182	122	48
Prunes, stewed	200	⅝ cup	250	1.4	.03	1.88	990	120	132	----
Oleomargarine	66	5 tablespoons	500	----	----	----	2,600	----	----	----
Oatmeal, cooked	300	1¼ cups	200	8.0	.03	2.40	----	270	60	----
Bread, wholewheat or "enriched"	200	6 slices	500	19.0	.10	3.0	----	480	207	----
Gingerbread	75	Large piece	200	3.5	.08	2.0	----	40	30	----
Sugar, jam	----	----	250	----	----	----	----	----	----	----
Totals	----	----	3,001	93.8	1.07	22.0	8,602	[1] 2,253 2.25 mg.	[1] 2,234 2.23 mg.	101
Compared with recommended allowance	----	----	3,000	70.0	.80	12.0	5,000	1.80 mg.	2.70 mg.	

[1] 1 milligram (mg.) equals 1,000 micrograms (gamma).

The Conference convened on May 26, at 10:30 a. m. in the Mayflower Hotel, in Washington, D. C., Chairman Paul V. McNutt presiding. General sessions open to the public were held on the morning and evening of May 26 and the morning and late afternoon of May 27. On the afternoons of May 26 and 27, nine sections held meetings to discuss special phases of nutrition problems and to prepare recommendations to the President. Representatives of the State nutrition committees met on the evening of May 27 and on the afternoon of May 28.

While the meetings were in progress, the international situation became so grave that President Roosevelt, on May 27, declared the existence of an unlimited national emergency. This declaration gave added import to the Conference. Delegates meeting on the third and final day to hear the reports of section chairmen were clearly aware of the serious responsibility which had devolved upon them to provide leadership in quickly translating the recommendations of the Conference into realities in their several communities. Surgeon General Thomas Parran, of the United States Public Health Service, presided at the general session on May 28 when the section chairmen presented the recommendations of their respective sections. In the afternoon the Surgeon General summed up the findings of the Conference and outlined future plans in an address on *The Job Ahead.* The Conference closed with a speech by Mrs. Franklin D. Roosevelt on *What This Conference Means to Every American.*

On June 10 the recommendations adopted by the National Nutrition Conference for Defense were forwarded to the President by Mr. McNutt.

In the months immediately following the Conference, there was evidenced a desire on the part of both official and unofficial groups to put into effect with all possible speed the recommendations that had come out of the meetings. State nutrition conferences were held in many States and nutrition institutes were initiated for teachers, social workers, and other professional groups. Refresher courses for nutritionists and home economists were given or planned in various parts of the country under the auspices of the American Red Cross and other agencies. Industry cooperated by initiating education programs in the press and by means of posters, food charts, and pamphlets on nutrition.

The necessity for closer integration of civilian and military activities relating to health and welfare resulted in a new Executive order on September 3, 1941, establishing within the Office for Emergency Management of the Executive Office of the President the Office of Defense Health and Welfare Services with the Federal Security Administrator as Director. The importance of food and nutrition in the defense program was indicated by the appointment of the Chairman of the Nutrition Advisory Committee as Assistant Director of Defense Health and Welfare Services in Charge of Nutrition.

PAPERS PRESENTED AT THE GENERAL SESSIONS OF THE NATIONAL NUTRITION CONFERENCE

MONDAY MORNING, MAY 26, 1941

The Challenge of Nutrition

PAUL V. McNUTT
Administrator, Federal Security Agency;
Coordinator of Health, Welfare, and Related Defense Activities;
Chairman of the National Nutrition Conference

We are here to discuss nutrition. We undertake the discussion for two reasons: First, new and startling facts about nutrition have become known—facts which are vital to the strength, health, and security of the United States. Second, the United States faces today one of the greatest crises in its history—a crisis of such broad significance that we cannot afford to compromise our national strength in any way. If we lose, our way of life will fall, perhaps forever.

I have here a letter from the President of the United States. It is a letter which speaks for itself.

THE WHITE HOUSE,
May 23, 1941.

MY DEAR GOVERNOR: I am highly gratified to learn that invitations to the National Nutrition Conference for Defense have met with such generous response. It demonstrates the eager interest of the public, of educational and research centers, of medical and social sciences alike. I only regret that because of the pressure of these critical days I shall be unable to meet with you.

The Conference has significant responsibilities—to explore and define our nutrition problems, and to map out recommendations for an immediate program of action. This is vital. During these days of stress the health problems of the military and civilian population are inseparable. Total defense demands manpower. The full energy of every American is necessary. Medical authorities recognize completely that efficiency and stamina depend on proper food. Fighting men of our Armed Forces, workers in industry, the families of these workers, every man and woman in America, must have nourishing food. If people are undernourished, they cannot be efficient in producing what we need in our unified drive for dynamic strength.

In recent years scientists have made outstanding discoveries as to the amounts and kinds of foods needed for maximum health and vigor. Yet every survey of nutrition, by whatever methods conducted, shows that here in the United States undernourishment is widespread and serious. The Department of Agriculture has estimated that many millions of men, women, and children do not

get the foods which science considers essential. We do not lack and we will not lack the means of producing food in abundance and variety. Our task is to translate this abundance into reality for every American family.

I shall follow the work of the Conference with deep interest and expectantly await its recommendations.

Very sincerely yours,

FRANKLIN D. ROOSEVELT.

Not many conferences in history have been called by the President of the United States. The Conservation Conference of Theodore Roosevelt was one. The White House Conference on Child Welfare, first called by Woodrow Wilson, was another. This Conference is called because vital national issues are at stake on the nutritional front.

You are here because these issues have been recognized. We need to discuss them with you who know most about them. With your help, we propose to come out of this Conference with the objectives of a national nutrition policy clearly and vigorously set forth.

I would emphasize that expectation. We do not need learned or appreciative essays. We do not need wind, words, or window dressing. We need a plan for action. It is essential that this Conference lead to action. I am not asking for the details of administration. I am not asking for an outline of procedure and personnel. In the Federal Government, in the States, in the cities, in agriculture, in industry, in foundations and universities, we have the men and women who can work out the details. The *how* of the thing—the mechanics of management is an engineering job we can and will do. That is our job. It is the *why* and the *what* of the story—the objectives which we must attain—that are for this Conference to determine. That is your job.

You are the platform committee. It is your task to create for the first time a common platform upon which the Federal Government, State and local governments, industry, and labor can stand together united for the fulfillment of definite objectives in nutrition.

The other day, in answer to requests that had been made of me, I outlined seven questions of the sort that might be directed to this Conference. The are not necessarily *all* the questions to be answered by this Conference. Here they are in brief:

1. How much responsibility shall Government assume and what shall our national economic policy be with respect to nutrition?
2. What is the most effective way to solve the twin problems of undernutrition and of farm surpluses?
3. How can we send to Britain the food she needs and at the same time give all American families a fairly good diet?
4. Can nutritionally adequate diets for all be achieved as a result of the employment and wage increases to be expected this year and next?
5. How can we attempt to promote inexpensive methods of distribution of all basic foods?
6. What remedies can be proposed for preventing our present widespread nutritional disabilities?
7. How can public schools, colleges, and medical schools, and adult-education facilities be best mobilized to tell the story of nutrition?

If these questions are to be answered, there is hard work that must be done. There are compromises with prejudices and sometimes with definite personal or economic interests. I say alike to Government

agencies, professional groups, and representatives of industry: This Conference has been called to discuss a serious problem. It is no place for anybody who has come along merely for the ride.

With that as an introduction, let us examine our problem. Let us see just what bottlenecks to straight thinking may stand in the way of getting our expected results.

First, let us look at the facts—the new and startling facts about nutrition. There are two parts to that story—the hollow hunger and the hidden hunger. The hidden hunger story is more recent. It has, therefore, temporarily taken the center of the stage. Do not forget that your job involves looking at both problems.

When America began to recover from the blitzkrieg of the great depression, it began to take stock of its human resources. It faced for the first time what would seem to be the rather obvious fact that human beings were as much worth saving as forests and minerals, streams and soil. It recognized, too, that the ways of conserving men and women were as susceptible to scientific determination and engineering solution as were our dealings with inanimate national resources.

We found, for example, that a large minority of our population did not get enough to eat. Because these people did not get enough to eat, they were below par in health. They were below par in initiative and alertness. They were not the people they might have been with better food inside of them.

When there was not any pinch, except the pinch of poverty and the pinch of ever-tightening belts—when America's industrial machine was running in a surplus labor market—nobody needed these men, nobody, that is, except their families. Efforts to do something about them were regarded as a kind of economic heresy. The Works Progress Administration, the Farm Security Administration, the National Youth Administration, the Civilian Conservation Corps, and other organizations that directed their attention to these groups were under constant attack. Do not make any mistake about it—there was a real problem. And it is not wholly gone.

When a Texas county can report that "20 percent of the deaths in this county in 1938 were hastened by lack of sufficient amount and balanced diets" the job is not done. Another county in the same area reported that "malnutrition has been a contributing cause in approximately 60 percent of the deaths in this county for the past 5 years." Texas certainly is not alone. It simply happens to have faced its facts a little squarer.

Thousands of families live on sowbelly and corn. Other thousands live on tortilla and beans. Most of these should grow kitchen gardens, some say. Certainly they should, but some of the folks who urge that most loudly are also most critical of the Government expenditures for the aid and educational programs which are intended to bring about that result.

And it must not be forgotten that there are other thousands—without a square foot of real estate within 5 miles of their homes in which they could put a spade—who cannot buy meal-balancing foods at the prices they would have to pay. They have not the income.

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So, distribution is one of our problems. I would not want any nutritionist here to go home and feel complacent because the problem is recognized. This is no time for academic recognition. It is a time for action.

I would not want any health officer to go back to his home town and feel smug because he set his public health nurses to advising welfare clients that what they needed were more green vegetables, fresh fruits, premium-price flour, and vitamin tablets. "Buy Better Food" is not a very helpful slogan for folks who cannot buy anything but the cheapest.

I would not want any representative of industry to feel happy about the whole thing until the American system of distribution—with the skill and leadership that only the food distribution industries are now equipped to offer us—can work out a pattern of distribution that reaches everybody.

Some industrial policies aim to skim off the cream of a market. Under such a policy, advertising is aimed at the 30 percent of the market that has the most money to spend. Costs and prices may be geared to that selected market. The result may be a residual market that cannot be developed economically by anybody. "Cream-separator distribution" that selects only adequate income groups may pay money dividends. But it can be a bottleneck to national health.

Do not forget that for a very significant part of our population nutrition is not a nine-letter word emblazoned with men in white rampant upon a field of vitamins. It is a four-letter word—food—good food and plenty of it.

Now in the pinch of defense America needs her men and women, everyone of them. We take stock of our manpower. We know that America cannot afford to take an underfed people at *any* income level if it is to be truly strong.

We know that a lot of people who are regarded as poor prospects for jobs need food. They are set down in personnel records as lazy or dumb. In the learned language of personnel analysts, we find them marked as "slow to adjust to job situations." What is really wrong with them is they are hungry.

Well, that is the hollow hunger side of it. Not all these people are literally "hollow." One may fill up on the wrong things because one is too poor to obtain better food.

Other people, we have found, are filling up on the wrong things because they do not know any better. It may be just habit, a sweet tooth, and a big rush that lead many a city office worker to lunch day after day on soda pop, chocolate bars, and sundaes. It may be the illusion he is a "he man" that leads the laborer to avoid vegetables and milk and confine himself to meat, potatoes, and coffee.

The fallacies of those diets are obvious even to amateur critics. But recent discoveries indicate even the amateur critics may suffer from deficiencies. They indicate that some of these dietary deficiencies may show up in disorders we have been pleased to call "mental." Stamina, intelligence, judgment, will, stability—all these *may* have their roots in vitamin unbalanced diets and can be treated through clinically determinable dosages of synthetic vitamins.

I will not talk about the 40 necessary elements of an adequate diet. That is a point upon which others here can speak with more authority. What I need is a pattern which will suggest the manner in which these things should be translated into governmental and industrial action.

There are some dramatic and convincing anecdotes along the line of nutrition in action. There are little stories of people who would ordinarily be concealed in case reports or statistics. There are little dramas of individual lives. Some tell the story of hollow hungers; some of hidden hungers. There are stories of increased industrial efficiency. There are demonstrations of the supreme importance of nutrition in the mastery of arms and the destiny of nations. In nontechnical terms they indicate to a layman that good nutrition pays.

The Tennessee Valley Authority went back 40 miles behind Norris Dam to the little town of Wilder, a ghost town, a submarginal coal town. There several hundred stranded miners' families were barely subsisting, and only the guards at the closed mines ate regularly. Bad actors, vicious, unreliable people, troublemakers, that is what they were, TVA officials were told. But TVA officials were, fortunately, pigheaded enough not to believe it. They sent a labor representative up to Wilder, signed up 40 men, put them on hard jobs with regular pay and regular food, and these men became some of the best TVA had. They were only an extreme case. In the dining halls at Norris a man could eat all he wanted for a quarter. In the early days many of them went around and around for their quarter. Five or six helpings were not uncommon. After awhile that stopped. The men caught up with their food needs. As they were fed, the level of their efficiency on the job had markedly risen.

Many great industrial concerns find it good business to provide adequate and properly selected food for their employees. Whether such food is free, as in some companies, or available at cost or nominal prices, is a matter of industrial and labor union policy I need not discuss here. The essential fact remains that good food pays industrial dividends.

At one of the eastern universities it was noted not long ago that many of the star athletes had unusual names. Further investigation disclosed that a more than proportionate number of these boys came from Lancaster County, Pa. There a long line of Scotch Irish and Pennsylvania Dutch had perpetuated subsistence farming and a famous tradition of good food. Perhaps there were other things besides food that those hardy forebears handed down to their sons. But it is safe to say that the average diet of the family of many a coal miner or city salesman would have long since taken that extra element out of them.

Recently, I was told that a western trucking company had actually achieved a reduction of its night-accident rate by providing all its driver crews with bags of raw carrots at the beginning of every trip. Somebody had advised them who knew the effect of vitamin A on the eyesight.

One gunner in the R. A. F. has, it is said, had an extraordinary record in nailing Nazi aircraft in the darkness. His mates, who called him "Carrots" because he was constantly munching that succulent root, did not know about vitamin A but they saw the results. But

today there is a special diet for airmen and antiaircraft gunners. The carrot stories suggest the problem of nutrition is not to be solved merely in terms of fancy processing or premium-price supplements to the diet. Vitamins may be quite prosaic.

Today, we have begun to enrich our flour. Why do we enrich it? Because the consumers demanded fineness, lightness of texture, ultra-refinement. The industry joined in competitive acquiesence and further stimulated consumer demand for these superficially attractive qualities. Perhaps this Conference can aid the advertisers by adding prestige and selling power to nutritionally satisfactory appeals. But even with today's enrichment, I am assured that the resultant flour has not achieved the nutritional level of the whole wheat.

Thus, enrichment is resorted to because of limits of public acceptance. Certainly, it is important that these elements be conserved or added. But it is equally important that the consumer is not led to believe that enrichment constitutes some sort of magic wand that changes the character of bread and makes it a substitute for other necessary foods. Not even modern fortification of foods will make men live by bread alone.

Certainly the food industries have real problems to face: pressures for overselective distribution, overemphasis on refinements, the exuberance of competitive copy writers.

But I would want none of the consumer educators present to grow smug and self-righteous because I have suggested there is a mote in the eye of some food distributers.

I suggest that the experts, too—the doctors, nutritionists, educators, home economists, and career consumers—also have forgotten a point the advertisers remember. You experts have often forgotten that eating ought to be fun.

Something frequently happens to good food when its selection is distilled through the coils of an expert. Food loses its gastronomic gusto. A fellow gets the uncomfortable feeling that he is eating exactly what he ought to and he develops a sort of technological claustrophobia about it.

Out in Indiana we raise and serve and eat the best food in the world—and I defy Henry Wallace to deny it tonight! Our Indiana porkers veritably fatten with honest pride at the prospect of becoming part of a Hoosier meal. An Indiana farm dinner, steaming on the kitchen table, constitutes about the best concatenation of vitamins ever strung together. And we have done it for years without ever knowing any of these vitamins by their first names—or even their initials. That kind of a dinner contains a vitamin you would not find in a laboratory—the psychological vitamin of human satisfaction. I shall name it vitamin Z, so the doctors can run theirs consecutively.

Indiana food has been famous for a long time. In the days before we started to export it the difference was notable. Listen to what W. E. Wilson wrote in "The Wabash:"

> The Hoosier is likely to be tall and rather lean. At one time, there was no taller civilized man in the world. Dr. B. A. Gould of the United States Sanitary Service, studying the statistics of the Civil War, discovered that "the Indiana men are the tallest of all the natives of the United States, and these latter are the tallest of all civilized countries." The Hoosier's height was probably the result of his diet; for the cereals of the North Central States are richer in proteins and show a larger number of heat units than the cereals of any other

region of the world. In recent years, however, with standardized breakfast foods on every table and the consumption of corn, wheat, and rye no longer limited to the region in which they are grown, the Hoosier has lost the distinction of unequaled height.

Wilson, you will have noted, was writing in the previtamin era. But he came out at the same place. Indiana food had what it took. The good earth of Indiana imparted life. And not the least of its virtues was vitamin Z. Food is not food for a Hoosier unless it has that.

Do not think I am being facetious. I am very serious about this thing. Every first-rate dinner the world has ever seen—first-rate in rounded gastronomic satisfaction—has had those things many dietitians lace in tight unbending stays.

The first-rate Italian dinner is not spaghetti and meat balls. That is just a perversion which arises from the fact that our industrialized city Italian workers have not been able to afford the abundant fruits and vegetables of their traditional diet. The good Italian dinner was not only fun—it was full of vitamins.

Tortillas and beans are not any nation's traditional food. They are only a remnant poor folks can still afford. * * * So for schnitzels and breads three times a day. * * * I do not know the reductio ad absurdum of the Scandinavian diet, but I daresay the smörgasbord is one of the first things to disappear.

You will sell your improvements more easily if you make them human. Not the tea "shoppe" but the T-bone steak should be the symbol of your progress.

Public health and agriculture, government and industry, medical research and education, all these must team together if there is to be a balanced achievement as the result of this Conference.

It is a great responsibility that faces you but it will pay to face it. It will pay even in terms of arithmetic.

A recent Department of Agriculture study showed that if all the families getting less than $100 a month had been able overnight to increase their income to that level, the result would be a 2-billion-dollar increase in food expenditures every year. That is dollars and cents increase. Good food is good business.

If, with the help of the advertisers and the educators, the story public health and medicine have to tell could be put into such language that the great body of American people could be persuaded, American's whole destiny would be a greater destiny than it could otherwise have been.

It is up to this Conference to create the policy. It must be a clear and understandable policy. It must be a policy which will enable the housewife to find her way through a chaos of calories, salts and minerals, acids, alkalis, and vitamins. (Maybe we can get a common denominator for food needs.) It must be a policy which gives us a firm and acceptable basis for action.

Let me close with reference to my administrative relationships with these problems. We have regulations and decisions to make under the law which are of interest to this Conference. We have several great bureaus, the resources of which should contribute mightily to the ultimate success of the program that emerges from this meeting.

Tomorrow morning, in all probability, the flour standards, which have been approved, will be published in the Federal Register. Hearings have been held by the Food and Drug Administration to obtain facts upon which standards for enriched flour could be based. For many reasons which industry especially will understand, it was decided to push ahead the effective dates of the standards to January 1, 1942, instead of having them effective at the end of 90 days—as is usual.

One of the requirements for enriched flour will be riboflavin. But since these hearings were held new facts have become known. We find that there is not now the productive capacity necessary to produce the riboflavin necessary for such enrichment. It is quite possible that adequate productive capacity for this and other needs may not be available by January 1, 1942.

Two factors complicate this picture: The kinds of construction necessary will involve negotiation as to priorities with the Office of Production Management; we are thus not immediately in a position to know how rapidly the new facilities could be built. The amount of riboflavin and other vitamins available for the millers may depend to some extent on the requirements of Britain, which, with restricted diets, may have a more urgent need than others.

The industries, which have so completely cooperated with this program, can feel assured, however, that the solution will not be one which penalizes them for events outside their control. If necessary there will be a review of this matter in the fall.

These measures the Conference is considering constitute an advance in the very responsibilities of government. Let me illustrate that advance by drawing a parallel between the work of two of the bureaus of the Federal Security Agency which are represented here today.

The resources of the Public Health Service—the National Institute of Health and other research centers, the able scientific personnel, the administrative machinery for cooperation with the States and with professional groups—these are at the service of this cause. Consider, however, the history of public health: First came medicine with its attention concentrated upon the treatment of disease; preventive medicine came later. Through the instrumentalities of public health, preventive medicine is being applied to the service of every man, woman, and child.

In the same way the Food and Drug Administration, in its early history, was concerned solely with dangerous foods and drugs, with things which might poison, which might maim or destroy the person who uses them; but the Food and Drug Administration, with its new concern for standards and labeling, is assuming a positive function in the protection of the consumer. Not only must the consumer be not disfigured or killed, he must get what he thought he was getting when he read the label. As new standards for nutrition are set, as new truth about food—some of it more fantastic than fiction—becomes the substance for advertising claims, the consumer and the honest business man may be assured that these new truths will not be misused by charlatans. The Food and Drug Administration will see that enriched foods are actually enriched, that they contain the elements their manufacturers say they do. Thus, the positive health

of the consumer in terms of the potency of food will receive a required protection.

The Office of Education, with its facilities for bringing this story to the schools, can contribute the channels for the creation of understanding. The National Youth Administration and the Civilian Conservation Corps can help to establish for the rising generation a consciousness of what good food means to the health of a family and the life of a nation.

And, on that stubborn front of low income, the experience of the Social Security Board can help us a great deal. Its experience will help show us what our requirements mean in terms of family income. The food bill must fit the family's food budget. The Federal Security Agency, and I believe every other Government agency, is ready to act.

Now it is up to you to give us the platform for action.

Mobilizing for Better Nutrition

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Evidence to be presented to this Conference should convince everyone that the Nation is faced with a serious problem of malnutrition; that despite a so-called surplus of foods a great many of our people are not receiving the fare they need for strength of mind and body.

The gravity of this situation, however, is not an occasion for crepe-hanging and bemoaning our plight. The hopeful and challenging fact is that we now have the scientific knowledge, the means, and the national will to do something about it.

The national nutrition problem is exceedingly complex, however. Its solution depends upon the mobilization of all those sources of knowledge, activity, and good will which can be utilized for the improvement of nutrition for all the people. The various fields of national endeavor represented at this Conference give evidence of the total effort we shall have to expend in mobilizing for better nutrition.

Significant studies made by the Federal Government as long ago as 1936 bear witness that this mobilization comes none too soon. These surveys revealed that in 1936 more than one-third of all families were buying food which could not provide a diet rating better than "poor"—by conservative standards. Not more than 1 family in 4 secured food which would provide a diet rated as "good."

The conclusions drawn from these surveys have not been found acceptable to everyone. There are some persons who do not feel that they apply today. They maintain that times have improved since 1936—average incomes and purchasing powers are higher. Many physicians have been critical of the results set forth on the ground that none of the individuals included in the statistical totals was subjected to personal examination. However, in later studies carried out in villages of North Carolina and Tennessee, in Toronto, and in several other widely separated cities, physicians have made careful examinations of the people, and similar conclusions were reached.

In considering the total problem of nutrition, there has been criticism of the physician as well as by the physician. The scientists who, for 20 years or more, have studied nutrition in animals have indulged quite frequently in caustic comment on the failure of the medical profession to come to grips with malnutrition.

Practicing physicians, by and large, have been slow to act on the developments in the nutrition field. I wish to take this occasion to explain this conservatism.

The past forty years and more have been a period of dramatic achievement in many fields of medical science and of marked success

in the control of diseases caused by bacteria and related organisms. The accomplishment of the average physician, in the complexity of human pathology, is highly creditable. Few persons not trained in biology are even dimly conscious of the difficulties involved in the accurate diagnosis of disease.

Nor has the physician failed, except in nutrition, to recognize the predominant significance of preventive medicine. He has given freely of his time to the campaigns which have been waged with marked success against tuberculosis, syphilis, and maternal ill health. His efforts usually have been made on a purely voluntary basis. Most of the legislation to which we owe that magnificent organization, headed now by Dr. Parran, the United States Public Health Service, has come about as a result of insistence by physicians. This is equally true of the fine collateral departments of public health in our several States.

The medical profession has not been tardy, either—as workers in nutrition have sometimes thought—in granting early recognition to the new in science. Salvarsan was introduced in 1910, and by 1912 was in general use for the treatment of syphilis; insulin was discovered in 1921 and by 1923 was employed the world over. The value of sulfapyridine was recognized in 1938, and patients with pneumonia received its benefit almost immediately.

Fundamental knowledge in the science of nutrition is of very recent origin—in fact, it is still being sought on a dozen research fronts. Many physicians received their academic education before scientific nutrition had accumulated the body of fact which today seems so important. Moreover, the earlier investigations were made in scientific fields whose relation with medicine was not so clearly recognized as it is today. These important contributions were published in journals which the average physician did not read, and became embalmed—so to speak—in the scientific literature.

As in the initial years of any new science, the early findings were indeed vague and negative. According to a popular definition, "A vitamin is something that makes you sick if you don't get it." It could scarcely be expected that men trained in a school of tangible causes and effects should be greatly concerned with infirmities for which only a negative causation could be suggested, nor could they find much substance in so vacuous a conception.

The average office practice of most physicians and even the wards of hospitals have not revealed much disability clearly related to diet. Most persons who are malnourished are scarcely sick enough to call physicians. If they do, it is for symptoms which the doctor in the past has thought were due to mental or nervous disorders. Doctors long have recognized severe deficiency diseases. Pellagra, when it came full-blown with red, scaly skin on hands and neck, a red, sore tongue, and diarrhea, was unmistakable. But. in most places, the number of cases of pellagra has been very small. We encountered dropsy in patients with tender nerves and other symptoms simulating the disease which, in the Orient, is known as beri-beri. but such clinical pictures were very rare. Frank scurvy, with its bleeding, swollen gums and skin spotted by blood which oozed into the tissue beneath the skin, likewise has been uncommon. Rickets in children was once terribly apparent, but of late years the general dosing of infants

with cod-liver oil has decreased the conspicuous features of rickets.

When it came to the recognition of the more subtle forms of malnutrition and their relationship with the vitamins, the physicians were wary. This is entirely understandable, for it must be remembered that diet, for centuries, has been a fertile field for quackery. Food fads have come and gone by the score. Physicians are perhaps more conscious of the evils of charlatanism than others without the same training.

Furthermore, the early evidence on vitamins was limited for a long time to what was learned from animal experimentation. Physicians must be careful about accepting for man conclusions based on work with lower forms of life. I beg that what I am recording will not be interpreted as lack of appreciation of work in animal nutrition. Without the basic information thus obtained, the chemists could never have proceeded. My intent is, rather, to point out that the concept of vitamin activity seemed to the physician academic, rather than practical. The earlier suggestions in nutrition that this or that vegetable or fruit was an excellent, a fair, or a poor source of this or that ill-defined activity were unconvincing to a profession becoming accustomed to methods of precision both in diagnosis and treatment.

Thus, physicians demanded other evidence that the newer knowledge of vitamins applied to man. That evidence was forthcoming in the contributions of brilliant chemists who isolated or made available by chemical means the vitamins in forms which could be tasted, smelled, weighed, and measured for effect.

Additional evidence came from nutritional physiologists, chemists, and clinical investigators. Methods were determined for measuring with precision the amounts of each of the several vitamins contained in foods. Methods of determining the amount of vitamins in blood and urine were likewise established so that diagnosis of vitamin deficiency could be made in the clinical laboratory. Physicians can now think and work in terms of micrograms of vitamins with chemical names. At least this is true for several of the vitamins. The chemical designations of these substances provide a distinct advantage, for the use of alphabetical designations—A, B, C, and so on—created much confusion.

With these tools at hand, physicians have in recent years begun to display the long awaited interest in scientific nutrition. After all—as Director Wilson has remarked—in a dynamic society we cannot demand complete scientific knowledge before acting. "Greater mistakes will be made by waiting for the golden age than by acting on knowledge at hand and changing our course as newly acquired knowledge may suggest."

Another reason for the growing acceptance of nutritional science by physicians is the increasing knowledge of the actual requirement, per person, of each of the several nutrients contained in food. We know today, beyond all doubt, that the average American diet does not provide what men and women ought to have, nor what the children of today need to become vigorous citizens of tomorrow.

In consequence, physicians now are even more concerned than are some of the scientists with the problems of health which malnutrition has created. Specialists in diseases of children were first to crystal-

lize their interest, but of late, discussion of some aspect of human nutrition finds a place on the program of nearly every medical gathering in the Nation.

The American Medical Association organized a Committee on Foods some 15 years ago. This body, composed of a group of leading nutritional scientists and a number of physicians, undertook to inform the medical profession and the public concerning the reliability of nutritional claims made in connection with advertising and labelling of foods. This earlier Committee more recently has been renamed the Council on Foods and Nutrition. As such, it is concentrating attention on the nutritive qualities of foods in general use and on the effects of various methods of processing, distribution, and preparation on those qualities.

When the President called the National Nutrition Conference for Defense, the Council on Foods and Nutrition and the Board of Trustees of the American Medical Association pledged to it their full support. They recognize the need for awakening public interest in the many problems here to be considered. They appreciate, however, that many kinds of experience are required to solve effectively the diverse problems facing us. Physicians in every community will cooperate in what needs doing, but with them must be ranged many other groups with other special training.

Guidance is demanded from experts in nutrition. To provide this guidance, the Committee on Food and Nutrition of the National Research Council has been organized.

Food habits offer difficulties which only experience in psychology and education will overcome. Assistance here can be looked for from the Committee on Food Habits, now organized by the National Research Council.

Economics is importantly involved in any consideration for the improvement of national nutrition. Here the advice of the social economist is essential.

Very many families are unable to secure enough "protective foods." Milk, meat, eggs, fresh vegetables, and fruits are relatively expensive. Whole wheat bread and other whole grain cereals are perishable—a factor which adds to the cost of their distribution. The farmer in most cases can keep a cow and have a garden and an orchard; but on some poor lands, this is impossible. The city dweller, however, is always dependent on the market for the variety of foods available to him and for the amounts which his dollar will purchase.

Families with incomes below a certain level must have assistance in tangible form if they are to secure the foods which provide an adequate diet. Assistance may take the form of a money dole, or it may involve the direct distribution of food. Experience has shown that money payments, as a rule, are ineffective. Distribution may be accomplished by means of tokens or stamps, good only for the purchase of food and not interchangeable. The Food Stamp Plan of the Surplus Marketing Administration has succeeded amazingly. I was told by a physician in New York that the clinical complexion of the clientele in a large dispensary changed dramatically after the Food Stamp Plan was introduced in that community. Before its adoption, almost every patient was overweight or underweight. (And I may say that overweight is as common a symptom of malnutrition

as is underweight.) Many of the patients also presented other signs of malnutrition. After the adoption of the stamp plan, the appearance of more than half the patients decidedly improved. Indeed, one of the women patients declared, "Doctor, I'm beginning to live again!"

Another way of supplementing the diets of low-income families is to distribute food in kind. This can be done by some arrangement for communal feeding. The school-lunch program, so long in operation in this country, has proved its value. Sir John Orr, Director of the Rowell Research Institute in Aberdeen and Director of the Imperial Bureau of Animal Nutrition, recently wrote from England that when the school-day diets of malnourished children were supplemented with milk and other protective foods, their ability to learn markedly improved. In a private school in Connecticut, where malnutrition had not been conspicuous before, the average grades rose 10 percent when special attention was given to the nutritional adequacy of the food served.

Similar methods of improving the nutrition of industrial workers have produced encouraging results in Britain, according to Orr. The introduction of supplementary meals in factories has been followed by an increase in production and a marked reduction of accidents.

A method of attack of special value is to improve the nutritional qualities of certain staples, which, because they are inexpensive, form an unduly large proportion of the diets of families with small incomes. It is almost impossible, even for experts, to plan nutritionally good diets costing less than 20 cents a day when the sugar, flour, rice, and edible fats have had most of the minerals and vitamins removed by methods of refining. In some foods, all of these valuable elements have been lost.

It is here that the several food industries must mobilize. The expedient already adopted for flour and bread has been to fortify these staples by the addition of iron and certain of the purified vitamins. It does not represent the ideal solution of the flour-bread problem, but neither in my opinion does any other course available today. Brown bread has never been acceptable to more than a very small number of the population and for many persons the irritative action on the bowel of the bran contained in undermilled flours is undesirable. The miller, in time, will be able to present us with a white flour, so made that it retains most of the vitamins and mineral values of wheat. But, until he learns how to make such a flour—and that will take time—addition to plain white flour of those vitamins which the National Research Council's Committee on Food and Nutrition has prescribed for flour and breads labelled "enriched" will do much to facilitate the planning of good diets.

Many uninformed persons have blamed the food industrialist for our diet problems. The criticisms in large part have been unintelligent and grossly unfair. Modern methods of processing were developed before there was knowledge of vitamins and they have contributed importantly to improving the sanitary quality of foods. They also have provided products with better cooking qualities. In some processing methods, the vitamins are better preserved; in others, they are lost together with other nutritive essentials. Before altering accepted procedure, the food processor, like the physician, de-

manded proof that human diets needed changing. Only recently has the evidence convinced him.

Nutritionists have been aware of a shortage in diets of vitamin A, calcium, and iron. The natural food sources for these are the green, leafy vegetables, milk, and butter. Many people obtain too few of these. Unable to purchase butter, they use in place of butter, either vegetable or animal fats which carry no vitamin A and may be lacking in other nutritional values. Something must be done to improve the nutritive qualities of the vegetable and animal fats, as now distributed. A problem the food industry must face is the need for larger distribution of milk than now obtains. The nutritional inadequacies of sugar create difficulties. Many diets are inadequate in protein. A wider distribution of lean meats and of leguminous proteins such as are contained in the peanut or the soybean would be advantageous.

It would not be appropriate here to elaborate further on individual aspects of the problem. I have mentioned some of them only to illustrate that much lies beyond the physician's sphere of activity. Success in the nutritional campaign demands leadership from many groups. The responsibility indeed is shared by all of us. Viewed selfishly, it is as much to my interest as to my neighbor's that he and his children be well nourished—if only for the reason that today all of us need, as never before, the assurance that comes from united strength and well-being.

Fortunately, an army of women, trained in schools of home economics, is already in the field. They have been there for several years, holding the front, so to speak, with almost no support and very little appreciation from the rest of us. The job of feeding the family is not woman's work alone, as men so often have supposed. Responsibility for the health of the family is as much that of the husband as of the wife. The county agent, the Farm Security agent, and others in the agricultural service have left too much to the home demonstration people. Encouragement of home gardening and a family supply of milk and poultry is much more the responsibility of the men in these services than has been recognized.

One division of the nutrition army already in the field is composed of dietitians. They are invaluable assistants to physicians. We frequently are unable to devote the necessary time to teaching patients how to put in practice what we prescribe. Dietitians receive excellent training. Their numbers need augmenting to permit their wider employment in maternal and child health centers, in community feeding projects, in dispensaries, and as teachers of nutrition in many other situations.

The dental profession has been creditably active in nutrition, sometimes with greater zeal than wisdom. More emphasis on the fundamentals of nutritional physiology is desirable in schools of dentistry, as it is in schools of medicine. Nurses likewise ought to receive more training than they do in the principles of sound dietetics and nutrition.

The machinery for government regulation of foods was devised to prevent the sale of spoiled, adulterated, or misbranded foods. With notable exceptions in certain bureaus of the Department of Agriculture, little attention has been given to the nutritive qualities

of human foods. The interest in general has been more in protecting pocketbooks than health. Also unhappily some food legislation has discriminated in favor of special-interest groups with large political influence to the detriment of the public at large. Here also criticism must be tempered with appreciation of the fact that proof of damage done has only lately been presented. Our legislators and public administrators are now hearing about nutrition for the first time, and from now on a change in emphasis may be anticipated—more attention to nutritional needs by administrators and by legislators; greater resistance to political pressures that affect unfavorably the nutritional needs of the people.

Last to be named, but foremost in importance, in this army which now is mobilizing on the nutrition front, are the people in research—the pioneers with the courage and what else it takes to scout in advance of the main forces, to locate the enemy and establish outposts. Nutrition is a newcomer in the ranks of science and much remains to be learned about it. Other vitamin activities are yet to be discovered; a number of vitamins await isolation. More knowledge must be had about the chemical mechanisms involved in these activities, about the dependence of one vitamin on another, and about relationships between vitamins and the various salts. A new world awaits exploration.

We are mobilizing now for a military emergency, mobilizing on many fronts. The outcome, if war is prolonged, will be determined in large measure by what we do with our foods.

In summary, I again express my confidence that the physician, aware of the seriousness of the problems presented by nutrition, will cooperate in the campaign for better nutrition with the same zeal he has exhibited in other public health activity. In the application of nutritional knowledge to the treatment of disease, his leadership must be sought and recognized. The over-all problem of national nutrition is beyond the physician's immediate sphere of action, but its solution will be the more speedily attained if his sympathetic support becomes an integral part of the program.

The campaign for better nutrition is complicated by cultural, social, and economic problems. The principal battles of the army of nutrition will be fought in fields of education, economics, and industry. Guidance can be provided by research, but the success of the campaign will depend on the effort of each of the several groups with special training that now are gathering for action.

Plans for the Conference

DR. M. L. WILSON
Director of Extension Work;
Chairman, Nutrition Advisory Committee to the Coordinator of Health, Welfare, and Related Defense Activities

In speaking for the committee on arrangements, I desire to emphasize by restatement two important points made in Governor McNutt's address:

First, the President of the United States calls but few national conferences, and, second, the national conferences that have been called in the past have laid the foundation stones for activities of the greatest importance to the welfare of the Nation.

The Conference on Conservation, called by Theodore Roosevelt, laid the foundation for a Nation-wide consciousness of the waste of our national resources—and what to do about it.

Likewise, the White House Children's Conferences have awakened the Nation to the great importance of children in our democracy. They have greatly stimulated the thinking and actions of what we of an older generation can do to prepare the growing generation for the heavy responsibilities that will soon be theirs.

This Conference has an equally heavy responsibility, the responsibility of arousing the Nation to the importance of the nutrition problem both in a period of defense and in the long vista of the future. This responsibility rests even more keenly upon us when we realize that we are representing thousands of qualified, public-spirited, and zealous men and women who could not be invited to this Conference simply because no auditorium in Washington could have held such a gathering.

The decision which our executive group was forced to make—to designate this a delegate-planning conference limited to persons chosen as equitably as possible for geographic, professional, and group representation—was most difficult to make. We knew that there were hundreds of scientists, physicians, educators, welfare workers, representatives of producers, industry, distribution, and consumer groups plus the thousands of lay persons who are contributing so much to this broad program of nutrition, who were eminently qualified to come to this Conference here in Washington. We hope they understand the physical impossibility of inviting all of them as delegates. You and I pledge ourselves to represent them here to the very best of our abilities.

Our executive group in planning this Conference was also faced with a difficult problem in the assignment of delegates to the various sections. We are limited by time as well as space and the over-all problem of nutrition is so vast that the number of sections into which it could properly be divided for study is many times the number we have established. This afternoon and Tuesday afternoon are to be given

over to nine sectional meetings. Most of the delegates have been assigned to these sections for committee work on these two afternoons.

The Conference planning committee has endeavored to organize these sections so as to give a composite rather than a narrow representation in each. In other words, we have endeavored to have represented in each section most of the various interests which are involved in this Conference. The sections are expected to bring forth their reports at the end of the Tuesday afternoon session. It is hoped that these reports will be concise and deal pretty largely with policies; "what should be done," rather than the details of "how to do it." In each case the recommendations should be the result of discussion and general agreement on the part of the section. The general recommendation of the Conference will be based on these section reports.

The Wednesday morning program will be devoted wholly to three matters. First, such discussion as the limits of time permit of the reports and findings of the nine sections; second, short statements pertaining to the problem and what is to be done about it, to be made from the floor; and third, the recommendations to the President.

We think it wise to have a rule that the Wednesday session will be confined to the recommendations which were made by the sections and that in order for a proposal to get before the Conference as a whole, it must have originated in and received the approval of a particular section. Otherwise, we feel that the Wednesday session might easily become involved in the many detailed ramifications of matters pertaining to human nutrition.

The reports of each section will be given to the public as an integral part of the Conference and will not be brought before the entire Conference for its approval. The entire Conference will express itself in the statement of what should be done, which will be presented to the President. Conferences of this kind necessarily make their recommendations to the President in the form of broad policies, policies that point out what should be done.

It is also the duty of this Conference, once policies are agreed upon, to indicate the responsibilities of local, State, and Federal governments; the responsibilities of physicians, educators, producers, processors, distributors, and consumers; the responsibilities of men of science, of lay organizations, and of the individual citizen.

But this second duty is a highly complicated task—it involves cooperation and teamwork, it involves understanding, and, above all, it demands a common objective. That is why, with over 900 delegates from all over the United States, representing different backgrounds and experience, it is all-important to agree on a common objective, to give to the President of the United States a set of recommendations so vital and basic that no matter what differences of opinion may arise as to methods or procedure there can never be any difference of opinion as to our purpose. For the same reason, and because of our limited time, it is important that we refrain from spending too much time in extensive excursions into areas where definite policies already exist.

Tomorrow morning's public session to which the general public is invited, will present, through the Secretary of Agriculture, the Secretary of Labor, the Assistant Secretary of State, and the Assistant Administrator of the Office of Price Administration and Civilian Sup-

ply, the policies of their respective branches of Government as they affect the nutritional status of our people.

Since those policies have already been forged out on the democratic anvil of legislation and action, we would be wise to accept them and to focus our attention on the unsolved problem of the quality of the nutrition of our fellow men.

We can and should agree, for instance, that the work which we do here must be carried forward by the men and women who actually live in the homes and communities with which we are concerned.

The establishment of State Nutrition Committees, with Dr. Helen S. Mitchell acting as liaison officer between them and the office of Coordinator Paul V. McNutt, has already been accomplished. Here is the framework necessary for successful application of our recommendations. Next, by recommending the calling of State and local nutrition conferences, we can impress our purpose on every home and community group in the United States. There is no limit to the aid and cooperation we can enlist if we see our problem clearly and phrase our recommendations boldly and dramatically.

I especially desire to make a statement to the Conference regarding the report of the Committee on Food and Nutrition of the National Research Council, which is just released, regarding nutritional allowances.

Because of the great importance of food and nutrition in defense and military activities, nutrition was quickly recognized in the organization of our great defense effort which was set in motion about a year ago.

From the Federal angle, 2 important steps have taken place:

1. Nutrition was recognized early in the setup of the National Defense Advisory Commission and later in the responsibilities of the Coordinator of Health, Welfare, and Related Defense Activities. A Nutrition Advisory Committee, on which were representatives of the various departments and agencies of the Government interested in nutrition, was created for the purpose of developing coordination and planning on the national level.

2. Since many of the policies involved are of a scientific nature they should rest upon the judgments of competent people in the sciences involved. Therefore, the National Research Council, one of the functions of which is to mobilize the Nation's science in time of need, was asked to create two scientific committees—Food and Nutrition and Food Habits. These committees are playing a prominent part in our national nutrition activities in supplying the basic scientific judgments which must underlie any effective program.

We are fortunate in many ways that many activities have been going on in the last quarter of a century in relation to nutrition, which in this time of emergency bear most valuable fruit. There has been a great expansion in scientific research in this field; there have been widespread developments in the diffusion of scientific knowledge through the various agencies of education and public information. There has been the conservation and building up of fertility of the soils of the country through widespread soil conservation policies and a large reserve of feeds and cereals has been built up in the ever-normal granary. We have been getting an

important inventory of our nutritional status as a nation. We are fortunate that research work carried on in the past 10 years gives us some approximation as to the size and nature of the problem of insufficient human nutrition.

One of the early actions of the Nutrition Advisory Committee was to request the National Research Council Committee on Food and Nutrition, under the chairmanship of Dr. Wilder, to make recommendations as to immediate emergency steps which it would be practical to take in the direction of improved national nutrition. The National Research Council Committee promptly presented the problem of the loss of vitamins and minerals through the over-refinement of certain of our staple foods. They recommended that appropriate steps be taken either to conserve the vital elements removed in the milling process or to restore to white flour the most necessary elements lost in the production thereof. Growing out of this recommendation has come the present widespread activity in connection with enriched flour and bread, which we believe to be so vital in the present situation. In this present activity science, government, industry, and consumers are cooperating in a most splendid manner. What is now going on is a fine example of what we can effectively do in a national effort.

The Committee on Food and Nutrition was also asked to evaluate past and present nutritional research, and on the basis of this research and of scientific judgment, to present a statement of nutritional allowances. In the light of present scientific knowledge and scientific judgment, what should be the intake of calories, or proteins, of important vitamins and minerals in an ideal diet? In making this request, we realized full well that science is a dynamic, developing thing, and that what seems to be valid today may be changed or modified tomorrow by the growth of scientific knowledge. We realize that such allowances are always tentative, always subject to modification and change. Yet they are extremely useful as a yardstick with which to measure the distance toward our goal.

I am happy to report to this Conference that the Committee on Food and Nutrition of the National Research Council has complied with this request and has released a table of dietary allowances which has just been mimeographed and will be available to the delegates and guests at the conclusion of this session.

In interpreting scientific nutritional allowances it should be made clear to all that no one is recommending a single diet or is doing anything which upsets the normal competitive relationships of our great variety of health-giving foods. The possibilities in our diets are as wide and varied as the richness and diversity of our land and individual tastes of our people. No other nation, in fact, no continent, has so rich and varied food resources. We have all the cereals and all the other foods of vegetable origin, all the milk and milk products, all the protein and mineral-supplying meats and animal products, all the fruits and vegetables from the apples of Wenatchee on the Canadian boundary to the citrus fruits and winter vegetables of our sunny winter climates.

The second committee of the National Research Council—which deals with food habits—is organizing research and mobilizing judgment in an important field which parallels the biological. The more

light that is thrown on this whole phase, the more effective will be the educational processes involved in improvement of our food habits. We are gratified by the increasing cooperation of public and private research agencies in the field of nutrition.

On behalf of the Nutrition Advisory Committee may I take this occasion to thank the National Research Council Committee for the painstaking and laborious task which it has performed in connection with the development of food allowances. The scientific modesty with which they have been presented makes us all realize the incompleteness of scientific knowledge and the great need for the expansion of research as it relates to this field.

I think we can all agree with the proposition that no man, woman, or child in the United States should be allowed to starve. That is the very least this vast and fruitful land should promise its sons and daughters.

But having pledged ourselves to that proposition we find we are committed to a good deal more than might be imagined. We find that starvation can be hidden, subtle, and slow, as well as desperate and dramatic. We find that science has uncovered starvation in places where it was not supposed to exist, in high and middle places as well as in the low.

Call it malnutrition, call it undernourishment, call it dietary deficiency, or what you will—when men and women and children fail to eat the foods that give them full life and vigor, they are in fact starving.

Here then is the challenge we must face: We are pledged to the proposition that no one in this great democracy shall starve even with hidden hunger and we are faced with the fact that 40 percent of our people have poor and inadequate diets.

There is no need to apologize for this condition, though there is urgent need to do something about it. Bad food habits, careless food preparation, the evolution of food processing explain in part the large percentage of unsatisfactory diets in the United States. As a matter of fact, our diets are as good as those of any place in the world. We are a well-fed people compared with the dietary levels in most parts of the globe. But we are not well fed in relation to the productive potentialities of our land and labor.

In the totalitarian countries food is a weapon, a bait, and a lash to be used to bolster the morale of shock troops, to enlist the skill of craftsmen from other lands, or to weaken the resistance of the conquered. In America food is a boon, the gift of God's good earth. That is why we would be criminally careless and unworthy of our heritage if we failed to dedicate ourselves to the proposition that none of us shall starve.

This duty becomes especially imperative in view of the fact that we have the agricultural capacity to provide a good diet for the whole population. We have, as a matter of fact, some food to spare. We are in the twice-blessed position of being able to feed ourselves and others, a position that may prove to be all important when the starving and shattered nations of Europe gather round a barren peace table.

Meanwhile during the black months or years of war that may lie ahead, we must consider the nutritional status of the Nation as a

whole, as well as the status of its individuals. In primitive times, through a process of natural selection and survival, the people chose the best available foods. Thus nations which did not or could not make a wise choice died out. They were conquered by an enemy from within—by slow or fast starvation.

We, in this great Nation, have the inestimable advantage of being able to choose wisely—if we will. And in these days of all-out national defense, when the ever-increasing demands for ever-increasing production call for optimum physical vigor and morale, it behooves us to choose wisely.

MONDAY EVENING, MAY 26, 1941

Nutrition in the First World War and Now

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I have rewritten this speech every time I have heard a speech today. Now, since Mr. Taft has used the figures regarding the selective service rejections, I have to rewrite it again. I am in the position of the intoxicated gent who was found sitting on the curb writing a letter. When asked to whom he was writing, he said, "To myself." "Well, what are you saying to yourself?" his friend asked. "How do I know?" he said. "I won't get it until tomorrow."

So I really do not know what you are going to get. The title of this paper is correctly reported to you, but the subtitle, which I scratched out, was called "Changing Emphasis in Nutrition." Perhaps that describes it quite as well as the title announced. The two are not very different.

In the development of our knowledge of foods and their values to the human body, there have been four definite phases. Following the great work of Liebig a hundred years ago there was the composition phase. The question of great interest was, of what do our foods consist? Following the observations of the pioneer Beaumont, the first physiologist in this country and the first man ever to see digestion going on in the human stomach, and following the discovery of the digestive enzymes some years later, came the digestibility phase. The question was, what foods are most easily digested? Then came the calorie phase, when the question of greatest interest was, how much energy does the food contain, and how much does the body require? This phase, of course, began with Lavoisier 150 years ago, but was not widely prevalent until the work of Voit and Rubner in Germany and of Atwater and Lusk in this country. We are now in the phase where the subject of greatest interest is, what foods of each class are of the greatest biological value? It includes all the modern development of vitamins and biological values of proteins.

Each of these phases has risen to a peak of predominant interest and left a prominent contribution, each now continues to make prominent contributions to knowledge, but has given way to the subsequent phase as the center of interest. It would not be difficult to fix an approximate time during which each of these phases was in the ascendancy.

It is more important, however, for us to realize that none of them has completely died out. We still need to know what foods consist of, and this knowledge needs to be made far more particular and complete. We still need to know what foods are more digestible

and why, which foods contain most energy or energy in most available form; and, more exactly, how this energy is made available for all the different physical processes, including the part played by the vitamins in these physiological processes.

But the center of interest today again is quality. Why are certain foods better for us than certain others which are equally digestible and contain as much energy? The answer is found partly in the vitamins, which do not undergo digestion at all and do not yield energy in any measurable quantity, although they contribute importantly to the release of energy from other foods, and partly in the chemical structure especially of the proteins.

When the World War began we were just entering the vitamin era. McCollum and Mendel independently in the year just preceding the World War, namely 1913, had recognized the first fat-soluble, fat factor, which later became known as vitamin A.

We are now riding the crest of the vitamin wave. You know it is rather precarious sometimes to be on the crest. It all depends on how the wave will behave. If it tips over and breaks, as waves do on the seashore, it may do harm, so I am trustfully living in the belief that we are going to come down off the crest of vitamins safely.

The method of estimating the biological value of proteins had been introduced by Thomas in 1909. It had made no progress in this country until McCollum in 1921 and Mitchell in 1924 had clarified the issues. A few minerals were known to be important but had not yet come to full recognition, and the importance of trace elements was quite unknown. Consequently our principal interest in the first World War was energy supply, the distribution of calories to the three organic foodstuffs; general, wholesomeness of foods, with some emphasis on quality of proteins; also certain of the minerals were mentioned; and cautiously we talked about fat-soluble A and water-soluble B.

My own experience at that time, as you heard, was in connection with the United States Army. Mr. Taft misspoke when he said I was chief adviser to the Government. It was only to the Army. The objectives of that division of food and nutrition in the Surgeon General's office, were stated in the application for authorization which was addressed to the Chief of Staff and through him to the Secretary of War, a statement by the way, which was concurred in by several of my associates then on my advisory committee who are active in this Conference. The statement was as follows:

> That the purpose of the division [which was something entirely new in the Army] would undertake to safeguard the nutritional interests of the soldiers, first, by means of competent inspection of the food supplied to the camps with reference especially to its nutritional quality; 2nd, by seeking to improve the mess conditions with special attention to the matter of food economy, bearing in mind that palatability and proper cooking are great factors in determining the utilization of food in the physiological sense no less than in the financial sense; 3rd, by studying the suitability of the ration as a working man's diet, tested for the proper amount and distribution of nutrients. An intelligent alteration of the rations from time to time must be based on the facts, and it is the purpose of this division to secure the facts.

In contrast with the interests as they were thus outlined for the Army in 1917, there was going on at the same time, in relation to

the general population, an intensive drive for the incorporation of larger amounts of milk and other dairy products in the diet to see that there was an adequacy of this new factor called fat-soluble A as well as more calcium and phosphorus. That was one of the chief points emphasized. The Army was afraid of milk for fear the drinking of milk might develop milksop soldiers. They did not want soldiers to drink milk!

This drive for greater consumption of milk had already produced an increased consumption of milk, and as we all know now the educational efforts of this pre-war period and the war period itself bore fruition in later years in much greater consumption of milk, butter, cream, and cheese.

We might summarize, then, the principal nutritional interests of the first World War days, Army and civilian population included, as contained in the following expressions: Adequate calories, good quality protein (and all we could say in those days was class A proteins and whatever came below), increased milk consumption, and thereby improved mineral nutrition. The emphasis on the few vitamins not yet called vitamins very widely, but rather "accessory factors" was, of course, cautious, and wholly determined by the recency of their discovery.

In the intervening years since the World War, we have seen an enormous increase in our knowledge of vitamins. First came vitamin C, so named, at least, in 1920; then vitamin D in 1922; vitamin E in 1923; the recognition of vitamin G, as it was then called, or as it has also been called, vitamin B_2, as the heat-stable factor of the B complex, in 1926. More recent developments concern especially the several fractions of the B complex and the importance of vitamin K.

We now have at least also four methods of determining the biological value of proteins. The agreement between those methods is reasonably good, although they do not read in the same scale. They have to be interpreted one with the other, and the agreement between observations on lower animals and those upon man agree also reasonably well, so much so that we are led to believe that what is good for a rat in the way of sustaining growth of his body substance is also good for man. The figures quite often are strikingly similar.

In the B complex we have not only the recognition of several new factors but an entirely new terminology growing out of the chemical identification of these factors. Six such factors are now available in chemically pure form, and without the achievements of the synthetic chemists working with the nutritionist we could not embark on the new program of vitamin enrichment of flour, shall I say for better or for worse?

I have put it that way because experiments in my laboratory have impressed me a great deal. These experiments conducted by my associate, Dr. Nasset, on dogs, have shown that when six of the synthetic factors now available are added to a diet otherwise free from B vitamins the dog is still very deficient, but when yeast is added, the deficiency at once clears up, and what seems more important, digestion is notably improved. The only one of the synthetic factors with which Dr. Nasset has had any experience that can be shown

to have any favorable effect on digestion is pantothenic acid. On the other hand, he cannot show that any of the others is harmful. They seem to be entirely neutral in the organs where they find themselves mixed with the food. Thiamin, riboflavin, nicotinic acid—I hope for the sake of the timid that the last one will have a new name before long—ascorbic acid, calciferol, and vitamin K have been found to cure specific deficiencies in truly miraculous fashion, but we know very little about the physiological rectification by which these cures are effected. There is need for intensive effort to learn what enzyme system each vitamin fits into, because many of them are known already to fit into the tissue enzyme systems, and how they affect other organs than those exhibiting the specific lesions associated with deficiency; for example, the digestive organs, the circulatory system, and especially the nervous system. Great profits await the courageous investigator into those fields.

On the recommendation of the Committee on Food and Nutrition of the National Research Council, as you have already heard, certain factors which are now available in chemically pure form are to be incorporated into white flour and bread without raising the price of bread; at least we hope it is going to be without raising the price. Why not go the whole figure and restore all the factors? Some comments have been made on this already. At the present time that can be done in only one way; namely, by producing whole-wheat flour and making whole-wheat bread. It is only fair to say that progress is being made in producing whole-wheat breads that are acceptable to people who like a little more flavor in their bread than one gets from ordinary white bread. But in the meantime people who prefer the white bread will at least get a better bread than they have been having for many years past.

The two factors most needed just now to safeguard the health of this country are the ones which will be incorporated first, and as you heard this morning, no doubt riboflavin, the third, will be available by the first of the year. The Committee on Food and Nutrition is well aware that other factors than those two are needed to restore white flour and bread to the full complement of factors contained in the native wheat. Encouragement is given to every means of increasing gradually the proportion of the whole wheat obtained in the flour and hence in the bread, insofar as it can be made acceptable to the consumer.

I want to say that I gave my consent to this proposal of enrichment rather reluctantly, and was greatly reassured when I knew the Committee was going to work by these other means; that is, the gradual increase of the extraction from grain of more and more nutrients. That will be a part of the program as well as the program of enrichment. No pressure is to be placed on the consumer to take a bread he does not like for the very good physiological reason that unless food is enjoyed—unless it is appetizing to the person eating it, not to somebody else—it is not so promptly digested and utilized. A great deal of work remains yet to be done to get perfectly satisfactory recommended daily allowances. As you have already heard, the ones that have been recommended to you are good guesses, but they are not final by any means. I think two speakers this morning placed emphasis on this point, and I need not say any more about it.

I wish only to add this—as a man who has had a good deal of experience with human subjects as experimental subjects, it is my experience that the species Homo laboratoriensis makes a very good rat. He knows what the experiment is about. At least he has that advantage over the rat. He gives his full cooperation willingly, and the rat has no alternative.

Several citations could be made of important current work on human subjects; for example, the recent work of Williams and Wilder on thiamin on human subjects is one of the most illuminating studies we have had with that vitamin. I make this appeal for more and more experimental work on human subjects for a special reason. We all realize we can get along faster, pile up observations much more rapidly with small animals, but we are still in some doubt always as to the strict applicability of the results to ourselves. The moment we get perfectly satisfactory demonstrations of vitamin effects on man doubt is resolved at once, and more and more work on human subjects will help set the proper daily allowances.

I might cite another example of a very pertinent, as it seems to me, experiment on human subjects which came to us from England not long ago. The first one I heard of was by a man by the name of Capon, who was working in a recruiting camp. He took 33 of the men who were considerably below acceptance standards, put them in a special squad by themselves, gave them remedial exercises as well as a graduated course of physical training, and fed them a diet including plenty of milk, butter, fruit, and fresh salads. The quantity of protein and fats was high. In 6 weeks 21 of the 33 passed the examination satisfactorily, and 6 more were almost up to acceptance standards. Still more striking demonstrations along the same line have been made, as you no doubt have read in the popular press, in a reclamation camp set up by the R. A. F. to rescue men who fell below the acceptable standards and to reclaim them for service in the air. This work has been going on at Canterbury for nearly 2 years. The results have been very similar to those I gave. I hope we may see such conditioning camps set up in this country soon.

Now I come to a repetition of what Mr. Taft has already told you, but I will modify it just a little bit. In spite of our knowledge of nutrition gained in the past quarter century, the percentage of rejections in the selective service today is as high as, or higher than, it was in 1917, and the causes are substantially the same. Something needs to be done. Knowledge, as Sir Richard Gregory has said, is like energy. It is capable of doing work, but first it must be changed from the potential state to the kinetic or moving state. Knowledge is like a rock set up on a shelf. It does no harm, and it does no good, so long as it rests there, but let somebody jar the shelf and let the rock fall off, and then something happens.

That is the state of things today. We know more than we are doing. We must remember also that the best diet in the world alone will not accomplish the state of physical and mental fitness we should like to see in all our people. It must be accompanied by physical training appropriate to the age and sex, and most important of all there must be the will to improve. As President Roosevelt has said to us so many times, "It can be done."

Bad teeth, as you have heard from Mr. Taft, constituted the most important cause of rejection. I wonder if there is not something of considerable significance in the observation of Knudsen in Denmark, who saw that the few children in that country with perfect teeth, had also perfect backs, both skeletal and muscular. We are all familiar with the poor dentition that accompanies or follows rickets. Another feature of it is the poor and shrunken, often pinched-up chest, and of course, consequently, a pinched-up and poorly constructed back. Does not muscular development promote the development of stronger bones and teeth?

I have a fear that we may be caught up in a craze for specifics. Many of us grew up without ever tasting cod-liver oil and yet developed good bones and good teeth. We never tasted any vitamin concentrate, much less a pure one. The hard work which boys and girls on the farm were required to do 50 years ago is not adequately replaced by cheering for the favorite team from the side lines. More calories from the protective foods, the foods the farm boy or girl 50 years ago got as a matter of course, together with play and work, in sunshine and fresh air, are the things that will get us along to our goal of perfect nutritional health.

I repeat, the best diet in the world alone cannot do this. You can feed a person full of vitamins; but if you set him off in a corner and let him stay there, nothing happens. There must be active participation of the organs and tissues of the body. They must be exercised, both brain and brawn. As Lindhard has said, a young man who has been through a satisfactory physical training bears the stamp of controlled force. How many of our youth today, except those who have been through their training in the camps, do you see that give you the impression of controlled force?

The emphasis has changed remarkably. Since the World War new knowledge has been gained, and the emphasis naturally follows the newer knowledge, because much of it interprets the old knowledge; but that is not to say that the old knowledge is no longer useful. Unlike the military establishments we do not need to scrap the old weapons. We need merely to add new ones and to rejuvenate some of the old.

There is this difference, also, between our day and that day of 1914, especially from 1917 on, when we participated in the war. We have at the present time no shortage of food. You remember that we had been selling food to the allied nations for about 3 years before we became a partner of the allied nations. And that was one factor in the scarcity of food. We had war bread, and we had meatless days, and we were getting on toward the days when we were warned we must cut down on the consumption of fats. It did not actually come to amount to anything, as I recall, but we were warned it might come. In case we have a period of stringency, and of course we may have earlier than we expect, such facts as the following will be of interest:

The economic saving of whole-wheat bread over the common, lean white loaf. The average per capita consumption of wheat is 4 bushels, or 240 pounds. I think that is not far off—it applied a few years ago. Deprived only of its roughest constituent, 2 percent only by weight, ground without any sifting or bolting whatever, that amount will

make 355 pounds of bread as compared with 221 pounds on a rich formula from 73 percent extraction of the grain. The 355 pounds of whole wheat, according to digestibility figures in a recent experiment on 10 men in our own laboratory, would yield 356,000 and some odd calories, compared with 240,000 and some odd calories from a white bread eaten by the same men, a saving in food of 106,000 calories, or other words, eating whole-wheat bread would save something over enough to support the average man on our diet squad 36 days. In a month's supply of energy in the course of a year.

But this is not all. The average man on our diet squad would obtain in the course of a year from the 240 pounds of whole wheat 0.24 of a pound more of calcium than if he had eaten white bread; 1.1 pound more of phosphorus; ¼ ounce more of iron; all the vitamins native to the wheat; and a protein of significantly higher biological value.

We determined the biological values on seven kinds of bread, four of which were whole-wheat and three white breads. The whole-wheat breads were ahead of the white breads in quality of proteins.

I was going to give figures for vitamins, but that is one of the things I had to revise since I came to this Conference. In talking with my colleagues, I developed a little doubt about the vitamin figures because the methods of determining certain of the vitamins are just now in process of modification and improvement; so I am leaving out the story of vitamins of white and whole-wheat bread.

I want to conclude with this homely statement. Some of us got pretty tired of whole-wheat bread during the war. I boarded over at the Cosmos Club when I was here in Washington in the days of 1917 to 1919, and there were a lot of complaints over there about war bread. We were thoroughly tired of it, but I am sure war bread nowadays could be made much more acceptable even on the same formula they used then, and I am sure much better breads can be made or devised than have been, and I don't think anybody need be afraid of any war bread that comes along now. Furthermore, I think we are called on now to rally to whatever program is set up. It is time for us to forget our nutritional differences, and goodness knows there have been a great number of them.

In our recent conferences down at the National Research Council over these daily allowances, there have been many differences of opinion expressed, many points of view, but we resolved to compromise our differences and pull together, and I was the one who had to shift his point of view perhaps more than anybody else. It is time to say, "All right, we will go along with anything that is good, and if you can make me believe it is better than mine, so much the better." This applies not merely, of course, to our nutritional activities, but also to our own foods, intimate as that is, and it applies also to our influence on our families and on our fellow-citizens. There is no doubt in my mind that we shall begin soon to pull all together. Let us set our teeth and go forward with a resolution to solve these problems of whatever kind that are facing us in view of the national emergency.

Adequate Nutrition and Human Welfare

HENRY C. SHERMAN
Professor of Nutrition, Columbia University

We are told that in all nature, it is the Grand Canyon of the Colorado which most strongly challenges an artist. We are also told of the matter-of-fact man who, looking at it, said: "Evidently something has happened here."

For each of the three days of this Conference, speakers skilled and experienced in word painting have been appointed to portray the potentialities of nutrition for the improvement of human life, and the vital importance of bringing its power for efficiency into play promptly to preserve our civilization.

It was thought, also, that there should be presented the perhaps more pedestrian point of view of the everyday worker whose feet are on the ground of the science of nutrition, whose pictures are as uncolored as a carpenter's drawing or a road map, and who indulges in nothing nearer to prophecy than merely to state the strongest scientific probability in the assessment of the evidence already in hand.

Speaking as well as I can for these everyday workers, I would say with that matter-of-factness just mentioned: Something has happened here. Two things, in fact, and each still growing: First, there has been not only a phenomenally rich and rapid sequence of important discoveries of facts, but also a truly epoch-making advance in the fundamental concept of the potentialities of nutrition. This is an advance of more far-reaching significance than even science could foresee, and some of it is still in process of digestion and assimilation by the scientific workers themselves. Second, there has already come the practical translation of this science into statesmanship. The present talk will deal objectively with the scientific side.

In replying to an invitation to deal with meaning, I shall attempt only to summarize the meaning of some foundational facts, leaving it to others to paint the picture of the beauty and utility and importance to civilization of the superstructure of statesmanship and national welfare which our present scientific foundation is prepared to support.

Obviously there is not time here to cite the evidence which supports each statement. I have been asked to discuss "what nutrition means and could mean to the welfare of the Nation." It means the freeing of perhaps one-third of our people from ills directly or indirectly due to food conditions. It could mean, also, the building of higher health and efficiency in people who are already well and efficient.

The first of these aspects is clearly an urgent essential of national defense, and an obvious duty to our fellow citizens. The second

aspect can mean an advance of even more far-reaching significance. Let us consider the more obvious first. The estimate that something like one-third of our people are ill-nourished had its first scientific basis in studies of food consumption. Especially did the comprehensive data of Stiebeling and coworkers, with their interpretations in the light of the most exact knowledge of nutritional requirements, indicate an unexpectedly high incidence of deficiency of one kind or another. That the magnitude of this national ill had not been appreciated before is explained by two facts. First, for reasons largely economic, food conditions had grown worse than most of us knew. Secondly, no one could know, until now, the complexity of nutritional needs, or the great responsibility of nutrition to health, which the most recent research has revealed and is still revealing.

Medicine has recently and rapidly developed a keen nutrition consciousness. It is finding in nutrition the solutions of many of its most baffling problems. It is calling upon chemistry for ever more detailed and delicate methods of diagnosis. Partly because such methods are still in course of development, and partly because the list of diseases in which nutrition is found to be an influential factor is constantly growing, it is too early yet for anyone to know precisely what percentage of our people show, in their bodily condition, impairments due to nutritional faults in their food. But the estimate of about one-third is finding a good deal of medical support.

In a general way at least, it is supported by the numbers and causes of rejections in the draft, especially in the light of the actual demonstration in Great Britain of what right feeding can do for men thus rejected, and of King's recent analysis of the evidence on the relation of nutrition to the condition of the teeth. It is supported also by the findings of medical surveys of nutritional conditions in American families and school children, rural and urban, North and South.

From medical data of such kinds, together with the growing volume of clinical experience and the steady progress of laboratory research, it becomes increasingly evident that the frequency of nutritional shortages in family food supplies is reflected in a correspondingly high incidence of bodily conditions of nutritional deficiency among our people.

With this knowledge, what is to be done? Lord Astor put the answer in the simplest possible terms when he said: "It isn't only that the people must have enough food; they must have enough of the right kinds of food." And for the kinds which are most to be emphasized McCollum has given us the useful term "protective foods."

How to bring enough of the protective foods into the dietaries of all the people is both an economic and an educational problem. It is important that both these parts of the problem be clearly and frankly recognized. It is also important to emphasize that while both economic and educational efforts are needed, we are never justified in delaying one while waiting for the other. There is ample objective evidence that food habits can be improved by education in nutrition and food values, even with the purchasing power of the people as low as it now is. And it has also been clearly shown that even without further education the great majority of low-income

families do provide themselves with nutritionally better dietaries as soon as their purchasing power is increased.

Each of us who can do anything for nutrition education should do it at once and continually, and with confidence in its value, however keenly we may feel that there should also be some way found, some means provided, to improve the purchasing power of the low-income families of our Nation. Similarly each one who can do anything for direct economic betterment may do it with full expectation that it will make for improved nutrition and health, however true it may be that more or better nutrition education is also needed.

And all of us may constantly plead for still fuller recognition of nutrition in all publicly supported and officially administered economic projects dealing with food, such as crop production programs and food stamp plans. A great deal of good has already been done in these ways. More can and should be done.

Nutrition is too important to national welfare for us to allow the good to be enemy of the best in any phase of food economics. Granted that the best is an ideal objective which we are not prepared to define in exact quantitative terms, yet we do know the direction in which the objective lies. And the same direction of improvement of typical American dietaries and of our total food supply acts both correctively to cure the ill-nourished and constructively to build higher health and efficiency in the people who are already well.

Starting with ordinary or typical American dietaries of all economic levels, the chief direction for nutritional improvement is to increase the proportion of calories taken in the form of the protective foods—fruits, vegetables, and milk in its various forms. In most low-income dietaries the place occupied by these foods is far below what anyone acquainted with the newer knowledge of nutrition can consider adequate. And recent research fully establishes the further fact that improvement in this direction need not stop at adequacy. As McCollum has so ably taught, there may be and often are very important differences between the merely adequate and the optimal in nutrition. The evidences of human experience and of laboratory experimentation consistently indicate that the larger the proportion of our needed food calories which we take in the form of the protective foods just mentioned, the better the results will be.

Better growth and development, higher attainment in stamina and working efficiency, and a longer lease of healthier and more useful life, may all be realized in the same individuals through the fuller use of the newest knowledge of nutrition. Obviously there has not yet been time to study entire human life cycles directly. But the nutritional improvement of health has been studied both in children and grown people; and large numbers of controlled experiments covering entire lives (and even of successive generations) have been made with laboratory animals.

Naturally we select, to serve as our deputy in such cases, a species whose nutrition is essentially like our own in respect to the factors and processes under investigation. The rat has been largely used in full-life experiments. The only known important difference between human and rat nutrition is that we are much more responsive to the ascorbic and nicotinic acid values of the food than is the rat. Thus there is definite evidence (amply convincing if one has time

to study it thoroughly) that the nutritional improvements shown in experiments with rats are well within the scientific probabilities of the benefits which nutrition can bring to human beings.

The finding which has, perhaps, attracted most attention because it was least expected, is the well-marked and statistically established increase in the average length of normal adult life—the life expectation of the normal adult. Previous services of science to health had not advanced this expectation. A nutritional improvement which consisted simply in changing the quantitative proportions of the natural foods used increased the life cycle by 10 percent. As already explained, this is considerably within what the same nutritional knowledge may be expected to do for human lives. A simple approximation of a sound scientific probability would be to say that the present-day science of nutrition offers an extra decade to the human life lived under its guidance.

And the extra years, whatever their number may be, are not added to old age. They are best conceived as inserted at the apex of the prime of life. In fact, the real reason the life is longer is because it has been lived on a higher plane throughout; somewhat as the cannon of superior range and power throws its projectile both higher and farther.

Is the promise of increased efficiency through nutrition as valid for mental as for muscular work? Yes, I think, and for two reasons. First, no matter how brainy a man's work may be, his ability to do it effectively depends upon the stamina of his organism. Second, nutrition affects the level of health and stamina largely by its influence upon the body's internal environment. Here the blood is the great mediator; and the same blood circulates through all the organs of the body, carrying the fluctuations which dietary differences induce, for better or worse, to the brain, and the nerves, and the muscles, and the liver alike.

There is much reason to believe, and no reason to doubt, that the same changes which so clearly improve the biological value of the ordinary American dietary will make for increased psychological efficiency as well. Undoubtedly the new concept of a more flexible internal environment than science has hitherto visualized, with our new techniques for elucidating human experience by means of laboratory experimentation, will from now on make much more objectively convincing the relationships of general stamina to mental efficiency.

Of course, there is a difference between brain and brawn; between spiritual energies and mere brute force. Yet in everything in which the human spirit must use the brain as its tool the expression of the spiritual forces and of the mentality is necessarily conditioned by the internal environment of the body of which that brain is a part. That environment, which we now know to be influenced by even everyday differences of food habit, is in all probability fully as important to mental work and sound decisions as it is to muscular work and physical contest.

Well-established physicochemical principles, together with the new evidence obtained from laboratory feeding experiments extending throughout entire lives of successive generations, makes us scientifically certain of the reality of the influence of dietary differences

upon the body's internal environment, even though in some cases present diagnostic methods may not yet be able to detect through direct analytical chemistry the difference which nutritional chemistry demonstrates clearly in the longer run.

Thus recent and current developments in the concepts and methods of research are enabling nutrition to make more helpful contact with psychology in the study of mental efficiency, as also with genetics in the study of constitutional stamina. Dr. McLester's declaration, first made in his presidential address to the American Medical Association, that science now offers man through nutrition a new degree of mastery of his fate, has been so widely quoted as not to need repeating. Sir Frederick Hopkins, using the power of understatement, says that "Nurture can assist Nature" to a greater extent than science has hitherto thought.

We may add that so far as we know or can judge, the same superior food supply can add the benefit derivable through nutrition to whatever constitutional endowment Nature may have given any one of us. Nutrition can never be a cure-all. Handicaps may be inherited (or even acquired through bad habits) which are beyond being completely remedied by nutrition alone. So even the best of nutrition could not be expected to make all people equally vigorous and efficient. But starting with each person as he is now, what proportion of those who are already healthy could by nutritional means be improved in stamina and efficiency? Probably such a large majority that only an extraordinary egotist would believe himself an exception after open-minded study of the evidence.

Nutrition and National Defense

HENRY A. WALLACE
Vice President of the United States

Of all conferences called by the various Presidents of the United States in recent years, I feel that this, the National Nutrition Conference meeting here in Washington at the call of President Roosevelt, is one of the most important. Food is fundamental to the defense of the United States. If workers and management have abundant food and the right attitude, they will turn out the vast quantities of defense materials which are necessary to save us from world chaos. The President, knowing the vital importance of food, has asked us in this Conference to consider how the food resources of the United States can be used most effectively to build not only our own strength but that of the democracies we are supporting.

The people in every nation today are living under great physical and nervous strain. We in the United States, to keep our nerves healthy under such conditions, need the right kinds of food as well as the right attitude. Women have long known, even better than scientists, the fundamental importance of food to health and happiness. I suspect the lady who said, "The way to a man's heart is through his stomach," was also the one who, when asked the question of how to make a man happy, replied, at a hard-pressed moment in a hot kitchen, "Feed the beast!"

Whether it be children, whether it be workers, whether it be soldiers, the first step toward a happy, confident attitude is an abundant supply of the right kind of food. On a foundation of good food we can build almost anything. Without it we can build nothing.

I am confident that this National Nutrition Conference can produce results which will affect nearly every man, woman, and child in the United States during the next 20 years. Because the knowledge of food has been growing so fast in recent years and because this knowledge has such unusual importance to everyone, there have been invited to this Conference many kinds of people. First come the experts—the doctors, dentists, nurses, home economists, social workers, the professional nutritionists, and those who have an especial interest in feeding our armed forces well. Then there are representatives of the great farm organizations, because we know that the men who produce the food are as important as those who serve and eat it. The millers, the packers, the canners, the dairymen, and all the varied wholesale and retail food concerns are represented, because they are the channels through which food flows on its way from the farmer to the table. Land grant college professors, who live continually with the farmers and the food trades, are here. So, also, are representatives of the great national consumer organi-

zations, such as union labor, women's clubs, Negro organizations, etc. Dozens of Federal Government agencies are represented as well as a number of State and local agencies.

The doctors and nutritionists are here to tell us what they have learned, which will help us to build up and maintain our health and strength during these days when we shall put forth the utmost national effort. The farm people are here to tell us just what we have in the way of food resources and how we can change, if need be, our methods of working the land in order to get the products which will best meet the needs as the experts see them. All of us at this Conference will focus on the most important job of all, which is the development of plans for action to put our modern knowledge of nutrition to practical use serving our 130 million citizens as soon as possible.

In this war, thanks to the ever-normal granary and the efficiency of modern farm production, we can approach the problem more constructively than during the last war. There seems little likelihood that we shall have meatless days, or days without sugar. Apparently, we shall not have to cut down on our own food needs in order to make sure that there is a surplus to send to our friends across the sea. The problem this time is to use our soil, our farmers, our processors, our distributors, and our knowledge to produce the maximum of abounding health and spirits—a broad foundation on which we can build all the rest of our hemispheric defense.

I know this Conference can do much to build this broad foundation because I have watched for many years the development of this modern science of nutrition. Forty years ago doctors were taught very little about diet. Most of them cared less. The farmers of the country learned about scientific nutrition of livestock before the mothers of the country learned about scientific nutrition of their children. During the past twenty years, and especially during the past five years, we have found out perhaps half of those things which we should have known but did not know. The progress has been so startling that it makes those of us who have watched it carefully almost evangelical in our fervor with regard to food.

The progress of the past twenty years has been largely, but not exclusively, along three lines: First, increased knowledge of different types of protein; second, more complete knowledge of the need for different types of minerals; third, and more important than everything else, a better understanding of vitamins. It was found that certain types of disease like pellagra and beri-beri could be wiped out 100 percent by proper food. We have had fairly complete knowledge about these dietary deficiency diseases for at least ten years, but there are still too many people dying from them. Therefore, I propose as goal number 1 of the National Nutrition Conference the complete wiping out of deaths caused by dietary deficiency. We do not have yellow fever any more in the United States. Neither should we have pellagra.

As goal number 2, I would propose a great reduction in those diseases such as tuberculosis toward which insufficient food predisposes. There are several dozen diseases which are not caused directly by poor diet but for which poor diet furnishes an excellent seed-bed.

Undoubtedly, we can reduce the death rate from these diseases by many hundreds of thousands by adequate food.

The third goal which I would suggest for this Conference excites me in some ways even more than goals number 1 and number 2. This goal is to make sure that everyone in the United States has in his diet enough energy, enough bone- blood- and muscle-building food, enough vitamins, to give that feeling of "health-plus." We do not want merely to wipe out pellagra, rickets, and scurvy and to reduce death losses from tuberculosis, but we want to make sure that our millions are so fed that their teeth are good, their digestive systems healthy, their resistance to premature old age enhanced through strong bodies and alert minds. I listened to the radio the other day while the commentator said, "What is it puts the sparkle in your eye, the spring in your step, the zip in your soul? It is the oomph vitamin!" I hardly recognized my old friend, vitamin B_1, or thiamin chloride, and yet what he said was to some extent true. It does seem that in the diet of a great many people in the United States the addition of the different types of vitamin B makes life seem enormously more worth living.

It is clear now that the so-called devitalization of foods which the food cranks spoke about a generation ago was due very largely to the milling process removing those parts which contained the vitamins, and especially vitamin B. This is true especially of white flour and refined sugar, both of which are excellent foods, in my opinion, but both of which have actually been devitalized. We realize the need of taking care of this devitalization when we remember that in the average American diet fully 55 percent of the energy intake comes from white flour, refined sugar, and other foods containing practically no vitamins. Both molasses and the wheat grain are rich in several types of vitamin B. In some way, that which has been taken away from these foods should be put back in the diet in the most inexpensive form possible. I congratulate those in the processing trades who, during the past few months, have made an excellent beginning along these lines. They are on their way to seeing that the people of the United States are given the right to live not only with health but with "health-plus."

While undoubtedly the most striking advance in food knowledge during the past 10 years has had to do with vitamins, we cannot forget the importance of putting our knowledge of minerals in diet to better practical use. It has long been known that the soil and water in many parts of the country are deficient in iodine. In these areas many thousands of people suffer from enlarged thyroids and lack of energy because of insufficient iodine in the diet during childhood and youth.

In certain parts of the United States where the soil is low in lime and the people eat very little in the way of dairy products, it is possible to tell from the skeletal structure of many individuals that their entire being has been influenced by the lack of a proper supply of the right kind of minerals. A good friend of mine once claimed that he had made a study of an area where there was considerable complaint of cattle suffering from osteomalacia. The absence of calcium and phosphorus in the soil had caused the cattle to want

to eat bones, rotten boards, and other abnormal materials. From this same area, so my friend claimed, came the political crackpots, whose emotions were rarely clouded by any great amount of intelligence.

Sooner or later, I am convinced, we shall find the importance of certain minerals used in connection with certain vitamins. This has already been proved true with copper and iron in the treatment of anemia. We shall also find methods of discovering just which individuals require several times as much in the way of certain minerals and vitamins as other individuals in order to live a "health-plus" life.

The people of the United States, prior to 1930, enjoyed a higher average state of nutritional well-being than the people of any other large country in the world, and they still enjoy such a state. Comparing ourselves with certain nations, we find the difference so startling as to make us feel this country is truly blessed. And yet, when we study the facts cold-bloodedly and not boastfully, we find that at least three-fourths of the people in the United States do not have what can be called good diets by any reasonable standard. At least 40 million people in the United States are suffering from very bad diets. When you spend only 5 cents a meal per person for food at the grocery store, it is difficult, unless you are a trained dietitian, to buy enough food value to supply the necessary energy, let alone the proper combination of minerals, proteins, and vitamins.

When we consider the inadequacy of their meals, it is not surprising that 40 percent of the young men examined for military service are being rejected because of physical disability. Not all of these rejections are for dietary deficiencies. Perhaps the examining officers would say that only a small percentage was of this nature, and yet I am convinced that it would be possible to take the men rejected and by good medical care and proper food put perhaps half of them in condition to be accepted. Moreover, proper feeding in childhood for the other half would have enabled a high percentage of them to pass the physical examination. Probably a larger number of people today are being fed properly in the United States than ever before in our history, but we have just started to do a real job. We want to see that good food gives "health-plus" not merely to 10 percent of our people but to everyone. There are three ways of approaching this problem.

First, we must shift our agriculture more and more toward producing those foods which are rich in vitamins, minerals, and the right kind of proteins. We have started producing more of these foods, such as milk, eggs, tomatoes, dried beans, pork, etc., so that we may have an abundance, not only for ourselves but for Britain, to meet every possible kind of contingency. We are using the cow, the hen, and the pig to extract from our huge supplies of corn stored in the ever-normal granary the vitamin B, the vitamin A, the good minerals, and the proteins which will furnish the nervous energy to drive us through to victory. Some people may say, "Why have the farmers not produced more of these fine protective foods before? The land and labor are available to produce twice as much of these foods. Why have the farmers not done their duty?" The reason is simple, and leads me to discuss the second line of attack.

Protective foods demand more hard work from the farmer than the simple energy foods. A pound of dry matter in poultry, dairy, or meat products costs 5 or 10 times as much human energy to produce as a pound of dry matter in wheat. The bottleneck has been the lack of consumer purchasing power. If all the people in the cities had been at work 8 hours a day producing the right kind of products efficiently, there would have been an incentive for the farmers to produce a lot more of these splendid protective foods. Today the total factory pay rolls of the United States in manufacturing industries are at least a third higher than they were a year ago, and the pay rolls per employed person about 14 percent higher, but the cost of living of factory workers has gone up only about three percent. This means that millions of people can now spend more on protective foods. They can pay enough for the protective foods so as to furnish the farmers an inducement to bring about that expansion which is so vitally necessary.

At the same time, we must recognize that there are many millions in the cities who get paid very little and who today are getting no more than they did a year ago. We are trying to take care of these people through the Surplus Marketing Administration, the free school lunches, low-cost milk, and the Food Stamp Plan. More than 10 million people are being reached, among them 5 million undernourished children through the school lunches and about 4 million people who are getting additional quantities of butter, eggs, pork products, fruits, vegetables, flour, and cereals through the Food Stamp Plan. Yes, we have made some progress toward seeing that the city people have the purchasing power which would enable them to buy from the farmers an increased production of the protective foods. The Federal action programs have taken care of a large proportion of the 10 million people in this country who are most needy. The increased pay rolls are helping perhaps an additional 10 or 20 million. But there still are perhaps 20 million people whose diet is woefully inadequate.

This brings me to the third line of attack, which has to do with education. Tens of millions of people in this country could live far more healthfully than they are living if only they had the right information about their daily food. Some people of unusual intelligence in the high-income brackets eat improperly. A few people still make the mistake of thinking that the phrase "well-fed" means the same thing as being plump. Too much fat, especially after fifty, puts an extra strain on the heart and, therefore, in many cases, the phrase "poorly fed" should be used with reference to fat people rather than the phrase "well fed." But when portly people, in their anxiety to reduce, cut down suddenly on their diet they are likely to reduce their intake of vitamins so greatly as to imperil their health. Thin people who are afraid to eat because they may get fat need education. So also do fat people who are trying too hard to get thin.

Fortunately, the National Nutrition Conference is starting off with a very important contribution to effective planning—a set of recommendations, or nutritional standards, worked out by the Committee on Food and Nutrition of the National Research Council, which is heading up the scientific work at this Conference. The recommendations will tell what you need, what I need, what men and women of

different ages need in order to keep in good physical condition—how many calories a day—how much protein—how much calcium and iron—how much of each of six different vitamins. We who are laymen can take it for granted that these recommendations are as sound as present-day knowledge can make them. The doctors and nutritionists who have prepared this information for us in such readily available form deserve our thanks.

The next step is for all of us to plan together to transform these standards into the living reality of everyday food and savory meals. We want to get the information out into every household in the United States, so that the new knowledge of food may express itself in more vigor of living. One of the great purposes of this Conference is to make democratic plans for good eating just as we have made democratic plans for good farming. We have had farm committees in every county to battle with the problems of soil erosion, acreage allotment, etc. These committees have made the farmers in every township soil conservation conscious.

The National Nutrition Conference proposes to make every community in the United States "nutrition conscious." Every community should know of the families who are not getting along well. Are they eating right? Is it possible in some tactful way to help them to eat better? Does your community have any of the dietary deficiency diseases? Can you make what I conceive to be the threefold goal of this Conference a reality so far as your particular neighborhood is concerned?

Already we have made a start in our typical American democratic fashion. We have State Nutrition Committees, schools, clinics, hospitals, public health nurses, as well as the Food Stamp Plan, the school lunch program, and various other Federal programs for the distribution of food. Write to Dr. Parran of the Public Health Service for the nutrition standards which the experts have worked out. In your own way focus the agencies available to your hand so that these standards can be put into life, so that there will be no more hidden hunger gnawing at our vital organs, so that our nerves will be strong and resolute.

The National Nutrition Conference has before it a program which is just as good for peace as it is for war. It is a program which will never end until the soil and the farmers of the United States are put fully and completely to work on the job of bringing the maximum of health to every individual. At the moment we are taking an especial interest in seeing that the people of Britain, as well as our own, have an adequate supply of protective foods. And I am hopeful that the day will come when we shall cooperate with the governments of Latin America to help solve the unusual problems which exist there in agriculture, population, and nutrition.

This Conference is firing the opening gun in a real new order; not a new order based on fear, compulsion, and slavery, but a new order based on physical well-being, equal opportunity, and freedom of the soul.

TUESDAY MORNING, MAY 27, 1941

Agricultural Policy and National Nutrition

CLAUDE R. WICKARD
Secretary of Agriculture

Everyone addressing this Conference has been emphasizing and will continue to emphasize the urgent need for better nutrition here in the United States as part of the defense effort—not only the immediate defense effort but the long-run strengthening of our democracy. So I am not going to enlarge further on that subject. But there is one thing I want to point out in the beginning about the work of this Nutrition Conference. Better nutrition does not mean soft living. It does not mean growing fat and lazy. It does not mean concentrating our attention on the fleshpots, the luxuries of life. On the contrary, it means becoming harder, more efficient, better able to work overtime whenever it is necessary, better able to do without luxuries when we have to. We do not know exactly what is ahead for us or for the world, but we do know that we are going to be called on to make sacrifices. This is all the more reason for giving attention to the whole problem of nutrition now. By applying our brains, our knowledge, and our common sense to the use of our vast resources, we can be a well-nourished and efficient people in spite of any sacrifices we may have to make.

Without any further preamble, I shall come directly to my main point, which is that the existing policies of the Department of Agriculture are definitely in line with a great national nutrition program such as this gathering of scientists and laymen is considering. I say that knowing how much we still have to do.

The Department has done no small amount of pioneering and spadework in the field being explored by this Conference. Farmers have been learning in these difficult years that when any large part of the population can afford nothing better than a poor diet, the market for agricultural products suffers accordingly. Farmers can fare well only if the Nation can eat well. This basic and simple truth has been recognized in some of the legislation passed by Congress to aid agriculture and in the programs of the Department.

But agriculture is only one part of our national economy, and it can go only so far and accomplish only so much in advancing a program of better national nutrition. To put over such a program on any big scale, all the parts of our economy will have to pull together. If such a result comes out of this Conference, I can assure you that no one will rejoice more than the farmers. For the more thoughtful among them, it will be a dream come true. The farmer sets the na-

tional dinner table, and nothing would please him better than to see everyone eating heartily.

From several standpoints, our present agricultural policies furnish an excellent foundation for putting this country on a better nutritional level. I hope to show you in this brief review that these policies have an important bearing on any program this group may recommend.

From the standpoint of production, it has been the national policy in the past few years to make agriculture more flexible. As a result of the long decline in foreign markets and the sharp depression of the domestic market following 1930, agriculture had to learn how to control acreage, store and hold surpluses, shift to other crops where possible, and divert products to other than the usual outlets. The alternative for farmers was a mad scramble of overproduction and soil exploitation in a desperate and vain effort to make ends meet at ruinous prices. The collapse that would have resulted from such a scramble was forestalled by the legislation that put into effect agricultural adjustment, the ever-normal granary, and soil conservation.

I want to emphasize that the first step, the big step, the hard step is to achieve production adjustment on a national scale. Once this becomes a practical possibility through sufficiently widespread cooperation and adequate administrative machinery, the adjustments themselves can be made upward as well as downward according to the need. This is true of both acreage adjustments and storage. Grain stored in the ever-normal granary gives us a constant supply of food and feed that can be turned at any time into the channels of consumption to meet any emergency.

Adjustments are being made upward for some products right now, in the new agricultural policy designed to furnish food for Great Britain and to safeguard our own domestic needs. Egg production is to be increased sufficiently to supply British needs and in addition furnish the United States with as many eggs as we ever used in the year of greatest egg consumption in the past. We hope to increase milk production enough to supply Britain's needs for milk products and, in addition, maintain our own average consumption at the level of the past four years. The production of canned tomatoes is to be increased by 50 percent over that of last year, and the production of all types of dried beans by 35 percent. Pork production is to be as high as possible; the spring farrowings this year are smaller than last, but the hogs are being marketed at weights above the average, and the total supply should be larger than the average of recent years.

Now these are some of the very products that we would need to produce in greater abundance, according to the nutritionists, if we set out to give everyone in the United States a satisfactory diet. In order to achieve such a goal, it has been figured that we would need to consume twice as much green vegetables and fruits as we do now (such things as cabbage, green beans, apples, and so on)—70 percent more tomatoes and citrus fruits—35 percent more eggs—15 percent more butter—20 percent more milk. All of these are "protective foods" rich in minerals or vitamins, or both. I have no doubt, too, that a great many people in this country would be benefited by eating more meat than they can now afford.

My first point, then, is that so far as production is concerned, existing national policy has given us a more flexible, more adjustable, less hap-

hazard type of agriculture. We not only have the resources to produce all our people need for better nutrition; we also have the methods. Whenever the Nation summons the will to do the job, I am sure that agriculture can meet the new demands.

I do not mean to imply, however, that there is any reason to feel smug about the adjustments agriculture has accomplished so far. We still have many problems. In particular, we still have surpluses of the three great crops produced heavily for export—wheat, cotton, and tobacco. There is no way in sight by which this country could increase its consumption of these products sufficiently to take care of the surpluses. Even a return to normal world trade would not rid us of the surplus problem with cotton and wheat. Here, then, we still need more downward adjustment. We shall have to find other uses for part of our cotton land and our wheat land. One of the best uses I can think of would be to dedicate some of this land to the products of which we do need more if we are to build up the health and strength and stamina of our people. In the South particularly, more diversification and production for home use are imperative both for nutritional and for economic reasons.

So much for production. From the standpoint of distribution, existing agricultural policies are no less in line with the goal of this Conference. I would remind you that the Stamp Plan is agriculture's baby, and agriculture is inclined to be rather proud of it. The free lunch program for school children and the low-cost milk distribution program also come under agricultural policy. By this summer the Stamp Plan will be reaching 5 million people and distributing foods worth 10 million dollars a month; and most of these foods are the protective foods especially needed by undernourished families. The free lunch program is reaching about 5 million school children. Low-cost milk is being distributed in six of our large cities.

These are prime examples of practical cooperative work by city people and farmers. The city people get better diets than they could otherwise afford; the farm people find a market for their products that would not otherwise exist. The method fits the purposes of this Conference as a glove fits the hand. But as you know, this distribution of surplus foods is used almost entirely to meet the needs of people on relief, and it does not nearly meet even those needs. According to the nutritional survey recently completed by the Bureau of Home Economics (and that survey too was one of the Department of Agriculture's babies), at least a fourth of our families not on relief have poor diets—most of them low-income families. At least three-fourths of us do not have really satisfactory diets. And this in spite of the fact that we are the best-fed nation in the world, with the greatest food resources and with knowledge of nutrition as advanced as any in the world. So far as the fourth of our people with poor diets are concerned, the trouble is very largely a matter of distribution, which in turn depends on prices, purchasing power, income.

It is the national policy that farmers shall receive enough for their products to give them a fair return; never again do we want to be faced by the specter of a ruined agriculture, with the disastrous results it would entail for all of us. Within that framework, some economies could be made by improving our marketing processes. A great deal can be accomplished for the farm and village population by extending

home production, home and community canning, and community refrigeration. Out in Ohio, a survey was made last year among rural families in one community to see how many of them produced enough of their own food to supply their needs. Only half of them produced enough milk for themselves; only one out of ten put up enough vegetables to meet their winter needs. In fine dairy sections like New York, you find many farm families who do not keep enough milk for their own use. Why farm people should go without adequate diets when they can raise food just a few steps from their own back door is more than I can see. We can go a long way with a good home production program, and I hope this Conference will come out strongly for one.

I am emphasizing this point because the Department of Agriculture is primarily concerned with farmers, and also because I am a farmer myself. I know that the nutrition problem is not confined to the cities. We have a big nutrition problem right out in the country where the food is raised, and rural people need to be awakened to the meaning of nutrition as much as city people.

Now what about the part of the city population that is poorly nourished primarily because of low income, yet can receive no benefits from such devices as the stamp plan or direct relief distribution? This Conference will have to give major attention to any and all possibilities for improving the nutrition of that large group. The increased employment and better incomes resulting from the defense program will help, but there will still be plenty to do. I am sure agriculture will cooperate in any practical steps that can be taken, but this is one of the places where agriculture can do little by itself.

I have mentioned production and distribution. There are two other aspects of agricultural policy that have an important bearing on the work of this Conference. The first relates to research and education. As a matter of long-standing public policy, our State and Federal agricultural agencies are engaged in research up to the hilt, as you know. And much of this research relates to food and nutrition—better handling of our soils, conservation of our soils, better crops, better livestock, more efficient farm and home management, the battle against diseases and insects that waste our resources, better nutrition for farm animals—and better nutrition for human beings. These and more are within the scope of agricultural research, which deals with social and economic problems (yes, even psychological problems) as well as with problems in the natural sciences. Here is a fertile seedbed for such an effort as this Conference is making.

I will say frankly that in my opinion not only the United States but modern civilization as a whole will have to use this science of ours for the benefit of mankind much more fully, much less half-heartedly, than it has been used so far. We could feed and clothe and house the masses of our people far better than we do if we dared to turn science loose to tackle the job. But we have hesitated and sometimes this was because we have been afraid we might make a wrong move and upset somebody's apple cart. I think it is time to be afraid that if we do not make some vigorous moves, our civilization will not have any apples to put in the carts, and it will not matter any more whether they are upset or not.

In other words, I hope this Conference will mark a big forward step in hooking up science with the needs of common people. I should like to see this done in the United States above all places. I should like to see it done with food first of all because food is the most basic need of common people.

This gathering will hear much discussion of education as an indispensable means of achieving better nutrition. Few of us know how to eat as we should but I shall leave that discussion to the educators. Here I merely want to point out that education is also an organic part of agricultural policy. It goes hand in hand with research—or at at least we try to make the two go hand in hand. We have done a good deal of educating about nutrition and about almost everything else connected with foods, from production on up, but probably we could and should do a good deal more if this Conference works out a practical program.

The mention of education brings up another thought. Here in the United States we think it is a public duty to provide education for our children, and we spend a lot of money doing it. Is it not just as much a public duty—I think it is even more—to see that they have sound, healthy bodies? In fact, if I understand the latest findings of nutrition correctly, people cannot really use their minds fully if they are suffering from undernourishment. If that is the case, then we have to begin with good nutrition for children or the money spent on their education is going to be more or less wasted.

The final aspect of agricultural policy that I want to touch on is the broadest of all, and it is also the most fundamental to the work of the National Nutrition Conference. That aspect can be summed up in the term democratic planning. So far as agriculture is concerned, there is no question but that democratic planning has become definitely and I believe permanently a part of national policy. The only way farmers could save themselves from ruin back in 1932 was by trying out a policy of democratic planning on a national scale. They have greatly expanded it since then as we all learned how to do the job better.

This democratic planning in agriculture now extends from the individual farm through the community, the county, the State, the region, and on up to the national government. It deals with an increasing variety of problems as farmers discover that the battles they have to fight are not isolated, single engagements but a part of a broad campaign. Soil erosion, for instance, is not just an evil that suddenly appears out of the air all by itself. It is tied in with a whole lot of economic problems, and you cannot fight it without taking on several other fights at the same time.

Once again, I want to say that we cannot afford to be smug about what we have achieved in democratic planning so far. But we are over the biggest hurdle—we have made a start. The only questions now are how far we want to go and how good a job we can do. My own opinion is that we shall need to go much farther than we have, and that we will have to do a good job of it or else. * * * There is going to be planning in the modern world—either autocratic planning or democratic planning. As I look forward to the condition of the world after this war, I think we can avoid autocratic

planning—dictatorship—only by proving that we can do a better job with democratic planning.

I am absolutely certain that we can, but it is not a job that can be postponed. We need to push forward now. Democratic planning is one of those things you learn by experience. The work of this National Nutrition Conference offers a fruitful field for adding to our experience. I hope the Conference will reach down to every community in this country with recommendations for democratic planning that will help to build a better and stronger America.

Food and Foreign Policy

A. A. BERLE
Assistant Secretary of State

Let me first congratulate you for assembling, in a particularly trying time, to consider methods of improving the health of the country. Never was work more useful; and never more necessary.

Your task is to consider the problems of nutrition in this country and how they must be met. That is really a problem of how effectively to distribute the huge stocks of supplies which are readily available. To me you assign a less happy subject of the policy of the Government toward nutrition outside the United States. There, due to the effects of war, blockades, and counter blockades, the problem is vastly less happy.

It has been, and is, the consistent policy of the United States to make food resources available, so far as possible, to those countries which need them. In normal times we rely on commerce to take the surplus stocks of food which we have to the points where they are needed. But where normal commerce does not accomplish this result, this Government has historically supplemented the supply by sending food, at its own expense, or at the expense of American organizations.

In the years following the World War, as you know, this Government through various organizations financed and sent food to Russia, Poland, Germany, Austria, Belgium, France; and sent less amounts to other countries. This process started immediately after the armistice of 1918; and it continued for several years. Only when the normal processes of reopened trade made it possible for the populations of these countries to obtain adequate food through normal channels did we cease to send relief. We did it without drawing political distinctions; and we did it on the straightforward theory that a land of plenty had a duty to humanity.

During the present war, the Government has followed, so far as possible, the same policy. Naturally it has had to be modified by changed conditions, and by the exigencies of military situations which we did not create. To the extent possible, we have endeavored to send food and supplies into those countries not under actual military occupation, which were in need. We took the view that two assurances are required: first, arrangements which make sure that the supplies actually reach the people who need them preferably by distribution through the American Red Cross or agencies designated by it; and second, that the effect of such supplies will not increase hunger and want elsewhere; for, of course, nothing is accomplished by shipping food and relief into an area, if the only effect is to stimulate military seizures of other food and supplies within that area.

Relief of this sort has taken various forms, depending on circumstances. In some cases—Finland, for instance—loans have been made permitting purchases of food here and its shipment abroad. Shiploads of relief have been sent to unoccupied France. Other shiploads of food have been sent to Spain. Certain movements of food have been facilitated to certain of the unoccupied French colonies. Supplies were actually on the way to Greece when she was invaded.

In many cases, unhappily, the possibility of sending relief has been severely limited. The difficulties of transport and distribution have frequently been extreme. Where we have to choose, the first concern has been the sending of supplies for children, especially milk and vitamins.

Only recently, arrangements were made to send two shiploads of food to Ireland.

We have not felt that the policy of relief could be determined wholly by arguments over the question who is responsible for the distress. We realize perfectly that the forces of invasion and aggression are the direct cause of the want and hunger and starvation of great populations. It would be very easy to say that we ought simply to leave the problem to the people who are responsible for creating it. But that is not a complete answer. The populations of these countries still have to live; and in their children may very well lie the hope for a free and civilized Europe.

Instead, therefore, of asking, "Who is responsible for this?" we have asked, "Will the relief actually do any good? Or will it merely feed one group in one place and increase misery elsewhere by encouraging or assisting invaders or aggressors to requisition, or seize, or buy with worthless currency, or otherwise take away for themselves, food which ought to go to the populations of these countries?" If the latter happens, plainly the relief given does not assist in the slightest.

The technique of modern economic warfare has developed endless ways for draining a country dry of its essential food supplies. They can be seized to feed armies of occupation; or they can be bought with currency which the occupied country is forced to print and turn over to its invaders; or its export can be required to fulfill some barter trade agreement which has been forced on the country. In such cases, shipments of relief to the population do not assist that population unless it were possible to establish virtually an economic control system in neutral or nonbelligerent hands within the country. This is extremely difficult in time of war within military lines.

There is a widespread misconception that the food difficulties in Europe are chiefly due to the allied blockade. Such information as we have indicates that the chief difficulty is due to the disturbance of crops and harvests and transport and local distribution; and to the requisitioning and economic policies pursued on the continent itself. The German Government has stated authoritatively that it does not consider that an invader has any responsibility for feeding the population of the country which it has invaded; and that it will, as a matter of course, assure that Germany will receive the benefits of whatever supplies do exist in Europe to the extent that she needs them. In the light of this, the difficulty of carrying on any effective

policy of feeding in territory occupied within military lines must be sufficiently obvious.

Let me pass, for a moment, from the very grim picture in Europe to one other subject which I hope may offer a happier aspect. It is commonly said that there are great food surpluses in the Americas; and this is true. But most of these surpluses would promptly disappear if all of the Americas were fed according to the standards which the National Nutrition Conference for Defense is here to discuss. The farmers of Canada, of the United States, and of many of the South American republics would not be worried over "overseas markets" if every family on the American continent had the food which it ought to have to improve the health of the Americans of the future. The Department of Agriculture has been giving careful thought to this problem; and has been working out plans for consideration which I hope, within the not too distant future, may offer some fascinating possibilities. Although the United States is the best fed country in the world, there are millions of people who do not, and some who cannot, obtain the food that they really need. This is even more true in many of the other American republics. The problem is partly one of finance—but if it were only that I am confident we could solve it in a relatively short time. Still more, it is a problem of education. Let me say that whenever the problem of education is solved, I am confident that the economic relations between the Americas are close enough so that a solution will be found to the problem of payment. In the Americas, at least, we have passed that point. Wherever the resources are there, and the need is there, we can work out ways of getting the supply to the need.

In its international aspect, the problem of proper feeding combines three great elements. The first is the scientific element—the careful analysis by groups such as yourselves of what is really needed, and the expert education of the public to insist that the need be fulfilled. The second is economic; the working out of ways and means by which the supplies, which we know do exist, can be put in the localities where they ought to be used. The third is sentimental, or if you like, moral: the feeling which everyone ought to have that the providence of God put these supplies in the world to be used for the strengthening of life; and that it is the job of everyone to see that they are so used.

Labor's Stake In a National Nutrition Program

FRANCES PERKINS
Secretary of Labor

One of the hopes of this generation is to be able to make available to all our people the goods they need for satisfactory living. The most indispensable of these goods are the foods required for adequate nutrition. An answer to the problem of obtaining the foods necessary for health is vital to all of us.

It is obvious that city families and rural families meet with this problem in different forms. There are some farm families who do not have adequate diets, but farm families are, on the average, able to provide as much as two-thirds of their food directly from their own gardens, orchards, or fields, and from their own milk cows, poultry, and other livestock. They have had, in addition, through the cooperative Extension Service of the Department of Agriculture, more advice on questions of nutrition than is available to the average city family. I propose, therefore, to discuss with you this morning nutrition policy primarily as it affects city workers' families.

I hardly need to say to this group that American workers have always been among the best fed in the world. We have rightly prided ourselves on the bounty of American dinner tables, and the generosity of our hospitality. When we criticize the food we have to eat, we realize at the same time that we are peculiarly fortunate in the ratio of our land resources to our population and in our knowledge of the techniques of agricultural production. As compared with most other peoples, we have an excellent diet in these United States.

Our convictions on this subject are not based entirely on patriotic prejudices. Five years ago the International Labor Office made a pioneer study of the diets of urban workers and their families in different countries of the world. This was followed by reports of the League of Nations and the International Institute of Agriculture, which provided further data on the subject. These reports show that the average diet in the United States was among the best in the world, even before the catastrophes which have so greatly reduced food consumption in Europe and Asia in the last 2 years. According to the data available in the late 1930's, only in the Scandinavian countries, Great Britain, and the British Dominions were average diets as high as in the United States.

We cannot, however, be satisfied to know that average food consumption in this country is among the best in the world. In the first place, the average itself is in some respects below the standard which scientific research has set for optimum growth and health. In the second place, there are many families in the country below the average, and in the third place, a disproportionately large number

of children are found in the families whose diets are below the average.

The Department of Labor has long been concerned with this problem. There are more than 80,000,000 people in this country who depend for their living on wages and salaries, and it is one of our first tasks as a Department to assist in shaping policies which will safeguard their well-being as workers, as citizens, and as individuals. Just now the Nation is needing skilled workers, and we are told that a considerable number of the men who present themselves on jobs are not physically fit for heavy or exacting work. We must raise the question as to whether they have had the information and the income that would have made it possible for them to provide themselves with the food necessary for health and efficiency.

One of the first tasks assigned the newly organized Department of Labor agency in 1888 was a study of the incomes of wage earners, and the goods available to them. Since that time, the Bureau of Labor Statistics has made periodic studies of this subject, and the Children's Bureau has carried on intensive studies of the relation between food consumption and health. The latest survey of the Bureau of Labor Statistics was carried out among employed wage earners and clerical workers who had not been dependent on relief of any kind in 1935 and 1936. The nutritive content of the diets of these families has been calculated by the Bureau of Home Economics and shows that relatively high as they are, they nevertheless fall short of the standards which are now accepted as providing a thoroughly satisfactory margin for growth and health.

In summarizing its findings, the Bureau states that there is little likelihood of deficiency in calories or protein in the diets of employed workers' families. Most of the diets furnished an adequate amount of phosphorus. All but 5 percent furnished a fair allowance of iron, and about half a generous allowance. But these experts tell me that the consumption of calcium, and of vitamins A, B, and C was frequently inadequate. This means that some families had too little food of all kinds, but in general, that the diets were most likely to be short in the leafy vegetables, in the coarser grain products, and in such foods as raw cabbage, tomatoes, and citrus fruits. When the figures on the different types of foods were put together, it was found that about half, even of this group of employed urban workers, had diets which were deficient in at least one important nutrient.

There is no doubt that one of the reasons why many American workers and their families do not receive a completely nutritious diet according to present-day standards, is that much of our knowledge on the subject of human food needs is so new. Dr. Murlin reminded you last night that the progress in laboratory research in this field of knowledge has been epoch-making in the last 30 years. The progress in the laboratory has been paralleled by a remarkable educational accomplishment. Average men and women in the United States today have a very fair grasp of their need for minerals and vitamins. While men still make poor selections of the food they buy at lunch counters, and women still make poor selections when they are spending the family food money, it is undoubtedly true that general knowledge of human requirements for food has been tremen-

dously improved in the last three decades. If you doubt the shift in emphasis in American diets, look back at the newspaper jokes of 1910 and count the proportion dealing with the "pies my mother used to make," and compare them with the jokes about spinach in 1940.

Studies of the Bureau of Labor Statistics made at the end of the last war and in the mid-1930's provide a somewhat more exact basis for judging changes in the dietary habits of the wage-earner group. At the end of the last war Americans were just becoming aware of their need for minerals and vitamins in food and their importance in good nutrition. This new information, together with the great increase in the production of citrus fruits and their very marked decline in price, and the improvement in long-distance transportation which has made fruits and vegetables available in our cities all the year round, have combined to produce important changes in the food consumption of urban workers. Tomato juice which is almost a new food, and a very valuable one, has come onto the market. Per capita consumption of milk has also increased, as special educational efforts have been combined with methods by which low-cost milk has been made available to city families with small resources.

In developing an educational program for improving nutrition, it is important to keep in mind the importance of custom in our food habits. The Labor Department's recent studies of food consumption show the remarkable persistence of the food preferences of earlier generations in the localities studied. The tables of New Orleans still remind one of the fish, the chicken, the salads, and the greens of the French, the Bostonians still eat more beans and drink more tea than families in most other cities. In Cleveland and Milwaukee they eat more rye bread and cheese and apples and coffee. We Americans have our private ideas about good food. It is lucky for the farmers that we do like a little variety, and all these preferences must be taken into account in any program which attempts to bring diets to a point where they will adequately provide for growth and health. A national nutrition policy should plan to change food-consumption habits only insofar as it is absolutely necessary to do so to provide all the nutrients necessary for health, efficiency, and the full enjoyment of life.

Even on this basis, there is, of course, still much to do in making people aware of what constitutes good nutrition in such a way that they can apply it to their living. Those of you who are educators meet a great challenge when you face the figures recently made available which show that there are a great many city families who have enough food money, who spend it without obtaining the balanced diet necessary for the health and growth of children and the maintenance of health in adults.

In my opinion, however, the fundamental problem is economic. More than one-quarter of the families surveyed by the Bureau of Labor Statistics in 1934–36 did not spend enough to secure the Bureau of Home Economics' adequate diet at minimum cost. The literature abounds with examples of the connection between economic status and health. A Children's Bureau study of 6- and 7-year old school girls indicated an inverse relationship between poor economic status and (1) gain in weight, (2) need for medical and dental care, (3) number of school absences.

The Milbank Memorial Fund has recently been making an extensive medical evaluation of the nutritional status of high-school students in New York City. It has found striking differences in the vitamin C status between the children in high- and low-income groups.

Studies of gain in weight and its association with economic status by the Children's Bureau and a study of Pittsburgh school children provide further evidence of the relationship between poor health and poor diet. Studies by the Public Health Service of the incidence of pellagra show a progressively higher incidence of the disease with decrease in family income. A relationship between poor diets, absences from school, and failure to complete the grade's work in a year also has been found. I might go on for a long time with other examples of this sort.

Indirect evidence of the results of improper diet is provided on a large scale by the beneficial effect of school lunches. The WPA reports that nourishing hot lunches fed to needy school children have improved not only general health but the quality of their school work.

The proportion of our children who are found in families without adequate nutrition should be a matter of grave concern to all of us. The Bureau of Labor Statistics' study of employed wage earners and clerical workers of which I have already spoken shows that more than 40 percent of the children in this relatively favored group live in families whose incomes are below the level necessary to provide adequate food, as well as suitable housing, clothing, medical care, personal care, union dues, carfare, newspapers, and the other sorts of recreation for which city families must pay in dollars and cents. It is a great mistake to think that a family can budget for a nutritionally adequate diet and fall far below the maintenance level in all the other goods which make up urban living. Large-city families of average size with incomes below $1,350 or $1,400 presumably distribute their funds to all categories of family needs without obtaining the best standards in any one.

I know of a woman in a large northwestern city whose husband's income was just over $1,000 in a recent year. They had 2 children, 5 and 9 years old. This meant an income of about $20 a week and they spent $8.20 a week for food. You will be interested in what they had to eat. The father and mother had black coffee, bread and butter for breakfast; the children, cereal and milk and orange or tomato juice. On Sundays they had an omelet as a special treat. Their lunch menus were regularly bread with no butter and vegetable stews, with a great many potatoes which helped to supply the energy needed by two active lads.

At dinner they each had a glass of milk, meat as a rule, and one vegetable beside potato, and bread and butter. Their regular desserts were stewed fruits or simple puddings. These meals cost about 10 cents per person per meal, and my colleagues who are specialists in nutrition tell me that the family's diet was deficient not only in the calcium needed for the children's growth and the adults' health, but also in the vitamins which scientists are finding make so much difference in resistance to disease, vitality, and efficiency.

If the family had had the sort of diet recommended by the Children's Bureau of Home Economics, they would have had to spend $9.40 a week, and they would have had menus something like this.

Breakfast	Lunch
Oranges, tomato juice, or stewed fruit	Milk for the children
Cereal and milk for all and coffee for the adults	Vegetable stews or salads
Occasionally eggs	Meat twice a week or so
Bread or toast and butter	Fresh or stewed fruit or pudding, sometimes cheese
	Bread and butter for all

Dinner

Meat or fish and one vegetable besides potatoes
Bread and butter
Pudding or fruit
Coffee or tea for the adults
Milk for the children

If this family were to spend as much as $9.40 a week for food and still have enough money for the other necessities of urban living, budget specialists tell me they would need an income of $1,430 for a really satisfactory living in this particular northwestern city, in other words about $400 more for the year than they actually had.

I know that many of you are thinking that the figures I have been quoting are so far out of date that they have ceased to be useful, because increases in wages and salaries have been so great since the mid–1930's that all these dietary deficiencies will have been wiped out. This reaction will come, however, from those who did not observe that the figures on dietary adequacy which I have given you were based on data from families which had not been on relief, whose incomes were $500 or more, and in which at least one member had had employment in at least three-fifths of the weeks of the year. This group makes up what we think of as typical American city families, the middle-income group, including neither the very poor nor the rich. By 1940 average money incomes among these families are estimated to have increased by about 20 percent while living costs had risen about 3 percent since 1934–36. Such an increase in real wages and salaries has certainly permitted an improvement in the diets enjoyed by these middle–income families.

For the entire group of workers, however, it is still unfortunately necessary to say that the general picture still presents a serious situation. There is still a large proportion of families in the wage earner and clerical groups whose diets are deficient in one or more nutrients.

In the face of this situation, it is clear that labor has a large stake in the development of a national policy on nutrition. The figures that I have already given show that an increase in the purchasing power of families at the lower-economic levels would do much to improve the nutritional status of the wage-earner and clerical groups. The urgency and importance of such an increase should be clear to all thoughtful people. The Fair Labor Standards Act is already putting a floor under wage rates so far as interstate commerce is concerned. Employment on government enterprise in connection with the defense program has already greatly increased the total wage income in the country. It is clear, however, that a change in the amount and distribution of the national income sufficient to provide

for entirely adequate diets for all urban workers will take a long time and presents many complicated problems.

In my opinion, even while we are in the midst of the national defense program, we should be considering economic measures which will bring about improvements in the American diet. These plans should be of two types: Those for cutting the cost of bringing food from the farm to the urban consumer and plans for certain consumer subsidies.

Processing and distribution costs bulk large in the Nation's food bill. Studies of the Bureau of Agricultural Economics show that in 1940 American consumers spent about $14,800,000,000 for foods grown in this country. Of this amount the farmer got about $6,200,000,000. The remaining amount, or $8,600,000,000, went to pay the various charges for transportation, processing, and marketing. The latter costs cover services which are as real and as important as those rendered by the farmer. The charges for these services, however, may be unduly large either through inefficiency or monopoly control. The Government should continue to take whatever measures are necessary to safeguard economy of distribution. Grading and labeling regulations which encourage efficient distribution and efficient buying by the housewife should be encouraged. There are other regulations, however, taxes, and license fees which unduly raise food costs, and they should be abolished in the interest of a sound nutrition policy.

Farmers' curb markets, city pushcart markets, and low-price milk depots are needed both to serve the consumer public and to give the farmer an adequate outlet for his products. Some farmers who are located near consuming markets now peddle their products in the cities—selling directly to retailers, or even directly to consumers. Efforts should be directed toward developing varieties of direct marketing which will eliminate unnecessary cost without bringing about other unfavorable results.

Food consumption subsidies became part of public policy in the United States in the years of the last depression when they seemed the best answer to the dilemma of farm surpluses of food products, on the one hand, and the many urban families without proper food on the other. The loss of foreign markets and the decline of purchasing power for a time among most city families resulted in the wastage of unmarketable food surpluses on the farms. The surplus marketing program was at first developed as a temporary measure, but there is much to be said for incorporating some of its best features into a national policy on nutrition. The school-lunch program seems a particularly valuable addition to American institutions. In most parts of the United States, school books have been provided without charge to the students for a number of years. The provision of free school lunches seems an even more important part of the public responsibility.

More than 4,000,000 children in our schools have received free lunches during the current fiscal year. There are about 30,000,000 school children in the entire country. If all the children who now have inadequate diets were to be reached by the school-lunch program, it is unlikely that there would be many schools without some children having a free lunch. It thus seems clear that the extension of this

program to all school children would have, in addition to its other advantages, a very sound psychological basis. It would also provide for children whose parents had not taught them sound food habits, and give practical lessons in what constitutes a nutritionally adequate noon meal.

Provision for additional adult education in nutrition for city mothers, and very likely for city fathers, too, should be part of a national nutrition policy. We need to make available to the adults of today the newer knowledge of nutrition which wasn't taught when they were in school. We should make it as easy as possible to translate human needs for calories, proteins, minerals, and vitamins into terms of breakfast, lunch, and supper menus. We must make it easy for average men and women to protect themselves from the unscrupulous who wish to exploit the current interest in what constitutes an adequate diet. Government agencies are, of course, working to protect consumers in this matter.

Rather recently, I understand, one of our Government departments had reports of a concern selling synthetic vitamins advertised to make permanent waves stay in longer, and to keep polish from chipping off from fingernails. The regulatory agencies dealt with this case of obvious fraud, and they will do their best in other cases of this sort but they must be assisted by an informed public. City families need more education facilities than are now available in this field.

Many suggestions have been made for the extension of the Food Stamp Plan to all families which have been certified for public assistance, and in addition to independent families with incomes under $1,000. Such an increase in the program would require careful planning and a considerable increase in agricultural production, but it might yield such substantial dividends in morale as well as in health that it should be incorporated as part of a national policy on nutrition.

Planning for improved nutrition should also include improvement of proper nutrition standard meals in factory lunchrooms and canteens. Arrangements should be made to provide nutritionally adequate and palatable meals at cost to men and women at the place of work with due regard for the preferences and the food consumption habits of the group to be served. Too often factory workers find it difficult to secure digestible and attractive meals near their work without paying excessive prices. This proper food will greatly increase their working efficiency as well as personal appearance.

Developing a national nutrition policy for the United States is not a simple task. It involves a delicate balance of the interests of producers, distributors, and consumers, of farmers and urban workers. Labor, whether agricultural labor, factory labor, labor in mines, on trains, or on waterfronts, has a great stake in a nutrition program, because good nutrition is fundamental to good health, and the cooperation of healthy workers is fundamental to the development of any important national policy. This problem is one that involves individual action and social action, and I believe that we may look forward with confidence to finding its solution on a democratic basis.

Nutrition and Consumer Protection in Defense

HARRIET ELLIOTT

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Office of Price Administration and Civilian Supply

The problem of national nutrition cannot stand alone. It is set in a framework of individual and national resources, of individual, group, and national customs, of business practices, economic institutions, and public policies. Above all it is set today in the framework of a great national defense effort. It is, in fact, an integral part of that effort. I want to discuss briefly the characteristics of that framework in order that you may know the related policies and programs for consumer protection with which to integrate your plans for meeting the nutritional needs of the American people.

National defense, it must never be forgotten, means total defense. As such it has two major parts; first, military preparedness and aid to the democracies; second, and equally essential, the strength of our own people. These two parts of the defense effort were recognized by the President when he set up the National Defense Advisory Commission and assigned to it the double responsibility, not only for achieving military production but for keeping the American economy in effective operation and safeguarding the interests of the civilian population. This dual task continues to be evidenced by the present administrative set-up which has taken the place of the Advisory Commission. On the one hand, the Office of Production Management is responsible for production of the essentials for military defense. Parallel to it, the Office of Price Administration and Civilian Supply is responsible for maintaining economic stability and meeting civilian needs. Both parts of the defense program affect the framework within which planning and action for adequate nutrition take place.

This Nation is committed to an all-out program of military preparedness and all-out aid to the democracies. We are committed to whatever sacrifices such an all-out program may entail. But we are not committed to indiscriminate sacrifice regardless of necessity or cost. To defend our democracy we must strengthen, not undermine it, in the defense process. For this, we must not call upon our people to make unnecessary sacrifices—sacrifices which could be avoided by careful planning or the setting aside of certain private advantages.

We are committed to the principle that the burden of necessary sacrifices must fall on those best able to bear that burden, not upon those already struggling to maintain a level of living for their families that is consistent with our national resources, our democratic purpose, and our democratic faith. It requires constant effort to make this principle effective in our society where so many of our institutions and traditional practices make those who can least afford it bear the burdens of insecurity and social adjustment. But such constant effort must be made.

All this means careful planning of military production and supplies not only to achieve the maximum military result but to do so in the way least burdensome to the civilian population. It means placing the needs of the democracies for food and other supplies alongside the needs of the American people and choosing those ways of meeting their needs which are most consistent with meeting our own. It means, in effect, making the program of food for our armed forces, for the British people, and for our own people a single integrated program. Let me give a few concrete illustrations. The Army's decision to feed fresh milk to the boys in camp has required planning to make milk from outside of the local milkshed available for the civilian population in the vicinity of cantonments. The British needs for concentrated foods which can be transported with a minimum of cargo space have so increased the demand for cheese, evaporated milk, and powdered milk that much larger shifts in our own milk utilization are now required. In applying priorities for aluminum, special allowance was made in the past month for the pressure cookers needed in the Farm Security Administration program to permit food conservation and the raising of nutritional levels of low-income rural families. Illustrations could be multiplied but these are sufficient to indicate what is involved in adjusting our military aid program in order to limit the burdens placed upon American consumers to those which are necessary.

The Nation is committed to the second part of our defense program, positive steps to strengthen our democracy, no less than to all-out military preparedness and aid. But this part is far less visible, less dramatic, and less the focus of our concentrated national energy. This Nutrition Conference is an important step toward making our effort on the home front as truly an all-out effort as our program of military preparedness and aid.

There are three essential aspects of defense through democratic strength—(1) increasing our economic efficiency, (2) strengthening the health and effectiveness of our people, and (3) maintaining and strengthening our democratic procedures.

We cannot achieve our goal of democratic defense with anything less than full efficiency in the use of our economic resources—efficiency in our homes, efficiency in the market place, efficiency in the community, and efficiency in the Nation. Efficiency in our homes calls for a new assumption of responsibility by consumers as economic citizens. Efficiency in the market place means wise buying by consumers and methods of selling which permit consumer discrimination and economy. More than that, it means the degree of price stability essential for efficiency through the economy.

Like a sword of Damocles hanging over our head is the memory of the first World War with its sharp and disruptive spiral of skyrocketing prices, living costs, wages, and yet higher prices again. We cannot let such a spiral happen now. We have the machinery to prevent it from happening, and the determination to use that machinery to prevent a price run-away. During the first World War, price controls were introduced only after prices had already shot way up. Today, Mr. Henderson, the Price Administrator, tries to act before the prices rise alarmingly. He set a ceiling on steel lest a jump there start the whole price structure climbing; he held coal in

line lest the temporary lack of production during the coal strike give rise to a price boost; his recent ceiling on combed cotton yarns, 20 percent below the market price, was designed to pull that price back from a speculative level. By these means a disruptive price spiral can be avoided.

This does not mean that no price increases will occur. Some prices have risen and will rise, but these increases must not be regarded as the launching of a price spiral, or panic consumers into buying practices that force prices higher in the process.

Greatly increased demand for food growing out of increased consumer purchasing power, Army needs, and shipments under the lease-lend program, have been pushing food prices up from the low point at which most foods were when the war began. Efforts to achieve parity prices for farmers have recently added to the upward trend of food prices. This inevitably means higher costs of some food to American consumers. It is our policy and our determination, however, that these prices shall not run away but shall be held within reasonable bounds In spite of the sharp increases in food prices in recent months, the Bureau of Labor Statistics index of retail food prices is still five percent below the level of 1937.

But every increase in food prices places a burden on the low-income consumer. The food price increases occurring at the present time constitute a burden which must be lightened by redoubled efforts to make possible wise buying, assist consumers to know and use the less expensive foods, and to promote special programs which put food of high nutritive value within reach of low income families. Increased food prices make particularly significant Dr. Wilder's suggestions for insuring proper nutrition by enriching the staple, low-cost foods. They make imperative the much wider use of quality standards and grades to enable consumers to compare products, stretch their food pennies, and make their food purchases fit their needs.

Price itself is meaningless without quality. Living standards are dependent, of course, upon quality, as well as quantity. Economic efficiency cannot be achieved with ignorance in the market place. Price controls cannot be administered unless a price applies to a specific quality.

In the food field, minimum quality standards for health and safety are set by the Food and Drug Administration, and the quality characteristics of certain products are defined. These provide a very essential bottom below which quality may not fall, and the extension of such minimum standards is needed more than ever now. But these minimum standards are not enough. They do not provide the necessary basis for economic efficiency as do standards and grades for products at different quality levels. Such grades exist for some meat, eggs, canned goods, and fresh products. The prompt extension of the use of these grades in all retail markets is essential. As rapidly as possible, usable standards and other quality designations must be developed for products for which such standards do not now exist.

I have spoken of food prices and food standards because those most closely touch the problem of nutrition which we are here to discuss. But prices and quality standards for other items in the consumer

budget have a direct bearing as well, since expenditures for these items crowd the food budget and cut down the amount available to purchase good nutrition. Next to food, the largest item in the consumer budget is rents. In many communities congested by defense activity, sharp rent increases have occurred. In order to remedy this situation and prevent further increases, the Office of Price Administration and Civilian Supply is assisting local communities to set up fair rent committees and to hold rents as close as possible to pre-defense levels for the duration of the emergency.

Clothing economy is dependent on recognition of quality, and the need for the development of textile and clothing standards is pressing. I recently saw a statement in a trade paper that a difference of 18 percent in the cost of a certain type of cotton cloth involved a 68 percent difference in quality. The consumer who could not tell that the wearing quality of the material had been reduced not only could not guard her own pocketbook but could not do her part in contributing toward national efficiency. Goods bought for purposes which they do not serve, clothes that wear out and have to be replaced, mean waste and inefficiency in home and Nation. Our all-out effort must overcome this type of waste.

It must overcome, too, those obstructions and inefficiencies in methods of production and distribution which check the flow of goods and raise costs to the consumer. Toward this end, the Attorney General recently notified Mr. Henderson that priority will be given to pending antitrust investigations of practices which appear likely to interfere with the price stabilization program. The Antitrust Division last winter started to investigate monopolistic practices in the processing and distribution of a number of foods. These investigations will be given special attention where the evidence indicates that such practices impair the economy and efficiency needed for the defense effort at the present time. Many other types of waste which burden the economy will be attacked by the program of simplification and standardization undertaken in the Office of Price Administration and Civilian Supply. Such a program will reduce the wastes of false and misleading advertising, of multiple and confusing packages and can sizes, and other practices which raise the costs of distribution.

The most fundamental approach to economic efficiency, and incidentally to problems of price, is to produce and make available an adequate supply. This is the only real means of consumer protection, moreover, for there is no substitute for the actual things that go to make up the consumer's standard of living. For most of the basic things which go into the American standard of living there are resources and materials and available manpower to produce them. Shortages exist, and priorities are being established on some imported products, and on others where expansion of defense demand has outstripped expansion of productive capacity. But many of these shortages can and must be overcome, and we must, therefore, work for the maximum in needed production which our resources, our effort, and our organizational ability can produce.

This is particularly true in the matter of food. Our agricultural plant is tremendous. The resources for producing all the food which we need are here. We must encourage and secure the production of that food. The Secretary of Agriculture has already pointed out the

additional volume of agricultural production which would be required were the American people to be fed at levels of adequate nutrition. The foods needed for export are in many instances the same as those needed for adequate nutrition in this country. We should secure the prompt production of these foods by all means consistent with fair and adequate protection to the farm population. The Department of Agriculture's plan announced April 3, to support the prices of hogs, dairy products, chickens, and eggs, had the concurrence of my office and Mr. Henderson's on the ground that it was a practical measure to secure the added production of these foods which is needed at the present time.

It is not enough for all-out defense that we take these steps to promote economic efficiency. National defense requires fitness and strength for all our people. We know that there are many who live below the safety line. I need not repeat the evidence which you have heard and discussed and which is familiar to all of you. Our national defense program requires the support of Federal, State, and local programs and of private efforts to meet the needs of low-income consumers and to find means to raise their levels of living to the point of strength and fitness. Many of the specific programs have been mentioned by other speakers today. School lunches, Food Stamp Plan, the cooperative canning of local surpluses are but a few of the many ways in which low-income families may be aided toward adequate health and safety standards.

We shall not achieve our program of defense until the level of all our people has been raised above the minimum. And we must not only maintain but make increasingly effective the services of Federal, State, and local governments and the cooperative activity of private agencies and individuals toward this end—necessary resources, for instance, to enlarge for school lunch and food stamp programs, to extend and speed up the grading and inspection services of the Agricultural Marketing Service and the Food and Drug Administration, and to carry forward the investigations of the Antitrust Division of the Department of Justice. We cannot set the defense program on one side and our "social gains" on the other side and ask how many of our social gains we must sacrifice for the sake of defense. Our social gains, those instruments of social protection which we have forged, are an essential part of our national defense.

So, too, is our democratic method. Defense cannot be wholly for the people; it must be by people. Consumer protection must be achieved by an educational process leading to the goal of effective economic citizenship. Aid to consumers to permit and encourage their wise buying; market information through press and special publications; knowledge of how to judge quality and to plan use, or to save by paying for plain foods in bulk instead of for fancy packaging; suggestions for activities to promote consumer welfare; these are all means by which consumers may gain understanding and carry their economic responsibility. Local market news broadcasts in many cities guide housewives to those things which are plentiful in the market, help to absorb local surpluses and add to individual and national efficiency. Democratic defense thus rests upon an educational process and broad participation of people throughout the country in matters affecting their welfare.

This, then, is the framework of defense into which the national program of nutrition fits—an all-out effort on the home front as well as the military sphere; economic efficiency, human strength, democratic processes. In the total picture, nutritional standards occupy an important place, for they supply necessary criteria in terms of which efficiency may be gauged, and a guide to those adjustments in consumption to meet defense conditions which are, and those which are not, consistent with defense itself.

One final word: As we develop a program of total defense today we must face not only the present but the future, and must lay the foundations on which a strong America can be built when the emergency is past. We entered the defense emergency after years of depression. We look back to the post-war periods of the past and see them marked by economic collapse. But we cannot let fear of a post-war slump stand in our way today, for we must, at our peril, avoid such a collapse when the emergency is past. No nation which cannot effectively order its own economy can expect to survive in the world of tomorrow. The framework within which we build sound nutrition for strong defense today extends forward to the only future which can give meaning to our present effort—one in which health, security, and opportunity are the birthright of all our people.

Selective Service and Its Relation to Nutrition

BRIGADIER GENERAL LEWIS B. HERSHEY,
Deputy Director, National Headquarters, Selective Service System

The Selective Service System appreciates an opportunity to participate in a conference of this kind and at this time. Selective Service is vitally interested in any measures which look to the betterment of the health of our people. Selective Service is ready, willing, and anxious to participate to the limit of its capacity in the means by which disabilities are prevented, as well as the steps which may be taken to correct those already developed.

Selective Service was created "to provide for the common defense by increasing the personnel of the armed forces of the United States and providing for its training." It must accomplish these purposes without unnecessarily interfering with the many other activities so essential to an all-out defense. To accomplish the missions given by Congress brings the Selective Service System into the every day lives of millions of our people. This contact with the lives of our people brings into the foreground basic facts about our people. Selective Service is a decentralized operation. It is an operation which makes available to the people of a community facts about the people of that community. It has made of record—it has inventoried—the capacities, the skills, and the physical conditions of many of our citizens. It has focused the attention of all of us upon conditions which we may have vaguely suspected but which we preferred to overlook. I hope that it has produced and will continue to produce facts about our physical condition as a people which will force us to take action to prevent the occurrence of these disabilities and to correct wherever possible those which are already in existence.

Let us briefly review the information which has come to us during the past several months about the physical condition of the men of America. Under the present practices the registrant who has been placed in class I by his Local Board is initially examined by the Medical Examiner of the Local Board. The men who are deferred because of dependency, because of occupation, or because of any one of several reasons are not physically examined at the present time. Approximately a million registrants have been examined by the medical examiners of the Local Boards. Of this number approximately 200,000 have been rejected as unsuited for military service. One hundred twenty thousand have been placed in I–B, which means normally one of two things—either they are temporarily unfit for general service, or they are permanently unfit for general military service but are fit for certain types of military service where physical qualifications are not as rigid.

The registrants who are passed by the local medical examiners as fit for general military service are sent to Army induction stations as

they become due for induction. Here they are examined by a board of medical examiners. These examiners may be medical officers of the Army of the United States. The board may be composed of a few medical officers, the remainder contract surgeons. Here another physical examination of the registrant is held—about 560,000 have taken this examination. Of this number 500,000 were found fit for general service, 55,000 for limited military service, and 5,000 were wholly rejected.

In this connection I should like to comment on the situation created by the dual examinations and the problem of those who are accepted by the first, and then rejected by the second. This has been the cause of some hardship to rejected registrants and the basis of well-founded criticism. The basic causes of this situation lie in the fact that the final examination is given by the service into which the registrant is to be inducted. The fact that the final examination is given just prior to induction compels the registrant to settle his affairs prior to reporting for induction. This step is most unfortunate if the medical board at the induction station disagrees with the finding of the local board examiners. It is not surprising that differences of opinion developed between examiners as to the fitness of the registrant as a soldier. Our World War experience seems to indicate that 8 percent variation is a fair average in deviation in opinion between examiners. It must be remembered that in the beginning practically all medical examiners were inexperienced in work of this nature. It should also be borne in mind that the medical examiners of the Selective Service System served without pay and that the long hours which they have given have been a patriotic contribution.

Experiments are now under way whose purpose is to perfect a system which will enable registrants to be physically examined finally by an Army examining board at a reasonable time prior to the induction date. By this method each individual registrant should know sufficiently in advance of his successful passage of the physical examination to enable him to make preparations for his induction into the armed forces.

I have said that out of a million examined by Selective Service and about 560,000 examined by the Army a total of 380,000 have been found unfit for general military service under present standards. What have been the causes for rejecting these individuals? There are many and I shall name the few which account for the largest number.

Teeth account for nearly 20 percent of the rejections; eyes and cardiovascular 10 percent each; 9 percent are rejected as being generally disabled for three or more reasons; musculoskeletal disabilities account for 8 percent; 7 percent are obviously unfit even to the nonprofessional; nervous and mental rejections take 6 percent; ear, nose, and throat fail 5 percent; lungs, hernia, and those over or underweight each reject 4 percent; gonorrhea and syphilis take out 3.5 percent, and feet 3 percent.

It is not my purpose to attempt to fix the causes for these disabilities. Many suggestions are advanced. Foods undoubtedly play a very considerable part whether it be because of a lack of a proper amount, or because the food was of an improper kind. It has been estimated that perhaps one-third of the rejections were due either directly or indirectly to nutritional deficiencies. In terms of men, the Army today

has been deprived of 150,000 men who should be able to do duty as soldiers. This is 15 percent of the total number which have been physically examined by the Selective Service System.

It is perhaps of little use to speculate on what should have been done by our schools, by parents, by health bodies, or by the Government. Probably the depression years left their marks. Undoubtedly the automobile and the cash it required for monthly payments and for gas, oil, and tires, has cost us as a people in physical fitness. Whatever the causes, this is the condition in which we find ourselves. Whether we are worse off physicaly than we were in 1917–18 is undoubtedly controversial. That our physical standards are higher now, let us admit. The fact remains that while we may be no worse now than twenty-four years ago we seem certainly to be no better. Better or worse or the same, we are physically in a condition of which we nationally should be thoroughly ashamed. It is a condition we should recognize as dangerous and which we should take immediate, positive, and vigorous measures to correct.

There are some facts to indicate that there is a definite relationship between age and physical disability, an indication which would be assumed on general observation. A study of 8,000 cases chosen generally from all sections of the country indicated that the rejections in the age group 18–21 was less than 6 percent; 21–25, 25 percent; 26–30, 36 percent; and 31–36, 52 percent. To what extent later disabilities have their causes in the earlier ages is a matter for conjecture. The fact that all of those examined between 18 and 21 were volunteers may well be one of the reasons for the extremely low rejection rate, if we are to assume that those who had disabilities were aware of it and have not offered their services. However, our information from this study and from a study of those examined by the Army Induction Station in Chicago indicates that there are twice as many physical rejections in the 31–36 group as there are in the 21–25. In this connection it should be noted that this may not be an exact indication of the physical condition of the two groups because Selective Service, so far, has confined its physical examination to those who had no reasons for deferment, and it may be true that the individual in the upper age group who has no dependent or skill or who has in no other way made himself a necessary man is not representative physically of his group.

We are faced with the question—What can we do to improve the physical condition of our people?

Undoubtedly prevention is always better than cure; far-reaching results will follow basic changes which develop our people physically. This is a long-range program in which schools, parents, and Government must each bear a part. To be successful there must be a thorough-going system of education as to what the situation is, what steps are necessary for its correction, and the individual part that each citizen must play in making these measures operative.

In the long range picture I believe the most fundamental step must be a basic change in our conception of the nature of our educational system. We must place a decided emphasis on physical training and physical education. The ancient Greeks had a conception about the development of the human body to which we should give serious consideration. Our first long step in building a physically strong America

is to recognize physical fitness as even more important than mental fitness. This recognition must be on a plane above the recreational level. Today we pay our tribute to outstanding athletes, but only as they entertain us. Our educational system must place the youth who has developed a perfect, healthy body on a plane above the scholarship giant who in reaching his goal has ruined his eyes, his digestion, and his health in general. Once we have set up an educational objective of a well-developed body, we must organize our curriculum to secure it.

This establishment of an ideal of bodily development is basic and necessary, but it is a long-range planning item. What can we do now? I shall omit any reference to those unregistered or to those placed by local boards in deferred classifications. I shall concern myself with two general categories—those who have not been classified and those who have been classified, examined, and rejected.

The individuals who have not yet been classified owe a duty to their government for service. That obligation calls for the service of a whole man—a man entirely alive—a healthy, strong, well-developed man. It is the duty of the registrant faced with this responsibility to use every means available to make himself fit to serve. To accomplish this end will require the coordinated efforts of the medical profession, State and governmental agencies, and an enlightened and energetic public opinion. If there is an effort on the part of all, there can be thousands of men made acceptable for service in the armed forces.

I turn to the next category—those registrants who have been physically examined by Selective Service and rejected, or have been accepted by Selective Service and rejected at the Army induction station. This group numbers somewhere in the neighborhood of 400,000, with about one-half rejected for any military service and the remainder judged satisfactory for limited military service. Of course, every effort should be made to correct every correctible defect in this group, but the 200,000 who are fitted for limited military service create a special problem. Many of these individuals have every appearance of an able-bodied man. They are known in their communities as individuals capable of performing physical labor, or of participation in activities that require a reasonable amount of physical proficiency. With this group will be an increasing number of individuals who have been rejected for mental deficiencies. I do not believe our people will continue indefinitely to accept avoidance of military obligations by the class to which I have just referred. If this assumption is accurate, we are confronted with the necessity for rehabilitation for the members of this group where it is possible to better their physical condition, and to attempt to discover an efficient place in national defense for those with uncorrectible disabilities.

Some of these rejected registrants will attempt to correct their physical disabilities without urging; some additional ones will do so if persuasion is used; many will be content to continue as they are. I believe that it will be necessary to place the responsibility for the rehabilitation of these individuals directly upon the Government. Whatever methods may be used for the correction of physical disabilities in the general public, this group must be utilized in a manner which will not permit them to escape military obligations because of their physical conditions. I realize that there are agencies in the

Government at the present time which might be modified to serve as rehabilitation agencies—their part in the rehabilitation of the general public may or may not be feasible, but for this group liable for military service voluntary methods will not suffice. In the interest of public morale these individuals should be compelled to render service to the Nation. In the public interest they should be improved physically while they are performing this national service. I realize the tremendous task which has been placed upon the War Department by the necessities of the past year; I am aware of the task which the induction of one or two hundred thousand limited service men would impose upon an already over burdened agency; I am aware of the financial responsibilities which may accrue to the Government by the acceptance of below-standard men. On the other hand, there seem to be no other agencies capable of carrying out this task in a manner which will insure that the Government shall require service from the individual, while at the same time effective measures are undertaken to improve the physical condition of the individual. In addition there is work which can be done by limited service men that will relieve combat units from tasks which must be done, but whose doing interferes seriously with the training programs of these units. There is an additional advantage to be gained by having these men inducted into service, for as they become rehabilitated physically and mentally they can take their places in combat units.

In summary, Selective Service has examined physically a million. The results of these examinations should be disturbing to us as a people—they should energize us to immediate and positive action. Approximately 400,000 have been found unfit for general military service—probably one-third of these are suffering from disabilities directly or indirectly connected with nutrition. At least two hundred thousand can be used for limited military service, with perhaps one hundred thousand of these capable of rehabilitation to the point where they can do full military service. The non-induction of the limited service group constitutes a grave moral problem which will tend to increase. Measures must be taken to require service of these individuals and their development to a physical condition where they can do full physical duty if inducted. In general this cannot be accomplished by the voluntary efforts of the individuals concerned. There is national work which they can do while their rehabilitation is in process.

America must be strong, but she cannot be strong when one-half of her sons are substandard physically. America needs whole men, not half men. She must develop vigorous and healthy youths; she must prehabilitate those whose defects are slight; she must rehabilitate those examined and found deficient. The task before us, like all tasks in a democracy, is the duty and responsibility of each and every citizen. The Selective Service System by its very nature will play a vital part in the solution of this all important problem. It dedicates itself to a participation in the movement for better and healthier bodies for all the citizens of America.

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DISCUSSION OF SPECIAL PHASES OF NUTRITION PROBLEMS

On the afternoons of May 26 and 27, section meetings were held to discuss special phases of nutrition problems and to prepare recommendations to the President. Sections III, VI, VII, and VIII were divided into two parts presided over by cochairmen. Each section appointed a drafting committee to prepare a brief report on the main points brought out in the two afternoons of discussion and to draw up recommendations to be presented on the final day of the Conference. The work on special phases of nutrition problems was discussed in the following sections:

Section I. Research and National Nutrition Problems.
Chairman: E. V. McCollum. Secretary: J. Ernestine Becker.

Section II. Economic Policy and Social Responsibility as Related to Nutrition.
Chairman: Lucy H. Gillett, Cochairman: Hazel Kyrk. Secretary: Hazel K. Stiebeling.

Section III. Public Health and Medical Aspects of Nutrition.
Chairman: James S. McLester. Cochairman: Richard M. Smith. Secretaries: W. H. Sebrell and Katherine Bain.

Section IV. Nutrition for Workers in Defense Industries.
Chairman: Frank G. Boudreau. Secretary: Carroll E. Palmer.

Section V. Methods of Education in Nutrition.
Chairman: G. Dorothy Williams. Cochairman: Mildred W. Wood. Secretaries: Miriam Birdseye and Edna P. Amidon.

Section VI. Professional Education in Nutrition.
Chairman: Lydia J. Roberts. Cochairman: John H. Musser. Secretaries: Thelma Porter and Marjorie M. Heseltine.

Section VII. Nutrition Problems in Distribution and Processing of Foods.
Chairman: Hector Lazo. Cochairman: L. V. Burton. Secretaries: Frederick V. Waugh and R. S. Hollingshead.

Section VIII. Community Planning for Nutrition.
Chairman: Howard Y. McClusky. Cochairman: H. C. Ramsower. Secretaries: Margery Vaughn and B. W. Allin.

Section IX. Nutrition Problems in Group Food Service.
Chairman: Katharine Ansley. Cochairman: Alberta MacFarlane. Secretary: Melva B. Bakkie.

SECTION I

RESEARCH AND NATIONAL NUTRITION PROBLEMS

Presiding, ELMER VERNE McCOLLUM, M. D., Professor of Biochemistry
The Johns Hopkins University
Chairman

AGENDA

I. Nutritional Requirements and Standards for Normal Individuals at Different Age and Maturity Levels and in Pregnancy and Lactation.
- A. For vitamins.
- B. For minerals including "trace" elements.
- C. For other nutrients.
  1. Protein.
  2. Fat.
  3. Carbohydrates.
- D. Interrelationships between nutrients and the possibility of imbalance.

II. Nutritional Aspects of Special Problems.
- A. Dental caries and gingival health.
- B. Constitutional inefficiency.
- C. Suboptimal nutritional status and convalescence.

III. Nutritive Value of Foods as Affected by Genetic and Production Factors, Processing, Preparation, and so forth.
- A. Variety, environmental, and cultural factors in plants.
- B. Breed and feeding practices in animals.
- C. Milling, sterilizing, freezing, pasteurizing, and drying.
- D. Methods of preparing and cooking.
- E. Influence of aging, storage, and shipping.

IV. Nutritional Status.
- A. Gross appraisal.
  1. Physical examination.
     a. Need for standardization of clinical items as to both techniques and interpretation.
  2. Anthropometric measurements.
     a. Need for further data on individual growth and evaluation of influencing factors.
     b. Relative value of both static and functional measurements.

3. Roentgenographic assessments.
    a. Skeletal development: need for further work on standards of skeletal development and its relation to physiological maturity.
    b. Bone density: significance and interpretation of findings.
4. Physical-performance tests.
5. Inquiries concerning dietary habits and economic level.

B. Appraisal with respect to specific factors.
1. Nutrients.
    a. Proteins.
    b. Minerals.
        Iron and copper.
        Calcium and phosphorus.
    c. Vitamins.
        A.
        The B vitamins.
        C.
        D.
2. Hematological procedures.
3. Basal metabolism.

C. Interrelationships between specific factors and their value in the appraisal of nutritional status.

V. Design and Technique of Experiments on Human Nutrition.

VI. Methods and Effects of Changing Food Habits.

A. Importance of habit as an influence preventing the widespread utilization of nutrition knowledge.
B. How food habits are established.
C. Factors of major importance in bringing about changes in food habits.
D. Group and age differences in willingness to change habits.

SUMMARY OF DISCUSSION

The discussion in section I dealt with all the principal lines of inquiry in the nutrition field and was directed toward clarifying the problems which present themselves most urgently for further immediate investigation. It is clearly recognized that, with few exceptions, the fundamental knowledge which we possess concerning the number and nature of the chemical substances which constitute the essential nutrients, their distribution in our ordinary foods, and the pathological effects of their underprovision, was derived from animal experiments.

Our knowledge is still incomplete in all these fields of inquiry, but it is sufficiently extensive to be of outstanding value in making possible the formulation of adequate dietaries at several cost levels: for recognizing several specific types of malnutrition; for conserving nutrients in foods; and, in the case of several of the vitamins, the utilization of synthetic products to supplement dietaries.

Since our information on all these matters depends upon chemical tests and physiological and clinical techniques for assessment of the status of the individual, it is agreed upon by the specialists who

participated in the discussions that the need for further research is urgent in the following fields:

(1) Improvement of presently known chemical and biological procedures for estimating the amounts of the essential nutrients in foods and their physiological availability.
(2) More refined techniques for the detection of nutritional deficiency states, especially in the subclinical degrees of intensity.
(3) More precise determination of the optimum and minimum requirements of human subjects for each of the nutrients, as influenced by age and physiological status (including pregnancy and lactation) and those factors which affect their utilization.
(4) Study of problems relating to the nutritional needs of the individual as influenced by constitutional inefficiencies, by suboptimal nutrition, by disease and convalescence.
(5) Studies toward clear definition of the physical status of the individual.
(6) Study of all factors affecting the nutritive value of foods and their preservation during the interval between production and consumption.
(7) Study of methods of preparation of foods for consumption so as to avoid losses of nutrients.
(8) Food habits and methods and effects of changing them.

DISCUSSION

The section on Research and National Nutrition Problems considered the principal lines of investigation in the field of nutrition and discussed the problems most urgently in need of immediate research.

The meeting opened with a discussion of the available sources of vitamin A. Dr. C. E. Bills (Mead Johnson Co., Evansville, Ind.) pointed out that high potency fish oils are not available in sufficient amounts to supply the Nation's needs for this vitamin. He recommended the importation of West African palm oil which is a good source of vitamin A and which can be used in enriching margarine. He also suggested investigating the feasibility of applying molecular distillation to low potency fish oils that are available in large amounts. This would be a means of obtaining vitamin-A-rich concentrates.

Since the reliability of existing methods for detecting incipient vitamin A deficiency is still controversial, critical comparison of the existing techniques was recommended in order accurately to evaluate the various methods for determining the physiological status of the individual as respects vitamin A reserves. Research for new procedures of detecting the earliest evidences of vitamin A deficiency was also urged.

In the discussion of thiamin, Dr. Elvehjem (University of Wisconsin, Madison, Wis.) emphasized the need of direct studies on human subjects for the estimation of man's requirement for this nutrient. Because of the lack of sufficiently accurate and rapid

methods for estimating thiamin content, refinement of existing methods and the discovery of new ones are needed. Studies of the quantitative distribution of the thiamin content of food should be carried on extensively and as soon as possible, since this type of data is rather scarce. Similar work is needed on riboflavin, nicotinic acid, pyridoxine (vitamin B_6), and pantothenic acid in order to determine the human needs for these nutrients in different physiological conditions, such as age, pregnancy, lactation, etc.

The following lines of investigation were recommended in the discussion of vitamin C by Dr. C. G. King (University of Pittsburgh, Pittsburgh, Pa.): (1) Inquiry into the functions of vitamin C in the body and the increased need during convalescence and during periods when the body is recovering from injury; (2) devising of means for insuring adequate vitamin C during infancy and childhood; (3) evaluation of the significance of moderate vitamin C deficiency during infancy and childhood in relation to (a) the later incidence of dental caries and (b) other problems in the field of public health.

Discussion of the relation of vitamin D to the prevention of rickets in infants and children was led by Dr. E. A. Park (Harriet Lane Home, the Johns Hopkins Hospital, Baltimore, Md.). He was of the opinion that studies are needed to show whether activated 7-dehydrocholesterol is of the same order of potency as calciferol. Research directed toward the clarification of the role of vitamin D in protecting skeletal development is essential. The adult requirement for vitamin D also merits investigation.

In the discussion of the mineral elements in nutrition, it was concluded that more information is needed in order to formulate reliable standards for human calcium requirements. There is also need for information from human studies to determine the significance of the calcium and phosphorus ratio in the diet. Iron and copper metabolism as well as the physiology of other so-called trace elements were considered.

The following suggestions for research in this field were made:

1. Investigation of the utilization of, and requirements for, calcium and phosphorus by the adolescent.
2. Investigation of the utilization of, and the requirements for, calcium and phosphorus by the pregnant and lactating woman.
3. Study of the utilization of, and the requirements for, calcium and phosphorus in old age.
4. Study of bone growth and calcification during early infancy in relation to the type of milk fed, that is, mother's, cow's, etc.
5. Investigation to determine whether sufficient iron and copper will be furnished by a diet from natural foodstuffs which is adequate with respect to all other known dietary essentials for normal individuals at different age and maturity levels and in pregnancy and lactation.
6. Investigation to determine the factors which influence availability of the iron and copper in various foodstuffs. In these studies, consideration should be given to the influence of other nutrients.

7. Investigation of the possibility that deficiency of one or more of the trace elements might occur in case the Nation should come to use what are termed "enriched" foods to a great extent.

8. Investigation of the danger that may arise from the annual repetition of spraying of food-producing plants with insecticides containing lead and arsenic.

9. The study of the possible deleterious effects of dosage with massive amounts of iron in the treatment of anemias.

In the discussion of the research on the proteins in nutrition, study of the following subjects was proposed:

1. The amino acid composition of the proteins in our common foods.

2. The chemistry and nutritional significance of the essential amino acids in the human body.

3. The effect of cooking and preservation practices upon the digestibility and the utilization of various proteins in our common foods.

4. New and better substitutes for the more expensive proteins from meat.

5. Development of better technique for determining the qualitative and quantitative protein requirements during the period of growth.

The dietary need of fats was considered and it was decided that the human requirements for the essential unsaturated fatty acids be further and more accurately determined. Also the interrelationships existing between fat and vitamin metabolism should be studied. Experimentation to establish the extent to which the fat-soluble vitamins are dependent upon the presence of fat for their absorption was recommended. Investigation is also needed to determine the relationship between fat intake and the bulk and satiety value of diets.

Dr. John R. Murlin (University of Rochester, Rochester, N. Y.), who led the discussion on the role of carbohydrates in man's diet, suggested that studies on human subjects should be undertaken to demonstrate clearly the superiority of whole grain cereals in the maintenance of physical fitness for muscular work. This is particularly urgent during the national emergency, especially since certain studies made in Switzerland seemed to show that soldiers living on whole-wheat bread maintained their fitness better than soldiers living on white bread.

Research on the interrelationships between nutrients and the possibility of imbalance was recommended, particularly to determine:

1. Whether there are nicely balanced oxidative or other metabolic processes which may be fatally overturned by the administration of large amounts of only one of the participating indispensable nutrients.

2. Whether the bacterial flora of the intestines is so modified or stimulated by the ingestion of imbalanced nutrients as to change the composition of the absorbable nutrients.

3. At what level of intake, if at all, the prescribed vitamins precipitate symptoms due to other latent diet deficiencies.

4. What is the optimum dose and the optimum ratio of each of the known vitamins in relation to all the others?

It was suggested that systematic experiments, upon several species of animals, need to be made at once in various laboratories to answer these questions. Cautious use of human subjects may be possible.

Consideration was also given, during this session, to the nutritional aspects of the etiology of dental caries. Because an extremely high percentage of draft selectees have been rejected on account of dental defects, and because of the marked controversy among dental specialists on the problem of the causes of dental disease, investigation is urged on this subject.

Dr. Isaac Schour (University of Illinois, Dental College, Chicago, Ill.), pointed to the great need for research on the influence of nutrition on the developing teeth and supporting structures. Experimental production of caries and paradontal disease is essential to aid in the solution of this problem. Standards of assessment of caries and paradontal disease are also needed.

Suboptimal nutritional status and nutritional status in convalescence were discussed next. It was pointed out that a study should be carried on to establish criteria for the accurate recognition of states of suboptimal nutrition, and also to establish the necessary increase in intake of nutrients in such conditions, in disease, and during convalescence. Investigations of constitutional inefficiencies which will yield to diet adjustment or supplementation were also advocated.

The discussion on the nutritive value of foods as affected by genetic and production factors, processing, preparation, etc., was conducted by Dr. L. A. Maynard (Cornell University, Ithaca, N. Y.), who recommended that in order to establish procedures that will produce a food supply of the highest possible nutritional quality, research in the production of food crops should emphasize yields of available nutrients, rather than yields of the crops in tons or bushels per acre and that research be carried on to learn more specifically about the genetic, environmental, and cultural factors which cause food crops to vary in nutritive value.

Better methods of feeding and management are required to improve the nutritive value of animal products. Consequently further research on (1) cheaper sources of protein supplements to replace expensive protein concentrates; (2) a better hygienic and nutritional program for preventing losses of young animals; (3) and a conservative program for animal production, with a long view to the future, should be carried on. Prevention of the high mortality among young chicks and unthriftiness among grown birds should be studied.

Further information on the extent to which essential nutrients are destroyed by sterilization methods are needed. Investigations to show how these losses may be minimized should be performed.

Investigation on drying methods for fruits, vegetables, meats, eggs, milk, etc., is needed as well as are data concerning the deterioration in food value caused by the procedures practiced at the present time. There is urgent need, particularly at this time, to acquire information on the nutritive values of dried or desiccated foods. More information on the loss of nutritive value in foods as a result of preparation and cooking is also essential.

Dr. E. M. Nelson (Food and Drug Administration, Federal Security Agency, Washington, D. C.) opened the discussion on the influence of aging, storage, and shipping, on the nutritive value of foods. He was of the opinion that further investigation is necessary on the following problems:

1. Losses of vitamin C in fresh vegetables kept under different conditions and practical methods of reducing such losses to a minimum.
2. Loss in vitamin content of dried vegetables and fruits.
3. Importance of deterioration of the nutritive value of proteins of cereals to persons whose diets are restricted largely to cereals.
4. Losses of vitamins in canned fruits and vegetables under prolonged storage.

In the discussion of the appraisal of nutritional status, it was revealed that there is a great deal of confusion concerning what is meant by nutritional status. It was pointed out that there is urgent need for improving and integrating present methods of assessment including the clinical examination; laboratory procedures; tests for physical performance; growth standards including anthropometric and roentgenographic procedures; and dietary histories. There is a definite need for more carefully planned studies of human nutrition in order to insure definitive answers and to exclude the effects of factors other than the one being studied. In addition, sufficient observations to answer satisfactorily the question being studied are needed to permit efficient utilization of these observations.

Further and more detailed studies of individuals followed over a considerable period of time, with an adequate evaluation of their intake, the efficiency of its utilization, and the resulting evidences of adequate or inadequate nutritional status should be conducted. More study and greater care and thoroughness in such studies are needed so that the physical examination may be made a useful tool in appraising nutritional status.

In order to determine whether anthropometry can be useful in appraisal of nutritional status, study is urged of anthropometric data on a group of individuals followed over a considerable time period, and followed from dietary, anatomical, physiological, and psychological aspects as well as those of health. It was brought out in the discussion that several years of research in roentgenographic assessments have demonstrated that there is a very close relationship between skeletal development and physiological status. Continuation of longitudinal studies such as those conducted and discussed by Dr. A. H. Washburn (Denver, Colo.) was recommended. It was urged that skeletal norms, regardless of their source, should not be emphasized. There is need for more precise information about the limitations of existing standards of skeletal developement, particularly with reference to the degree of variability in skeletal status at various ages which is compatible with adequate physical growth and development. Longitudinal studies in which the skeletal development of individual children is followed over a period of years was suggested. Skeletal data were to be supplemented with other evidences of child's growth such as developing its health history.

Studies to include children of various social and national groups are to be encouraged in order to evaluate the data on skeletal develop-

ment. Recommendations were made for further research in the appraisal of bone density with particular reference to establishing a standard region or regions for making the smallest number of tracings possible which will give an objective and valid measure of skeletal density in human beings and to developing a series of standards for different ages of the two sexes.

The appraisal of the nutritional status with respect to specific dietary factors was considered. It was pointed out that there is need for better and more practical methods of determining protein standards and physiological nitrogen environment.

Research to reevaluate and redetermine normal hemoglobin values, especially for women, should be encouraged. Investigations should also be made to determine what dietary factors other than iron influence hemoglobin values and consequently what a hemoglobin value may reflect concerning nutritive status in respect to dietary factors other than iron. There is also a need for methods for assessing the nutritive status of the body in relation to copper.

Since there are no standards at present whereby the nutritional status of an individual in respect to calcium and phosphorus can be assessed, experimentation is required to establish standards for assessing the status of the individual to determine whether he is getting sufficient calcium and phosphorus to keep him in maximum physiological efficiency.

In the discussion of the vitamins, the need for more specific, cheap, simple, and objective study of the usefulness of the existing criteria of incipient or of more marked deficiency of vitamin A was urged in order that quantitative procedures may be worked out for detecting these states. Basic experimental studies on animals are indicated to determine the actual function of vitamin A in physiological processes. Fundamental researches to extend our knowledge of the absorption and utilization of both vitamin A and carotene were recommended.

Investigation of the chemical changes which accompany thiamin deficiency was suggested by Dr. R. R. Williams (Bell Telephone Co., N. Y.). Researches should be encouraged for determining the role of vitamin B_1, thiamin, in the body. One necessary line of study is a collection of data regarding the quantitative occurrence of each of the several B vitamins in each of the body tissues and fluids. This ought to be applied widely first to animal tissues and then to human tissues from individuals of varying ages of both sexes and from those succumbing to a wide variety of diseases, and particularly from accident cases, so as to establish values normal for human beings free from disease.

Since vitamin C, ascorbic acid, is one of the many factors fundamental to the development of good teeth and to the incidence of dental caries in both the young and the old, the vitamin-C intake during infancy and early childhood in relation to the normal development of the bones and teeth should be investigated extensively in order to study what contribution marginal vitamin-C deficiency has made to the present widespread evidence of dental caries. The degree to which marginal or severe vitamin-C deficiency may affect constitutional inefficiency needs to be determined. Vitamin C appears to have an active function in the cells of glandular tissues.

Consequently, the correlation between vitamin-C intake and glandular function is of importance. Further experimental and clinical studies are needed to extend our knowledge of the significance of marginal deficiency of vitamin C. Since both experimental and clinical studies have demonstrated that bacterial toxins and injections cause an increased demand for vitamin C, reasonably generous levels of this vitamin would be desirable from the standpoint of protection against injury in case infections occur. Specific provision for adequate supplies of vitamin C as a part of the National Defense Program should be recognized also because (1) the vitamin is an important factor in the process of wound healing; (2) a regular intake of the vitamin is necessary to maintain normal health and efficiency; and (3) the vitamin is extremely sensitive to destruction in stored food supplies and requires special consideration when there is a restricted intake of fresh fruits and vegetables.

In case of vitamin D, some chemical method by which we could appraise the vitamin-D concentration in the body fluids, particularly the blood, would be of considerable aid in evaluating the status of vitamin D.

In the discussion of basal metabolism in relation to nutritional status, the desirability of an extensive program including observations on cases of mild deficiencies of each of the essential nutrients to determine the extent to which these states influence metabolic rate was recommended. Standardized techniques for this purpose are to be sought in order that the data of different investigations may be compared.

More information on the total energy requirements of human subjects and the factors influencing basal outputs is needed. In addition, more attention should be given to both the younger and the older age groups in respect to this problem.

Dr. Sarah S. Deitrick of the Children's Bureau, Department of Labor, Washington, D. C., discussed the subject of interrelationships between specific factors and their value in the appraisal of nutritional status. How far skeletal maturity is related to physiological maturity, and how far it is reliable in evaluating the nutritional condition should be investigated. The use of physical performance tests in the evaluation of the individual's physical efficiency was recommended. More emphasis should be placed on providing a satisfactory diet before proceeding to assess the nutritional status. In carrying on research of nutritional status, a complete history of the child as respects growth and development, together with tests of physical performance and a full medical history, are essential. Growth and development should be considered in relation to the child's own previous record rather than to a scale which is the average of a variety of growth patterns. Careful inquiry into the dietary habits of the child should be a part of such programs.

Methods and effects of changing food habits were considered. It was recommended that available research findings dealing with cultural patterns should be brought together with particular reference to the problem of how food habits can be changed. Research was recommended to determine what motives and appeals for use with mass methods will prove most effective in reaching individuals. It

was recommended that methods which alter the food habits of those whose diets are most in need of change should be studied.

Research is required to learn which available foods are preferred relative to taste and custom by the different groups whose diets now are deficient. Research is also needed to determine the actual and potential influence in the change of food habits which is exerted by misinformation, superstitions, accurate nutritional knowledge, folkways, prestige, and concern about the national emergency and also how each can be used most effectively in furthering the National Defense Program.

There is need of evaluating the various educational programs in schools, and in society in general, that are now being used in attempts to change food habits.

At the conclusion of the discussion of the section, Dr. Murlin (University of Rochester, Rochester, N. Y.), suggested that the existing facilities be used for the research recommended by this section, at least at first. It might be more effective to start with coordination of existing agencies, each laboratory known to be competent in a certain field to be asked to do a certain part in this general program. He also recommended that we proceed to make a survey of existing facilities in all universities and agricultural and land-grant colleges of the country fitted to carry out substantial portions of the general research program outlined by the section. In this survey an estimation of additional funds should be included which may be necessary to effect promptly and efficiently the execution of these researches. Dr. Murlin's recommendation was put into a motion and was accepted to be incorporated into the report.

RECOMMENDATIONS

After a report summarizing the discussion and conclusions of the section had been adopted, the following motion was passed:

Resolved, that section I of the National Nutrition Conference appoint a committee to survey existing facilities in all the universities, agricultural and land-grant colleges, or other laboratories of the country, fitted to carry out substantial portions of the general research program outlined in the report as adopted, and include in this survey an estimation of additional funds which may be necessary to effect promptly and efficiently the execution of these researches.

SECTION II

ECONOMIC POLICY AND SOCIAL RESPONSIBILITY

Presiding, LUCY H. GILLETT, Director of Nutritional Work,
Community Service Society, New York City,
Chairman;
HAZEL KYRK, Ph. D., Consulting Specialist, Bureau of Home Economics,
United States Department of Agriculture,
Cochairman

AGENDA

I. Certain assumptions must underlie economic policy or social responsibility for the improvement of nutrition. These facts are generally agreed upon:

A. Malnutrition exists in this country to an unnecessary extent.
B. For many families, especially those with children, incomes are too low to buy nutritionally adequate diets at current retail prices without great change in food habits and lowering of standard of living in other respects.
C. The changes in income that accompany the defense effort will not eliminate malnutrition.
D. Not all the nutritionally inadequate diets are found among low-income groups.
E. The kinds of foods that should be consumed in greater quantities by low-income families in this country are dairy products, eggs, leafy, green, and yellow vegetables; other vitamin-C-rich vegetables and fruits, whole-grain, lightly milled, or enriched forms of flours and cereals, and in some sections more lean meat and fish.

II. Increased consumption of the requisite foods among low-income and relief families would presumably result from such changes as those listed below. The methods suggested are not alternatives. The promotion of all or any group of them could constitute the social program. Pertinent questions to determine which proposal to approve or to emphasize would be: What improvement in nutrition would be achieved by this method? How speedily? Which proposals are most feasible? The most desirable socially?

A. Higher incomes:

1. Increased employment and higher wage rates among low-income village and city groups.
2. Increased farm incomes (including suitable programs of food production for family use).
3. More adequate relief allowances covering not only food but all essentials for those dependent on society for support.

B. Decreased processing and distribution costs of essential foods:

1. Promotion of inexpensive methods of distribution of all basic foods.
2. Production and marketing of low-cost forms of nutritionally desirable foods, as dry skim milk, soybean, and peanut products, etc.
3. Elimination of laws that discriminate against desirable foods and increase their cost of distribution.
4. Elimination of excise taxes on food.
5. Elimination of price-maintenance measures and other restraints upon trade.

C. Changed scale of values governing family expenditures, giving more prominence to food.

D. Provision of essential foods wholly or in part at community expense.

1. Free lunches for all school children.
2. Participation in the stamp plan by all families with children.
3. Low-priced milk for all families with children.
4. Suitable lunches at cost to workers in industry.

III. The resources of many families in the lower-income groups are inadequate to provide nutritionally satisfactory diets in present circumstances, but not all of the inadequate diets of this country are found among low-income groups. To what extent should we undertake the improvement of diets at all income levels through education in careful food preparation, wise selection of food purchased, and by suitable programs of home production, especially in villages and on farms?

A. What progress is possible through more effective education in food selection and preparation adapted to needs of the various population groups and coupled with timely market information?

B. How important is home food production in rural areas in a program designed to improve nutrition?

C. To what extent can home-food production programs be promoted through:

1. Fostering more satisfactory owner-tenant relationships, including land leasing arrangements that will permit more extensive food production for family use?

2. Developing of attitude that a suitable home-food production program is not a side-line of the farm enterprise, but an integral part of the whole?
3. Promoting long-time planning for food production on individual and community basis?
4. Providing more adequate community facilities, such as cold-storage and freezer lockers, canning kitchens, drying ovens?

IV. Inasmuch as educational processes tend to work slowly, and changes in power to purchase food do not bring marked and speedy results in dietary adequacy, would it be economically feasible and socially desirable to undertake certain public health measures:

A. Fortification of all staple foods with minerals and/or vitamins?
B. Development of low-cost complete-ration mixtures of foods to supplement customary diets?

SUMMARY OF DISCUSSION

The delegates invited to consider and make recommendations to the Conference on the question of economic policy and social responsibility included persons with very diverse viewpoints and interests—economists, social workers, nutritionists, teachers, extension workers, homemakers, and representatives of farm, labor, and "professional" consumer groups. To insure some common understanding of the problem, time was taken at the first session to present briefly certain factual material against which the discussion of the agenda might be focussed. These included a statement of the dietary situation in the United States, and some factors affecting it, by Dr. Hazel K. Stiebeling, of the United States Bureau of Home Economics; a summary of the outlook for income and prices, by Dr. Faith Williams of the United States Bureau of Labor Statistics; and the significance to nutrition of food processing and distribution costs, by Dr. Donald Montgomery, Consumers' Counsel, United States Department of Agriculture.

The recommendations, hammered out in true democratic fashion by debate, discussion, motion, and vote, were presented in full to the Conference in assembly. To do less would be to resort to meaningless generalities, since the topic assigned was extremely broad—in fact, there might well have been as many sections on this one topic as were set up for considering all other aspects of nutrition. No single delegate would subscribe in full to all details in the statement. There was difference of opinion as to the relative importance, feasibility, and desirability of many of the specific recommendations. Nevertheless, there was unanimity of opinion that the recommendations as a whole reflect the sense of the section meeting.

The section recognized that to combat malnutrition there must be increased production and consumption of the foods that are rich in those nutrients now consumed in less than adequate quantities. This implies increased power to purchase and produce foods for family use. To this end the section indicated several steps that

might be taken to increase the real incomes of the lower economic groups in villages, cities, and on farms.

Suggestions were also made for increasing the supply of essential foods. Measures were pointed out for the reduction of costs of processing and distribution and changes needed in the market to increase the efficiency of the consumer in selection. Direct consumer subsidy in the form of free school lunches, the Food Stamp Plan, penny milk for school children, and "nickel" milk for families were believed to have an important place in correcting malnutrition.

There was a recognition, however, that high food expenditures alone will not guarantee adequate nutrition. Education is needed not only in the choice and preparation of food but also in food buying and home production.

It was also agreed that provision for systematic research should be made as a basis for developing economic policy and social programs for the improvement of nutrition.

The discussion indicated diversity of viewpoint on detail, but agreement in general on the recommendations as a whole. The set of recommendations must be considered as a serious report by a lay group on the impact of our economic and social organization on nutrition coupled with suggestions for improving the situation.

DISCUSSION

The Dietary Situation in the United States

Hazel K. Stiebeling [1]

We here in the United States have been used to thinking that we have a relatively high level of nutrition. This comes from comparing conditions in this country with those prevailing over large areas of our globe. Compared with the standards set by modern science, however, our level of nutrition is far from high.

A large proportion of families here have food supplies that fail to furnish the quantities of nutrients recommended by the National Research Council's Committee on Food and Nutrition. This is shown by comparing these allowances with the nutritive value of diets studied in the two large-scale studies made during the last 7 years by Federal agencies. These studies indicate, for example, that the diets of only one-fourth of the village and city families and about one-half of the farm families probably would meet the suggested calcium standard of 0.8 gram per man per day, and even fewer would have diets furnishing (in the uncooked food) as much as 1.8 milligrams vitamin B_1 or 2.7 milligrams of riboflavin, the recommended allowances. Local dietary studies give much the same picture.

Unfortunately we have no large-scale clinical studies to give us direct evidence of the prevalence of malnutrition, but the small-scale studies that have been made corroborate this. Furthermore, we have the opinion of qualified medical authority that the prevention and treatment of nutritional diseases constitute one of the greatest medical problems.

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[1] Bureau of Home Economics, U. S. Dept. Agriculture

Many families with grossly inadequate diets recognize that they would fare better were their diets improved. But a large proportion of the millions of families with moderately poor diets are unaware that food could make a difference, and that their strength, alertness, working efficiency, and joy in living could be enhanced through improved nutrition.

To raise levels of nutrition in this country, it is necessary to have (1) a widespread appreciation of the importance of adequate diets, (2) a working knowledge of what constitutes an adequate diet, and (3) economic resources that would enable people to acquire adequate diets.

Illustrating these points is the accompanying chart (Fig. 1) showing grade of diet as related to food expenditures and food choices. The amount spent for food per person per week is plotted on the horizontal axis; percentage of families on the vertical axis.

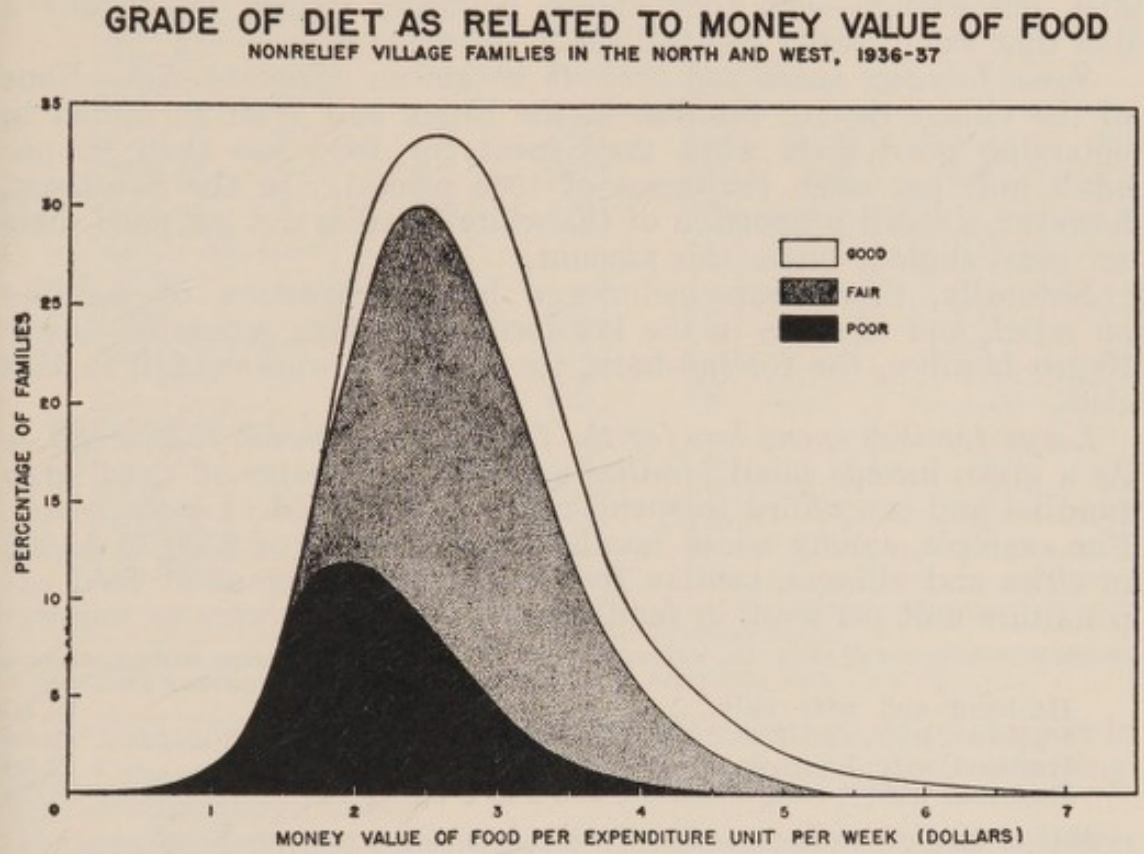

FIGURE 1.—Source; Stiebeling, Hazel K. "You Too Need Better Food, *Land Policy Review*, Vol. 4, No. 6, June 1941. Bureau of Agricultural Economics, U. S. Department of Agriculture.

The upper curve shows how nonrelief white native-born families living in villages of the North and West were distributed by expenditure for food. It is obvious that, of the nonrelief families, very few spent less than $2 a person a week for food, and few, more than $4. The great majority of families spent between $2 and $4 a week for the food of each person.

The shadings in the area of the chart bounded by the frequency distribution curve and the horizontal axis indicates quality of diet—black areas indicate diets classed as poor; medium gray, the fair; and white, diets that were classed as good. The chart shows that among families affording $4 or more a week for the food of each

family member, practically none had diets rated poor, but by no means did all of these families have diets that could be rated good. In the in-between section—that representing the families spending between $2 and $4 a person a week for food—all three shadings appear, i. e., some families selected diets that could be rated good; others had diets that were only fair; and still others, diets that had to be classed as poor. That section of the chart representing families spending less than $2 a person a week for food is almost entirely blank, i. e., the diets of almost all of these families were rated poor.

About $2 per man per week could buy a fully satisfactory diet at the time this study was made (and can at present prices). You will notice that some few families succeeded in getting good diets for this outlay—still others got fair diets. But you also will notice that half of the families with poor diets in this nonrelief group were among those spending enough for food—not merely to buy a fair diet, but enough—had they known how and wished to—to buy a diet that would really be excellent in nutritive value.

Some families spend too little to obtain an adequate diet.—None of the village or city families in the North and West succeeded in obtaining good diets when they spent for food less than $2 per adult unit per week (in terms of 1936 prices). In the Southeast, however, a small proportion of the white families did get good diets for sums slightly under this amount.

Naturally, this group includes a large proportion of families on relief, and of those in the low-income brackets generally—many Negro families, the foreign-born, the unskilled workers fall in this class.

Large families spend less for the food of each person than small.—At a given income small families are relatively better off than large families and can afford to spend more for the food of each person. For example, among white families with incomes of $500 to $1,000 in cities and villages, median food expenditures per adult food expenditure unit per week in families of different size were as follows:

	Median food expenditure per unit per week
Husband and wife only	$2.80
Husband, wife, and 1 or 2 children under 16	2.30
Husband, wife, 1 person 16 or older, and 0 to 3 others	2.00
Husband, wife, 1 child under 16, and 2 to 5 others	1.70

But at any given income level there is a wide range in food expenditures even among families of the same size and composition.—This may be seen in table 4 which gives the food expenditures per adult unit per week below which were one-fourth, one-half, and three-fourths of the village and small-city families.

This variation helps to explain the difference in the quality of diets among families similar as to income and family composition.

Many families spend enough but do not obtain an adequate diet.—It is estimated that about three-fourths of the nonrelief families in villages and cities included in the Consumer Purchases Study spent more than $2 a person a week—about enough to obtain fully adequate diets if care is taken in food selection and preparation. With food expenditures above a certain minimum, families may have good, fair, or poor diets, according to the wisdom with which

TABLE 4.—*Food expenditures of village and small-city families in relation to family composition and income: Estimated food expenditures per adult unit per week below which were one-fourth, one-half, and three-fourths of white and Negro village and small-city families,*[1] *1936–37*

[Nonrelief families that include a husband and wife, both native-born]

Family composition and income class (dollars)	White families			Negro families		
	Food expenditures per adult unit[2] per week below which were—			Food expenditures per adult unit[2] per week below which were—		
	One-fourth of families	One-half of families	Three-fourths of families	One-fourth of families	One-half of families	Three-fourths of families
Husband and wife and:						
No others:						
0–499	$1.70	$2.30	$2.90	$1.20	$1.50	$1.90
500–999	2.30	2.80	3.40	1.90	2.30	2.70
1,000–1,499	2.70	3.40	4.00	2.40	2.90	3.30
1,500–1,999	3.10	3.70	4.50	2.80	3.40	3.90
2,000–2,999	3.30	4.00	4.90	----	----	----
3,000 or over	3.50	4.30	5.20	----	----	----
1 or 2 children under 16:						
0–499	1.50	1.90	2.50	1.00	1.20	1.50
500–999	1.90	2.30	2.80	1.30	1.70	2.00
1,000–1,499	2.30	2.70	3.20	1.80	2.00	2.40
1,500–1,999	2.60	3.00	3.60	2.10	2.40	2.70
2,000–2,999	2.90	3.30	4.00	----	----	----
3,000 or over	3.20	3.60	4.30	----	----	----
1 person 16 or older and 0 to 3 others:						
0–499	1.20	1.50	2.00	.80	1.00	1.20
500–999	1.60	2.00	2.40	1.10	1.40	1.70
1,000–1,499	2.00	2.40	2.80	1.30	1.70	2.10
1,500–1,999	2.20	2.70	3.10	1.60	2.10	2.40
2,000–2,999	2.50	3.00	3.50	----	----	----
3,000 or over	2.60	3.20	3.80	----	----	----
1 child under 16, and 2 to to 5 others:						
0–499	1.00	1.30	1.60	.60	.80	1.00
500–999	1.40	1.70	2.00	.90	1.20	1.40
1,000–1,499	1.80	2.10	2.40	1.20	1.60	1.80
1,500–1,999	2.00	2.40	2.70	1.50	1.90	2.20
2,000–2,999	2.30	2.70	3.00	----	----	----
3,000 or over	2.50	2.90	3.20	----	----	----

[1] Source of data: Food-estimate schedules, Consumer Purchases Study.
[2] Food-expenditure unit. For scale of relative expenditures for food among persons differing in age, sex, and activity, see page 372, United States Department of Agriculture Misc. Pub. 405.

their food dollar is invested (table 5). Of course, the less there is to spend, the greater is the need for skill in meal planning, in food buying, and in meal preparation.

As incomes go up, food expenditures go up, although at a slower rate than do expenditures for other goods and services. With more money for food, more of the relatively expensive dairy products, meats, vegetables, and fruits are bought—foods that tend to provide nutrients most frequently lacking in low-cost diets.

Poor diets are more likely to be found in villages and cities than on farms.—Among the nonrelief families included in the Consumer Purchases Study, 35 percent of those in cities and villages had poor diets as compared with 25 percent on farms.

The superiority of many farm diets may be ascribed to the large share (an average of about two-thirds) of their food supply which is farm furnished. These home-produced foods include chiefly milk, eggs, and vegetables, nutritionally important foods that tend to be used in relatively small quantities by low-income groups in villages and cities.

TABLE 5.—*Grade of diet in relation to family composition and income; percentage of households having diets of specified grades, village and city families in 2 regions,*[1] *1936–37*

[Households of white nonrelief families that include a husband and wife, both native-born]

Family composition and income class (dollars)	North and West [2]				Southeast			
	Households	Proportion of households with diets graded [3]—			Households	Proportion of households with diets graded [3]—		
		Good	Fair	Poor		Good	Fair	Poor
Husband and wife and:								
No others:	*Number*	*Percent*	*Percent*	*Percent*	*Number*	*Percent*	*Percent*	*Percent*
500–999	89	19	48	33	15	13	60	27
1,000–1,499	106	34	43	23	21	52	24	24
1,500–1,999	62	35	49	16	15	40	33	27
2,000–2,999	67	37	50	13	14	21	58	21
1 or 2 children under 16:								
500–999	125	23	38	39	37	19	32	49
1,000–1,499	219	23	50	27	35	37	43	20
1,500–1,999	225	27	58	15	41	32	32	36
2,000–2,999	173	31	56	13	26	53	35	12
1 person 16 or older and 1 or no others:								
500–999	56	16	46	38	9	0	44	56
1,000–1,499	104	17	51	32	27	30	26	44
1,500–1,999	93	16	59	25	15	40	47	13
2,000–2,999	112	24	57	19	23	26	57	17
1 child under 16 and 2 to 5 others:								
500–999	45	7	46	47	22	5	27	68
1,000–1,499	111	5	45	50	20	25	35	40
1,500–1,999	96	9	52	39	28	25	57	18
2,000–2,999	133	12	59	29	36	31	38	31

[1] Source of data: Food records, Consumer Purchases Study.
[2] New England, Middle Atlantic and North Central, Plains and Mountain, and Pacific regions.
[3] *Excellent* diets meet in all respects the specifications of the liberal standard described below. *Good* diets exceed the minimum standard by at least a 50-percent margin but by less than 100 percent in the case of vitamins. *Fair* diets meet the minimum standard in all respects but exceed it by less than a 50-percent margin. *Poor* diets fail to meet the minimum standard in 1 or more respects.
Because there were relatively few excellent diets those graded excellent and good have been classed together in this table.

	Quantities per man per day of—							
	Protein	Calcium	Phosphorus	Iron	Vitamin A	Thiamin	Ascorbic acid	Riboflavin
	Gm.	*Gm.*	*Gm.*	*Mg.*	*I. U.*	*Mg.*	*Mg.*	*Mg.*
Minimum standard	50	0.45	0.88	10	3,000	1.0	30	0.9
Liberal standard	75	.68	1.32	15	6,000	2.0	60	1.8

Source: U. S. Department of Agriculture, Bureau of Home Economics, May 14, 1941.

The question is frequently asked: "What income will support the level of food expenditures needed for an adequate diet?"

There is no simple answer to this question as can readily be seen from the foregoing discussion. For village and city, table 6 gives some idea of the kind of diet purchasable for the amounts of money generally allotted to food by families differing in size and income. This table indicates, for example, that at 1938 price levels, families of two persons with incomes of $500 to $1,000 could purchase either the low-cost or the moderate-cost good diets described in "Planning for Good Nutrition." Yearbook of Agriculture, 1939. However, families of five to eight persons probably would require incomes of $1,500 to $2,000 to enable them to purchase the same

kind of diet. Among farm families, fully as much depends on success in home production as well as purchases of family food needs as upon cash incomes.

We in this section are then faced with the task of considering the problems of, and drafting recommendations for action that will concern: (1) Families with inadequate resources. What economic arrangements and social programs could be devised to benefit these? What population groups are included in this category? (2) Families making unwise use of their resources. Is education the sole social measure needed? Or are there others?

TABLE 6.—*Diets purchasable (1938 prices) for sums generally allotted to food by families differing in size and income*

Family-income class (dollars)	Diets [1] purchasable by a family of—			
	2 persons [2]	3 or 4 persons [3]	3 to 5 persons [4]	5 to 8 persons [5]
500–999	Low cost or moderate cost good diet.	Economical fair diet or low-cost good diet.	Economical fair diet or low-cost good diet.	Poor or economical fair diet.
1,000–1,499	Moderate-cost or expensive good diet.	Low-cost or moderate-cost good diet.	do	Economical fair or low-cost good diet.
1,500–1,999	do	do	Low-cost or moderate-cost good diet.	Do.
2,000–2,999	do	Moderate-cost or expensive good diet.	do	Low-cost or moderate-cost good diet.
3,000–4,999	do	do	Moderate-cost or expensive good diet.	Do.

[1] For a description of diets, see "Planning for Good Nutrition" (Yearbook of Agriculture, 1939) pp. 321–340.
[2] 2 adults.
[3] 2 adults and 1 or 2 children under 16 years of age.
[4] 2 adults, 1 person 16 years of age or ever, and 0 to 3 other persons.
[5] 2 adults, 1 child under 16 years of age, and 2 to 5 other persons.

Source: U. S. Department of Agriculture, Bureau of Home Economics, May 12, 1941.

STATEMENT BY DR. FAITH M. WILLIAMS [1]

I know that you must have been thinking as you listened to Miss Stiebeling's figures on the nutritional content of customary diets in 1936 that incomes have improved considerably since that time and that diets must have improved along with them. It is, of course, true that there has been a marked improvement in the Nation's income since the low point in 1932. The total national income (income paid out) in 1932 was 39 percent below the 1929 level.

Since that time marked changes have occurred in the operation of our economy. There was a gradual recovery in both employment and income from 1932 to 1937 when levels comparable to those prevailing in 1930 were attained, followed by a sharp drop in 1938, and a gradual improvement in the spring and summer of 1939. Since the fall of 1939, increases in employment and income have been sharply accelerated, and we now find ourselves at levels equal to, and in some industries surpassing those prevailing in 1929. From August 1939 to March of this year employment has increased by about 2⅓ million. In March of this year the total number of wage and salary workers in nonagricultural employment was somewhat above 31 million as compared with an employment of less than 28

[1] Chief of Division of Cost of Living Studies, U. S. Department of Labor.

million in March 1939 and an average of less than 31 million for the year 1929. Employment in manufacturing, in March, was somewhat above 11 million, the highest ever recorded.

These new levels of employment have not, however, eliminated unemployment. Estimates of the number of persons seeking work in the month of March 1941 averaged from 7½ to 9 million. There has been a very great increase in the labor force in the interval since 1929, a greater increase than would be regarded as normal for a population the size of that of the United States, because of the particular age composition of our population. At the present time, there are more young people coming from schools and colleges who want to go into offices and factories and jobs of other types than ever before. There is no current official estimate of unemployment. The latest official figure is that of the Census for April 1940, 8,450,000. Employment in business and industry has increased since that time by more than 2 million, but our labor force has also increased in the interval. The number of young men taken into the defense training camps has been somewhat greater than the normal increase in the labor force, but meanwhile employment in the WPA has been decreasing. The number employed on WPA projects for the fiscal year 1940–41 averaged 1,700,000; in May 1941 there were 1,500,000 and by June it will be down to 1,350,000, and the estimate for the coming year places it at a considerably lower figure.

The total national income in the period to which Miss Stiebeling's figures on nutritional content of diets apply was about 64 billion dollars, a decline of about 16 billions from the 1929 figure. Not all the decline in the dollar income figure can be estimated to be a decrease in the production of goods, as prices fell off rapidly during the period and the Bureau of Labor Statistics' cost of living index in 1936 was 18 percent below its 1929 level. By 1940 income had increased to almost 70 billion dollars, and there had occurred at the same time an increase in the living costs of large city families of only about 2 percent since 1936. The last 6 months of 1940 witnessed a sharp rise in income which is still continuing. In terms of the national well-being, it is much more accurate to think in terms of per capita rather than in terms of aggregate income, remembering that our population is still increasing and to take account of changes in the purchasing power of money. It is impossible to define exactly the changes which have occurred in the purchasing power of the dollar of the average family in the United States. There are large segments of the population for which we do not have cost-of-living indices, but the material at hand for large city and for farm families indicates that the per capita real income receipts in March of this year may have been above the 1929 level.

When we ask ourselves what effect this increase in income will have on the diets of American families, we must first examine changes in food prices as compared with changes in other prices. Food prices dropped more than other prices in the period from 1929 to 1932 and they have risen more than other prices in the period since that time. In view of the complexities and uncertainties of the entire world situation, it is impossible to prophesy price movements very far into the future. The Bureau of Labor Statistics recently estimated that

living costs would probably increase by as much as 3 percent between March of this year and the early autumn. Our study of recent increases in wholesale prices of clothing and house furnishings intended for fall delivery, and probable increases in food prices and in rents leads us to believe that increases in food prices in this period will, on the average, be larger than increases in average prices of goods and services of other types.

The analysis which I have been able to make of distribution of families according to income leads me to believe that the income increases which have occurred since 1936 and those which are likely to occur this year will not be great enough to wipe out the problem of malnutrition in the United States. In spite of the increases which are occurring in production and in income, there will be, for various reasons, large numbers of unemployed in the next year and large numbers of low-income families among the employed.

As regards the employed families whose incomes have been increasing, when we talk about how much families spend for food and how much we can expect food expenditures to increase with increases in income, we cannot proceed until we have in mind all the other things that city people must spend money for. It not infrequently happens that family spending is planned on the basis of food budgets which provide all the nutrients necessary for an adequate diet along with much less adequate provisions for other aspects of family living. However, pressures upon the money incomes of families living in American cities at the present time are tremendous. Certain expenditures for clothing, housing, commercial recreation, and personal services have become essential if a family is to be well-adjusted in its community, however much we might wish the situation were different. According to a study of employed wage earners and clerical workers in 1934–36, more than 40 percent of total family expenditures went to food at the lower economic levels; less than 30 percent at higher levels; about 26 percent for housing at both the lower and higher levels; the proportion spent for clothing was larger at the higher economic levels; that for medical care slightly larger; the proportion for automobile was considerably larger at the higher economic levels; that for household operation was also larger, but that for personal care was about 2 percent at all levels. There are obviously many things of this sort we must consider when we talk about the economics of food consumption.

Dr. Stiebeling's chart on differences in the purchases of different kinds of food at given income levels provides as good an estimate as we have of the effect on food purchases of higher incomes since we do not have data which show what families do with their money when their incomes are increased. We know something about what they would do from things that happened in the retail markets. Family expenditures for all goods and services at successive income levels give a clue as to what expenditures will be when incomes rise.

Chart—Fig. 2 shows the difference between expenditures of urban families with incomes of $600–$900 and $2,700–$3,000. The bars are arranged in the order of the magnitude of the proportional differences. The greatest difference between the 2 income groups was in gifts and contributions which were almost 9 times as great at the higher income level as at the lower level. Expenditures for vocation

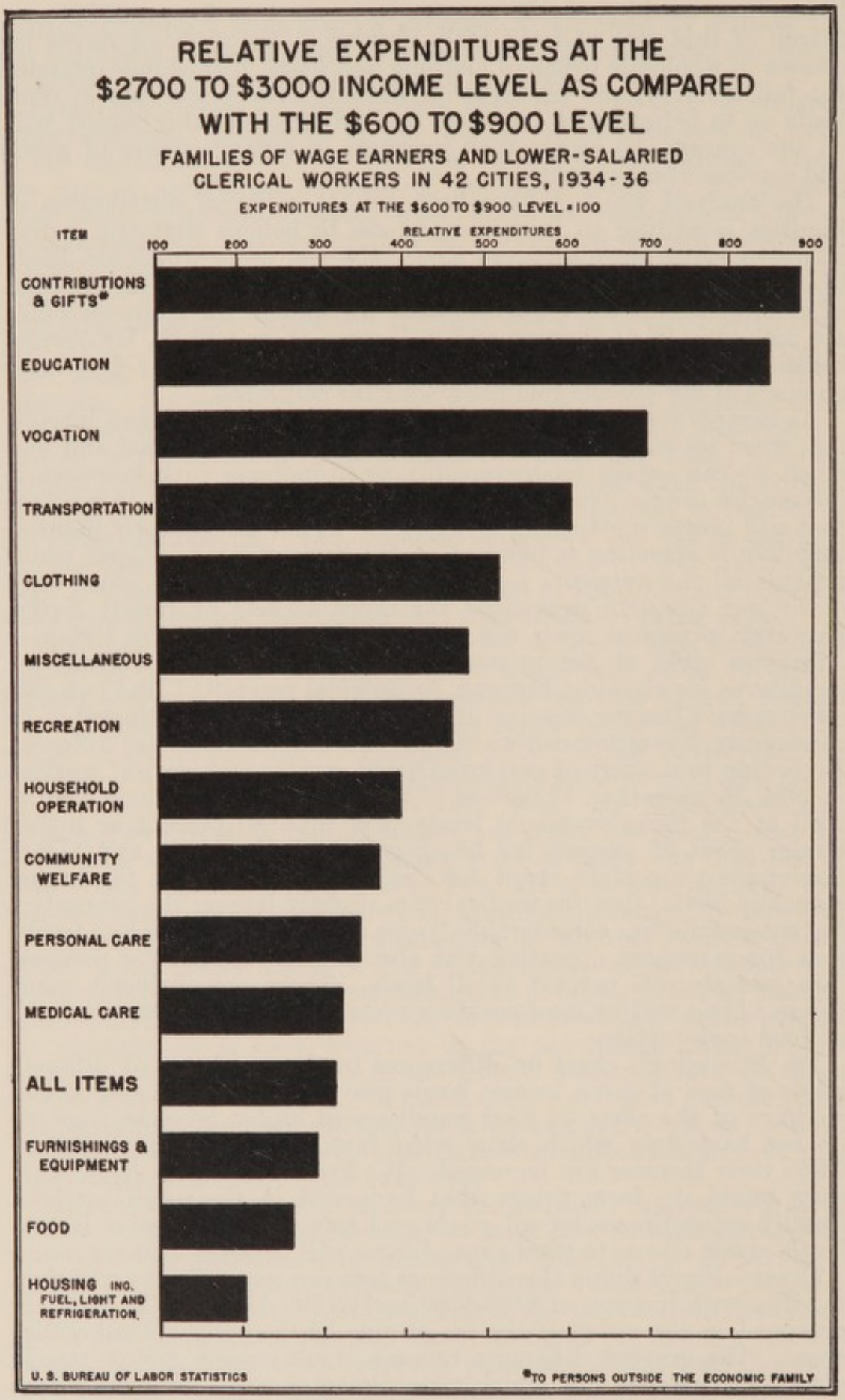

FIGURE 2.—Source: "Expenditure Habits of Wage Earners and Clerical Workers," *Monthly Labor Review*, December 1939, Vol. 49, No. 6.

and education were 7 and 9 times as great at high as low. Transportation was 6 times as great with much larger expenditures for automobiles, 5½ or 6 times as much for automobile purchase and operation by families at the higher than at the lower levels, but the food expenditures were only about 2½ times as great at the higher income level. One reason for this is that the families at higher income levels were smaller families. Another reason is the pressure on the incomes of urban families for other goods and services that make living more attractive and which compete with increases in food expenditures.

In my opinion all these figures reinforce other data which indicate that we should develop a program which will decrease the cost of bringing food from producer to consumer, which will educate consumers as to food values and the importance of adequate diets, and which will actually subsidize the consumption of protective foods by certain groups within the population.

Processing and Distribution Costs

D. E. Montgomery[1]

Gains toward better nutrition largely must be made among low-income families. If the processing and distributing trades are to contribute to that result, it is clear that their contribution must lie in the direction of promoting greater economy for the low-income food buyer. Needy consumers must be able to get more nutritive value for their money, which means that a larger part of their food money must be spent for actual food and the nutritive quality that goes with it. A smaller part must be spent for the supplementary services and quality distinctions that lack nutritive value. Educators will be able to give attention to the whole range of family needs and may urge in some cases that a larger share of the family income be spent for food; it is doubtful that food processors and distributors can safely exert similar pressure without knowledge of the non-food needs of their customers. Therefore, we are here concerned with what processors and distributors can do to help limited funds go further in buying more and better nutritive value in the form of foods.

Without considering whether retail costs of food have been, or are likely to be, affected more by changes in farm prices than by changes in the processing and distribution margin, it may be noted that this margin in 1940 accounted for 60 percent of the consumer's retail food cost. On prepared cereals and canned goods it took 70 to 80 cents of the consumer's food dollar. On meats and eggs it ordinarily takes less than 50 cents. Obviously the margin is, on the whole, an important part of the consumer's final food cost.

In recent years there have been processing and distribution developments that tend toward greater economy for the food buyer, and there have been developments in the contrary direction. Larger retail stores; self-service; better physical handling of fruits and vegetables

[1] Consumers' Counsel, U. S. Dept. of Agriculture.

over long distances; better methods of processing and packaging; increased use of grade labeling; and new methods of pricing and selling milk, all appear to be moves toward greater economy. In the other direction, there has been a trend toward costly packaging of staple foods; increased emphasis on fancy quality; promotion of expensive forms of processing; multiplication of high-priced specialties in cereals, dairy products, and meats; expansion of price-fixing activities through legislation and privately; and employment of discriminatory legislation against various forms of retailing.

Under each of the subheads outlined in the prepared agenda, I suggest some of the possibilities of greater economy indicated by experience to date.

(1) Fluid-milk prices can be lowered by wider use of economies already put to use in some markets. Store sales cost less than home delivery, but in only 137 of 250 cities surveyed by our office last fall could consumers buy milk more cheaply at stores than at the doorstep. Half-gallon and gallon containers are saving consumers an average of 2 cents a quart at stores, 3 cents a quart delivered, where they are being used; but nearly 200 of the 250 cities are not using them. Stores and chains specializing in the handling of large quantities of milk and dairy products appear to effect real savings in the relatively few cities where they have been developed for that purpose. It seems likely that sales direct to consumers at pasteurizing plants might effect substantial saving in many localities. Only 23 of the 250 cities reported such sales.

Better terminal-market facilities for the wholesale handling of fruits and vegetables might cut food costs in many cities. Too often the facilities now used are relics of a past day, unsuited to present needs, unfit for handling of human food, overcrowded, insanitary, and inefficient.

For low-cost retailing of fruits and vegetables more public attention might be given to the possibilities of farmers' markets, push-cart markets, municipal markets. For the better handling of perishable products in large cities, it is possible that surplus marketing facilities commercially or municipally operated might dispose of excess supplies at special prices.

The bulk shipment of some fruits and vegetables deserves attention as a means of reducing handling costs at both ends. Oranges for juice consumption, for example, can be carried and marketed at less cost than oranges for table use.

(2) Dry skim milk is given in your outline as an example of a food providing high nutrition at low cost. It has not been widely distributed as a staple article of food. The sale of fluid skim milk was reported to us in only 36 of the 250 cities in our milk-price survey, but where sold it was priced (usually in gallon lots) at an average of 4¾ cents a quart, some 7 cents less than the store price of whole milk in the same cities.

Generally speaking, the market for lower grade foods does not seem to be receiving the attention it deserves, both for better nutrition and for larger farm income. Grade labeling of such foods would serve as a guarantee of suitably low prices, and develop a steady reliable source of supply for great numbers of economy buyers.

Chain stores are experimenting with grade-labeled canned goods, but with one noteworthy exception are widely omitting the label on the grade C quality. Consumer cooperatives are handling all grades. I know of no important use that is being made of Government grades on meats below the good grade, although well over half of all beef, for example, falls below that grade.

Egg customers are more eagerly solicited for the premium grades at premium prices, although it has been found that grade B will regularly outsell grade A when both are described. Many large retailers do not sell eggs by grade at all.

Ability to identify lower grades is especially important to consumers when, as now, food prices go up, because the increase usually is much less on the lower grades. From August 3 to December 7, 1940, top grades of live steers went up $3.70 per hundredweight, while medium and common grades went up only 90 cents per hundredweight. Between April and November 1940, best white eggs in New York went up 18 cents a dozen, lower grades 6 cents. There was a saving on the lower grade of 11 cents a dozen in April and of 25 cents in November.

Widespread use of grade labels on many kinds of foods would enable low-income consumers to concentrate their purchases on brands that are found to stand for economy as well as reliability. Today they must be guided largely by guess or by reputation. Both are likely to be expensive.

Such food grades as are now available need to be examined with respect to their value as guides to better nutrition. Some of them emphasize superficial characteristics which acquire market value in part because essential values are not known.

The possibility of processing and salvage operations to assure consumption of the lower grade fruits and vegetables now frequently withheld from market both by private action and by State and Federal regulation, needs attention.

(3) Discriminatory laws and regulations erect trade barriers across the lines of distribution for many foods. Trucking restrictions, license fees and taxes directed against special types of retailers, from push-cart peddlers to giant markets and interstate chains, may and often do have the purpose of restricting the flow of foodstuffs into consumer hands.

Milk and cream sanitary regulations in many areas favor the locally produced product on the ground of greater protection of health. Restrictions in many areas probably go beyond what is necessary to protect health. Such restrictions add to the cost of milk, hold up its price, and contribute to the inability of many families to buy the milk they need. There is no national system of standards and inspection by which all communities might assure themselves of perfectly wholesome milk and cream and yet be able to buy it on the most economical basis.

Margarine is legislatively the most put upon of all food products. The Federal Government levies special license fees on manufacturers, wholesalers, and retailers on this product. Sixteen States add fees of their own. The Federal Government and 9 States levy excise taxes on all margarine; 15 others tax some kinds of margarine. In at

least 5 States the burden is such that sale of the product is to all intents and purposes prohibited.

(4) The excise tax levied by the Federal Government on uncolored margarine is ¼ cent per pound; on colored margarine, 10 cents per pound. The excise tax on all uncolored margarine is 5 cents a pound in three States, 10 cents a pound in four, and 15 cents a pound in two. In States taxing only certain kinds of margarine the taxes are 10, 12, and 15 cents a pound.

Sales taxes of from 1 to 3 percent, mostly 2 percent, are levied on all foods sold at retail in 18 States; on all but 5 foods in 1 State; and on all but 10 foods in another.

(5) In 33 States unfair sales laws have been enacted prohibiting sale of foods by distributors at less than cost. In many of them distributors must add a specified percentage to actual invoice cost. Experiments in economy methods of distribution are not encouraged by this type of legislation. In Colorado and Connecticut Federal grand juries have recently voted indictments of groups of retailers for using such laws to fix prices privately agreed upon.

Milk is widely price-fixed by law. The Federal Government fixes prices paid to producers in 20 markets. Twenty States fix producer prices; 18 of them also fix the price at which milk distributors sell to consumers. Fluid milk prices are too high for many low-income consumers. Nutrition of the population suffers if prices are fixed higher than necessary to maintain adequate supplies of good milk. Fixed producer prices are not always confined to that purpose. It is doubtful that fixed distributor prices ever contribute to that end or are likely to promote better nutrition. In several States, consumers are complaining that margins are too high, when distributors' prices are fixed by the State.

The full force and effect of private monopoly in food processing and distribution is now under examination. The Department of Justice is rapidly obtaining indictments in these fields as a result of its food investigations. Final effect of these actions upon the cost of food to consumers will depend upon success of the cases in court and upon the extent of action permitted by the funds available to the Antitrust Division. The whole subject is, of course, vitally important to a national program for better nutrition.

To summarize: if processing and distribution are to contribute to better nutrition among families that most need it, that contribution is most likely to be made through:

1. Greater attention to finding and using economy measures suited to the needs of the low-income buyer:
2. Wider distribution and better marketing of low-cost types and grades of foods;
3. Elimination of discriminatory and restrictive measures imposed by law and by private combinations and monopoly;
4. In addition, the possibility on the one hand of Government assistance and on the other of consumers cooperation in promoting new economies also deserve your consideration.

RECOMMENDATIONS

I. Improved Incomes for Low-Income Families.

In order to obtain higher incomes for city and village groups, there must be higher wage rates and increased employment in many sectors of our economy. In spite of the great increases in employment since 1939, several million persons are still seeking work and many millions more are receiving incomes insufficient to supply nutritionally adequate diets as well as other necessaries of life. A large and continuing expansion of industrial production is needed to provide employment.

In view of the extent of unemployment at the present time and the low level of relief allowances, we oppose reduction in Federal non-defense expenditures for employment and relief in the coming fiscal year. Relief allowances to cover not only an adequate food supply but also other items necessary for family living should be provided in all communities for those dependent wholly or in part on society for support.

Long-range planning for public and private employment is needed to complement and offset fluctuations in economic and defense activity. The conclusion of the present emergency and the consequent decline in production of war materials will require extensive readjustments before normal production is resumed. Plans for public and private employment, that can be put into effect as the occasion requires, are therefore particularly important in order that health may be maintained as the emergency effort is completed.

Real income is threatened by price advances due to increased demand for and scarcity of consumer goods. As long as there are unemployed workers and surpluses, increased production of consumer goods should be encouraged—with Government subsidies if necessary to the extent that this does not hazard the Nation's defense effort.

Labor organization affords a democratic method of improving the level of living of wage earners. Free collective bargaining must be maintained and extended among all workers, including those at the lowest income levels.

The coverage of the Federal Fair Labor Standards Act should be extended to those groups presently excluded. Workers in intra-State employment should be protected by State legislation which would be correlated with the Federal Act and would provide similar standards.

Equality of opportunity, which is the essence of our democracy, requires elimination of barriers against the employment of Negroes and other minority groups whose nutritional problems now are acute because of very low incomes. Federal, State, and municipal governments should be in the forefront of such progress.

Inequitable taxation bears with disproportionate emphasis on low-income families and further lowers their ability to purchase protective foods and other necessaries of life. As a defense against malnutrition the tax burden on the lower income groups should be decreased. No taxes should be levied on incomes insufficient to provide an adequate family diet. Sales and other excise taxes on food and other necessaries of living of low-income groups should be eliminated.

Programs for increasing farm incomes should emphasize raising the incomes of the families at the lower economic levels. Increased

opportunities should also be provided for supplementary earnings by farm workers with proper safeguards for labor standards.

Although farm families tend to have better diets than other occupational groups, there is, nevertheless, considerable malnutrition among persons living on farms. The programs for increasing production of foods needed for home use of the Extension Service, Farm Security Administration, and other groups should be maintained and extended.

The coverage of the Social Security Act should be extended to include domestic and agricultural workers, especially those employed on commercialized and factory-type farms. There should be provision for benefits to workers temporarily or permanently disabled on account of sickness or accident.

II. Increased Supply of Protective Foods and Reduced Costs of Processing and Distribution.

We believe it is essential to increase the supply of foods and nutrients, and to accomplish this we recommend:

A. That the Government and industry, including agriculture, should give increased attention to trends in consumer demand and to the supply of foods needed to insure an adequate diet for all families. Government programs should continue to minimize disorganization in agriculture, and at the same time, seek to eliminate idle resources. From time to time the Federal Government may find it necessary to put a floor under the wholesale price of some foods in order to get necessary expansion. It is recognized that the program of desired expansion may necessitate the Government's subsidizing either consumption or production or both.

B. That surpluses on hand, including so-called unmarketable grades or sizes of fruits and vegetables, should be saved for consumption by suitable processing or distribution in fresh form, by means of Government subsidies if necessary.

C. That the Government should take the initiative in encouraging industry to bring on the market low-cost, highly nutritious foods in forms acceptable to consumers, such as soybean, peanut, and milk products. No milk nutrients should be wasted. Skim-milk products, dry and fluid, are vitally needed and should be put on the market at low price.

D. We recommend that dietary essentials be secured from properly planned meals of natural food materials. Fortification of foods with minerals and vitamins should be undertaken only to the extent that scientific research indicates that such practice is in the public interest and provides an economical method of improving nutrition.

E. We favor the following methods of increasing efficiency in market selection:

1. The extension of grade labeling of foods and the revision of Federal grades of fresh fruits and vegetables to reflect differentials in nutritive value.
2. The simplification of size and shape of container in order to reduce consumer difficulty in comparing prices per unit.

3. The provision of more information in advertising to facilitate the identification and comparison of the quality of food and size of container.
4. The provision of information on food labels in simple standard terms as needed to identify and compare quality and quantity of contents even beyond that required by present Federal law.
5. The provision by retailers in stores of more information on the relative economy of foods.
6. Increased attention to food and drug advertising by the Federal Trade Commission to check all forms of misrepresentation, which may take money needed for food under false pretenses.
7. Development and increased use of consumer standards and grade in retail sale of clothing and other consumer goods in order that consumer's real income may be increased. To further the end we recommend a Government Bureau of Consumer Standards to set up minimum standards for consumer goods.
8. Action by local organizations to check misrepresentation in sale of food including weights and measures.

F. In order that the interests of low-income consumers can be better served, we urge the food industries to avoid every unnecessary expense and to seek and develop more efficient and cheaper methods in the processing and distributing of foods.

1. Every effort should be made to reduce the spread between the farm and retail prices of fluid milk.
2. Fruit and vegetable marketing facilities should be adapted to modern methods of mass distribution. Special types of markets for perishable foods should be developed to meet the needs of economy buyers. Surplus perishables that might otherwise be wasted should be moved rapidly through direct outlets at prices to make them accessible to low-income consumers.
3. Special-interest groups, through private combinations and pressure on public authority, have erected interstate or regional trade barriers which reduce the opportunity for efficient distribution of foods into consumers' hands, such as discriminatory administration of milk ordinances. We recommend elimination of such restraints.
4. We oppose the following State or Federal legisiation: (a) Laws which discriminate against wholesome nutritive foods, such as taxes on colored and uncolored margarine; (b) laws or regulations which favor food products according to the locality in which they are produced, such as laws which permit eggs to be labeled as fresh only if they are produced within a certain area; (c) special taxes to place

special kinds of retailers at a disadvantage with others; (d) excise, sales, and processing taxes on foods; (e) price maintenance and unfair sales laws which permit and encourage private price-fixing without public control; (f) State marketing or prorate acts which tend to increase monopoly control and raise prices of foods to consumers.

5. We believe that regulations to fix retail prices of milk perform no service to milk producers since they discourage economy in the handling and sale of this essential food and protect inefficiency and restrict consumption. We recommend repeal of these laws.
6. We recommend that adequate funds and authority be assured to the Antitrust Division of the Department of Justice to permit it to continue investigations and prosecutions of monopoly in the processing and distribution of foods. We also recommend that the appropriations of the Food and Drug Administration be increased to enable better consumer protection by closer watching of quality and economic practices.
7. We strongly support consumer cooperatives as a means of helping low-income families and producers' cooperatives as a method of decreasing marketing costs.

III. Provision of Essential Foods Wholly or in Part at Public Expense.

To insure the consumption of essential foods by children and by those families with most limited power to purchase or produce for themselves, we recommend the provision of certain foods wholly or in part at community expense:

A. Provision of free school lunches in low-income areas. Wherever free school lunches are provided they should be available to all children; the foods provided should be selected on the basis of the nutritive needs of the children and the educational opportunity thereby offered for the formation of sound food habits be fully utilized.

B. Extension of the Food Stamp Plan in all communities to all relief families and to other families whose incomes are insufficient to furnish adequate diets. The foods included should be chosen on the basis of the nutritive needs of the consumers. To the end that this be accomplished we urge that no less than 235 million dollars be appropriated to the Surplus Marketing Administration for the fiscal year 1942, and in the future such appropriations as may be necessary.

C. Federal-local programs to provide penny milk for school children and "nickel" milk to needy families should be extended to more people and more markets wherever reduced producer prices and competitive bids from handlers are obtainable.

IV. Education as a Method for Improvement of Diets at All Income Levels.

Federal and State governmental agencies and other institutions responsible for educational policies should undertake the improvement of diets at all income levels through education in good food habits and in the principles of wise food selection and preparation, and through promotion among rural people of home food-production programs suited to the area and type of farming. To make this policy effective in the long run, certain aspects of the program need emphasis:

A. Equalization of educational opportunity through Federal aid to the States; otherwise areas most in need and least able to pay will be relatively neglected.

B. Suitable teaching of good food habits should be given in the schools at all levels and to both sexes. The teaching should be adapted to the needs of various population groups and to the economic situation of the family. The educational possibilitites of the school lunch should be utilized.

C. For adult groups especially, the teaching should be coupled with timely market information and with information on measures designed to protect the consumer of foods. To facilitate the provision of such information there should be at least one Government agency devoted solely to the interest of consumers and divorced from regulatory powers with respect to food supplies and prices.

D. The education of nutritionists and others concerned with the improvement of food habits should include such work in economics and the other social sciences as to enable them to understand the economic factors in the problem of malnutrition.

E. Education for home food production among rural people must deal with the following aspects of the program:

1. Improvement of soils in certain areas where diversified production is now unsuccessful.
2. Seeds and cultivation practices adapted to local conditions.
3. Landlord-tenant relationships that encourage home food production among tenants.
4. Planning for suitable home food production not as a sideline but as an important farm enterprise.
5. Provision of more adequate community facilities for processing and conserving foods, such as community-owned and cooperatively owned cold storage and freezer lockers, canning centers, drying ovens, curing houses, etc.

V. Research Programs.

Action programs should include provision for research in order to provide the needed basic information. For example, education in food choice should be based upon knowledge of food preferences and prejudices; family food production should be promoted with knowledge of possible advantages to families; spot surveys should be made from time to time to supplement the basic data on food

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consumption and dietary levels provided by the Consumer Purchases Study.

To this end we recommend that an increase be made in Government appropriations for economic research bearing on nutrition in the Federal bureaus and in the experiment stations of land-grant colleges; and that private research foundations give increased attention to research bearing on economic and psychological factors affecting food consumption. Such investigations should be directed to the improvement of nutrition status.

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Faith M. Williams, Bureau of Labor Statistics.
Hazel K. Stiebeling, Bureau of Home Economics.
Lucy H. Gillett, Community Service Society, New York, N. Y.
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SECTION IIIa

PUBLIC HEALTH AND MEDICAL ASPECTS OF NUTRITION

Presiding, JAMES S. McLESTER, M. D., Professor of Medicine
University of Alabama, Birmingham, Ala.
Chairman

AGENDA

I. Presentation of evidence of extent of medical aspects of the nutrition problem in the United States.

A. In a joint session with subsection on relation to maternal and child health statements will be submitted by:

1. Dr. H. D. Kruse of the Milbank Memorial Fund.
2. Dr. D. F. Milam of Duke University.
3. Dr. J. H. Ebbs of Toronto (maternal problem).
4. Dr. Horton Casparis of Vanderbilt University Medical School (field study).
5. Colonel John W. Meehan, Chief, Statistical Division, Surgeon General's Office, U. S. Army.

II. Subjects to be discussed by the section and on which suitable recommendations are to be submitted.

A. Is there need for unity of effort in cooperation between medical and public health groups with other agencies interested in nutrition?

B. Is there need for more training in nutrition in schools of medicine and public health with special attention to the economic aspects of adequate nutrition? (Detailed recommendations to be submitted by a subcommittee on this phase of nutrition education.)

C. What remedies can be proposed for preventing widespread nutritional disabilities?

1. Need for wider distribution of inexpensive foods of high nutritive value, such as skim-milk solids, peanut, soy, and cotton seed flour, dried eggs, etc.?
2. Encouragement of home production of protective foods?
3. Improvement of nutritive quality of staple foods other than flour and bread?

D. Is there need for stimulating greater interest in nutrition among general practitioners? How can this be best accomplished?
   1. Possibly post-graduate training in connection with nutrition clinics established in medical school dispensaries?
   2. Should physicians give greater attention to the economic aspects of the nutrition problems of their patients?
   3. Possibly further extension of therapeutic diet clinics already being conducted in a few large medical centers?

E. What part can the practicing physician play in the nutrition program?
   1. Need for support in State and community planning?
   2. Desirability of representing organized medical societies on State and community nutrition committees?
   3. Need for a nutrition section in State medical societies?

F. Should the distribution of vitamin pills or concentrates to the general public be encouraged or discouraged?

G. Is there need for greater activity in the field of nutrition by State and city health departments; if so, what direction should this activity take in fields other than maternal and child health?

H. Should health department laboratories provide physicians with laboratory diagnostic service for deficiency diseases?

I. Is there need for greater attention to therapeutic problems in nutrition especially where nutritional conditions are secondary to other diseases?

SUMMARY OF DISCUSSION

Practicing physicians, health officers, and faculty members of medical schools discussed the disturbing prevalence of nutritive failure in this country, the part to be played by public health and similar agencies in preventing such failure, cooperation between these agencies, the necessity for increasing the time allotted to nutrition in the medical schools, and the leadership in this field asked of the practicing physician.

Reports were submitted on studies made to appraise the nutritional status of different groups in the population, such as school children, residents in a southern mill town, and pregnant women. It was pointed out that while the existence of deficiency diseases has been known for years, there is still a need for definite methods of measurement so that the extent of malnutrition in the entire population may be determined.

There was considerable discussion of the advisability of distributing vitamin pills to the general public, and it was agreed that good nutrition was a matter of supplying enough of the right kind of food rather than of furnishing pills. The advisability of adding vitamins to various foods was questioned because of nutritional imbalances that might result. A distinction was made between enrichment of foods which had been devitalized in processing, as in the case of flour, and fortification of foods beyond their normal nutritive level. The latter type of enrichment was not recommended.

The role of health officers and of practicing physicians was discussed. It was pointed out that the medical profession must be part of any public health program and that professional groups must be represented in community planning for nutrition. The responsibility of practicing physicians was particularly stressed inasmuch as they are in a strategic position to recognize evidences of latent malnutrition and to advise patients about diets that will aid in curing and preventing deficiency diseases.

DISCUSSION

This section opened at 2 p. m. on May 26, meeting jointly with section IIIb, at which time there was a presentation of evidence of the extent of the medical aspects of the nutrition problems in the United States. Dr. H. D. Kruse of the Milbank Memorial Fund stated that 30 to 40 percent of the population are improperly fed. He pointed out that the actual amount of malnutrition as determined by examinations of individuals is not known, because past methods of detectiing malnutrition have been unsatisfactory. Convincing evidence has been adduced that much of the unsatisfactory nutrition manifests itself in specific deficiency diseases and that their earliest or mildest stage is represented by the latent or subclinical state. Entirely satisfactory methods for detecting the subclinical state of deficiency diseases have not been evolved, but enough information is available to make a start in ascertaining the amount, nature, and distribution of malnutrition. A joint study has been conducted by the United States Public Health Service, the Departments of Preventive Medicine and Pediatrics of the Cornell University Medical College, the New York City Department of Health, and the Milbank Memorial Fund on approximately 2,150 public high school pupils, and 350 private high school pupils. The Work Projects Administration has contributed heavily to this study and 130 members of their personnel were also examined. Of the children from high-income families, only 1 percent had low hemoglobin values; 6 percent had low plasma ascorbic acid levels; and 2 percent showed definite signs of riboflavin deficiency. Four percent of the children from low-income families had low hemoglobin values; 47 percent had low plasma ascorbic acid levels; and 75 percent of 512 of the children in this group showed signs of riboflavin deficiency. Dr. Kruse mentioned the desirability of more extensive application of these methods to find out the Nation-wide prevalence of malnutrition. It was his opinion that such information could be of inestimable value in the various approaches to the problem of nutrition, particularly in the present national emergency. He indicated that it could become the basis for plans to raise the national nutritional level by focusing activities on the malnourished. It would be helpful in formulating the program to improve the nutritive value of staple processed foods, and would be particularly pertinent to any program of intensive therapy for the rapid nutritional rehabilitation of the malnourished unemployed.

Dr. D. F. Milam of Durham, N. C., presented a report on the appraisal of nutritional status of a North Carolina community in 1940. This project was set up as a cooperative effort by Duke University,

the North Carolina State Board of Health, and the Rockefeller Foundation, with the aim of using all the methods now available in arriving at some appraisal of the actual nutritional status of the population. The study was started in a small mill village of 400 residents and expanded to include a rural district of some sixty square miles. The spring survey of March–April 1940 revealed that 61 percent of the population had a plasma ascorbic acid level which was very low and that only 13 percent of the population had what is considered a normal blood level of vitamin C. Similar findings were found with reference to vitamin A. It was also found that in addition to a low caloric intake, there was evidence of deficiency in riboflavin, thiamin, iron, calcium, and proteins. When the survey was extended to other seasons and included the rural area, it was observed that the whole population was at a much higher nutritional level in the fall than in the spring. No great abnormality was found in the hemoglobin. The results indicate that in this typical rural community the nutritional level leaves much to be desired. While the defects are to a great extent made up in the diet of the garden season, there is still undoubtedly great health injury done in the winter. It was Dr. Milam's opinion that some improvement in educational procedures is indicated, especially with nutritional work in the schools and through the health departments.

Dr. J. H. Ebbs of Toronto presented a most interesting report on the influence of prenatal diet on the mother and child. Dr. Ebbs studied a group of pregnant women in the Toronto General Hospital and followed the babies up to the age of 6 months. He was able to show that by improving defects in prenatal diets through the addition of simple foods, the whole course of pregnancy keeps improving. During the prenatal period, during labor, and during convalescence, the mothers on a good prenatal diet enjoyed good health and had fewer complications than those on an inferior diet. There were many more miscarriages, stillbirths, and complications at birth, and more deaths before six months of age in those babies born of mothers on a deficient prenatal diet. Babies born of mothers on a good or a supplemental-good diet enjoyed better general health and suffered fewer illnesses up to the age of 6 months. Dr. Ebbs stated that while it is recognized that there are more important factors in the successful outcome of pregnancy, his studies suggest that nutrition can play a very large part in the course of pregnancy in mothers who receive a deficient diet.

Dr. Casparis of Vanderbilt University Medical School stated that the conditions found in Tennessee were much the same as those reported by Dr. Milam for North Carolina. He indicated that we must have definite methods of measurement so that we can clearly demonstrate the extent of the nutrition problem in the whole population. He pointed out that we have known for years that deficiency diseases exist, but that it is difficult to get this before the whole population and the great problem is how to correct these deficiencies by adequate diets. He indicated that nutrition should be woven into the fabric of the individual and that we should lay plans for an enduring program.

Following these presentations section IIIa then proceeded to a discussion of the subjects on the agenda. The first subject discussed

was the question of need for unity of effort in cooperation between medical and public health groups with other agencies interested in nutrition. Dr. Abercrombie, State health officer of Georgia, mentioned the county demonstration being carried out in his State and indicated that cooperative efforts were already under way in Georgia. Dr. Markwith, State health officer of Ohio, indicated that they have already planned extensive cooperative work with agricultural groups as well as local health agencies. He expressed the opinion that there should be a sectional approach within the State and that the whole program must be approached as a joint endeavor. Dr. Williams, State health officer of Tennessee, set forth the fundamentals involved in a well-rounded nutrition program: (1) Production, (2) preparation, (3) preservation, (4) distribution, (5) practice. Dr. Williams pointed out that the work of the home demonstration group has been largely with individuals of higher economic levels and not with the lower income groups who are in greatest need of health. Dr. Williams indicated that he was interested in the provision of scholarships this summer for teachers to go to the University of Tennessee for the specific purpose of working out a nutrition guide which would be distributed to elementary and high schools in the State. He agreed that there was a definite need for cooperation which was already under way. Dr. Rice, New York City health officer, felt that cooperative effort was necessary and expressed the opinion that the local health department should head such efforts. Other discussion indicated the approval of cooperative efforts by all agencies concerned, and it was suggested that the nutrition councils should indicate the leaders for the effort.

The next subject to be discussed was the distribution of vitamin pills or concentrates to the general public. Dr. Morris Fishbein pointed out that vitamins are just a part of the nutrition program and that we should get enough food, avoiding too much stress on vitamin pills, which are the third largest item sold by drug stores. Only a small portion of the 100-million-dollar vitamin business represents products prescribed by physicians. Dr. Fishbein pointed out that the nutrition problem is that of supplying the right food to the people who need it and not vitamin pills, and that we will never answer our nutrition problems by prescribing vitamins. As he sees it, the problem is first, one of educating people as to what is proper nutrition, and second, providing them with food and budget analyses to see if they are spending too much on items other than food. He pointed out the need of attacking the vitamin pill problem by cooperative study and action and indicated that the Council on Foods of the American Medical Association is endeavoring to settle the question of which vitamins will meet the deficiencies now prevalent in this country. Miss Frances Stern expressed the view that doctors prescribe vitamin pills rather than food, because it is too much work to calculate properly the food values, and that patients read about vitamins and insist that they be given a prescription for them. She pointed out the need of physicians to prescribe vitamins in terms of food. Dr. McLester said that we should teach people to eat an abundance of good food and vitamins.

The section then went on to discuss the need for more training in nutrition in schools of medicine and public health, with special at-

tention to the economic aspects of adequate nutrition. Dr. Barborka indicated that efforts have been made for a long time to awaken a more definite interest in nutrition by young doctors and that very little educational work, particularly in the economic phases of nutrition, has been done in the medical schools. He stated that our medical schools are making efforts to improve the teaching of nutrition, and in his opinion, most medical schools would welcome the development of more centralized effort. Dr. Leavell also stated that medical students can get a great deal of this type of education by working in health clinics and with well-child conferences. Dr. Mackie followed up Dr. Leavell's suggestion in regard to undergraduate teaching and clinical application and pointed out the importance of cooperation between different teaching departments, especially between the clinicians and the public health teachers. Miss Sterns added that she thought a medical social worker should participate in medical school teaching of nutrition.

The next subject was remedies which may be proposed for preventing widespread nutritional disabilities. Dr. Mackie stated that there was no question of the desirability of making available to the general public foods which will bring them large amounts of specific food factors at the lowest cost. He felt that one of the precise answers to this question in rural districts is the encouragement of the home production of foods and preserving them for the winter. He also mentioned the fortification of peanut butter by the addition of brewers' yeast and indicated the need for serious consideration of questions such as this. Miss Margaret Moore pointed out the large waste in skim milk and the advisability of using rice polishings in areas in which rice is produced in large quantities. Dr. Ira Manville called attention to milk being sold in California to which a number of vitamins are being added at an increased cost of 5 cents a quart. Dr. McLester called attention to the seriousness of attempting to add various substances to milk. Dr. Fishbein pointed out the difficulty in educating people to eat new cheap foods of high nutritive value when you call them by such unattractive names as skim milk, soybean flour, and the like. He indicated the desirability of using more attractive names for such products. Dr. Williams of Tennessee again emphasized the importance of the home production of food and indicated that proper methods of canning should be taught in such a program. Dr. Markwith mentioned the necessity for cooperation in this field also. He indicated that low-income families who plant gardens and raise food may sometimes be cut off from relief, and expressed the opinion that this should not be done, but that the individual should be further encouraged to produce his own food supply. Dr. Leavell pointed out the desirability of providing suitable implements for the cultivation of gardens. Dr. McLester, in discussing the enrichment of flour, indicated that in this particular case it was an effort to put into the flour some of the elements lost in milling and that the Council on Foods of the American Medical Association will not permit fortification of any food beyond its normal nutritive level. He expressed the opinion that it would be unwise to add thiamin to sugar and that it is a mistake to try to make a food something different from its natural composition. Dr. McLester discussed oleomargarine as a substitute for butter and in-

dicated that the Council of the American Medical Association has recommended its fortification with fish-liver oils, in order to improve its vitamin-A content. Dr. Fishbein stated that Great Britain has made it illegal to sell oleomargarine which is not fortified with vitamin A. He also pointed out that since people in many States live by the production of dairy products, any efforts to promote the sale of oleomargarine should be made in such a way as not to affect adversely the incomes of those in the dairy industry. Dr. Helen S. Mitchell stated that one-third of the oleomargarine is now being fortified with vitamin A and that in experimental areas where oleomargarine is being produced, it has not replaced the sale of butter, and we should not assume that this will harm the sale of dairy products. Dr. Barborka mentioned the advisability of encouraging the program for the enrichment of flour.

The need for stimulating greater interest in nutrition among general practitioners was then discussed by the section. Dr. Giddings discussed the question from the point of view of an internist and indicated the need for stimulating greater interest in nutrition. He pointed out the necessity for getting doctors in rural communities and interesting them in nutrition. Dr. Tisdall of Toronto mentioned the lack of knowledge about nutrition by physicians and the necessity for encouraging interest in nutrition among practitioners. Dr. Pollack thought that the general practitioner should be taught nutrition while in medical school rather than waiting until after graduation. He also called attention to the lack of specific knowledge among general practitioners. Dr. Godfrey, State health officer of New York, also indicated the need for education in nutrition in medical schools and pointed out that the Health Department and the State Medical Society in New York are approaching the problem in a practical way. Nutrition must be taught by people who know how to teach. Dr. Fishbein mentioned the lag of 5 to 10 years in getting scientific findings applied by the general practitioner. He expressed the opinion that this is a good thing in that it allows time for inaccuracies to be corrected. Dr. Mackie stated that the proper teaching of nutrition would reveal the magnitude of the problem and that the medical schools will become more interested. Dr. Coombs pointed out that physicians must pay attention to the economic aspects of the nutrition problem, because it is of paramount interest in the care of the patient. Other discussion indicated that careless statements by physicians may frequently undo a lot of good teaching; that the physician does not have time to give detailed dietary instruction, and that more thought should be given to the use of dietitians and nutritionists by physicians; that nutritionists can help doctors by showing them how a family can live adequately on a very low income; and that patients can be taught a great deal about dietetics, and the need for teaching physicians to do dietetics. Mr. Trescher pointed out that Johns Hopkins has had a diet clinic for about 10 years and that this clinic more than pays for itself by keeping diabetics out of the hospital. Dr. Pollack thought that dietetic clinics are a necessity. Dr. Barborka discussed the Mayo food clinic and its development into a fine means of teaching with great advantage to the patient. He felt that the food clinic is an essential part of medical school teaching. The patients are taught the proper

foods to be eaten in the various diseases. This information seems to stick.

The section closed at this point and was taken up at 2 p. m. on the following day, May 27. At this time Dr. A. N. Baggs, representing Colonel Rowntree of the Selective Service, stated that selective service examinations showed nutritional defects in the manpower. Of the 800,000 men so far examined, over 1,000 have been refused for nutritional defects and diseases intimately associated with nutrition. He especially pointed out the necessity for conditioning men before they come up for selective service examination, and expressed the need for educating the men of this age group to do this.

The section then discussed the part which the practicing physician can play in the nutrition program. There was discussion from several individuals on community planning and cooperative efforts involving the physician. It was pointed out that in any plan the scientific and technical side, as well as the administrative side, should be sound, and in order to have the technical side sound, professional groups must be represented in planning the program. Dr. Coombs mentioned the many cases of subclinical scurvy which he has seen in his practice and the need for getting the doctor interested in the problem of preventing the deficiency diseases. It was pointed out by others that the medical profession must be a part of any such public health program. It was suggested that the state medical societies form committees, speakers' bureaus, or in other ways take part in disseminating a knowledge of nutrition among their members. Dr. Mackie brought up the point of the possibility of establishing a nutrition section in the American Medical Association, and also that the Journal of the American Medical Association be requested to establish an abstract service of appropriate current literature in the field of nutrition. He then mentioned the desirability of having a part of a section of the State medical society devoted to this problem and further suggested that the matter be brought to the attenion of the State medical societies, and that they be encouraged to have symposia on nutrition. Dr. Godfrey expressed doubt as to the advisability of the American Medical Association having an additional section. Several others held this same point of view.

The next item to be discussed was the question of the need for greater activity in the field of nutrition by State and city health departments, and what direction such activity should take. General discussion which followed indicated that there is no question of the need for greater activity in this field by State and city health departments. The point of view was expressed that greater educational efforts are indicated; that it means something more than just sending a nutritionist out to talk to lay meetings. The question of demonstration areas was also discussed and their value pointed out as a means of education. Dr. Bunting discussed the food element in dental caries and expressed the point of view that sugar is a large factor in the production of dental caries. Dr. Rice discussed the role of State health departments in nutrition programs and pointed out the difficulty in obtaining money and stimulating interest in public health work. He mentioned the large distribution of free lunches and the school-milk program in New York City. He felt that there is need for more personnel in the health department on the nutrition problem.

The question of whether health-department laboratories should provide physicians with laboratory diagnostic service for deficiency diseases was next brought up and general discussion by several members of the section indicated that this was certainly a desirable function of health-department laboratories, when approved tests are made available. It is too early at the present time to recommend any specific tests which should be made available by health department laboratories.

The final problem which the section discussed was need for greater attention to therapeutic problems in nutrition, especially where nutritional conditions are secondary to other diseases. Dr. Allen Butler discussed the nutritive status of the patient, particularly where the therapy or the disease interferes with the digestion and the normal diet. The general discussion brought out the need for complete diagnosis, including secondary dietary deficiencies, and an appreciation of the pathologic processes which increase the need of vitamins and interfere with their utilization. There is great need for the physician to recognize these basic factors.

On the basis of the discussion the following recommendations were read and approved, separately, by vote of the section.

RECOMMENDATIONS

I. That departments of public health recognize that they have a large responsibility in the nutrition programs in their respective communities.

II. That closer cooperation between medical and public health groups and other agencies interested in nutrition be established, and in order that effective local action may be taken, it is urged that the need for this cooperation be called to the attention of organized medical and public health groups everywhere.

III. That efforts be made to stimulate greater interest in nutritional problems among general practitioners and with this in view that opportunity for post-graduate training in nutrition be made more widely available.

IV. That the establishment of therapeutic diet clinics in connection with hospitals and medical centers be actively promoted.

V. That additional training in nutrition be given in schools of medicine and public health, with special attention to teaching the economic aspects of adequate nutrition. The section concurs in the more detailed recommendations on this subject made by section VI of the Conference.

VI. That medical societies, dental societies, and health authorities be represented in all State and community nutrition committees, and that medical groups take an increasingly active part in organizing, sponsoring, and cooperating in nutrition programs.

VII. That medical societies be asked to form nutrition committees for the purpose of disseminating nutrition information through symposia, speakers' bureaus, exhibits, motion pictures, and similar methods.

VIII. The recognition that robust health should be preserved by the use of adequate diets where available and that vitamin pills and concentrates of adequate potency be used only to supplement diets

which are necessarily inadequate and by physicians for the treatment of deficiency diseases.

IX. That as soon as acceptable diagnostic methods of proven value are developed in the field of nutrition, such service be made available by departments of health to the practicing physician.

X. That both city and State health departments take a greater interest in nutrition with a view primarily of aiding practicing physicians in the diagnosis and treatment of nutritional disorders.

XI. The wider distribution and utilization of inexpensive foods of high nutritive value and the home production and use of larger amounts of protective foods, in order to assist in preventing deficiency diseases.

The section endorses the action of the Food and Nutrition Committee of the National Research Council in sponsoring the enrichment of flour and bread.

SECTION IIIb

PUBLIC HEALTH AND MEDICAL ASPECTS OF NUTRITION

SPECIAL NEEDS OF MOTHERS AND CHILDREN

Presiding, RICHARD M. SMITH, M. D.
Assistant Professor of Pediatrics and Child Hygiene
Harvard Medical School and School of Public Health
Cochairman

SUMMARY OF DISCUSSION

Following a brief joint meeting with section IIIa, section IIIb began its deliberations on the special needs of mothers and children. Dr. Smith outlined the ground to be covered and emphasized the obligation of the section to confine itself to subjects on the agenda, since other sections were taking up other matters. Though various people had been asked to discuss certain points, free discussion by all members of the group was to be encouraged. A committee to draw up recommendations growing out of the discussion was appointed by Dr. Smith, consisting of Dr. Casparis, chairman, Mrs. Bertha Burke, and Dr. Amy Hunter.

The first subject for discussion was the food allowances set up by the Committee on Food and Nutrition of the National Research Council. It was recognized that these allowances are tentative and will need to be modified. There was considerable discussion in regard to vitamin D, and some members felt the allowance of 400 to 800 units too low. The group suggested that the committee consider the advisability of continuing D through the growing period and of including vitamin K for the newborn infant, or for the mother during labor.

An attempt was made to translate these allowances into simple diets. The diet for the breast-fed infant was outlined and again the question of the advisability of the administration of vitamin K arose. It became clear that our present knowledge is not sufficient to allow a positive statement on the value of K in the prevention of hemorrhage. Various members of the group discussed vitamin D in some detail, considering the form administered and the time of starting. There was a general agreement that it should be started early and that the form used should be fish oil, since vitamin A also would be provided. The time for starting egg was given considerable discussion because

of the possibility of allergic manifestations. For the artificially fed baby it was stated that milk should be used in the amount of at least 1½ ounces per pound of body weight, and that we should emphasize the necessity for pasteurization or boiling when liquid milk is used. The equal suitability and the cheapness of evaporated milk and of dried milk was pointed out.

In outlining the diet for the child the group considered the daily check list given in the Children's Bureau folder, Well-Nourished Children, and agreed to accept it as adequate with a few modifications (see appended food lists). There was general agreement that properly milled grain is to be preferred to improperly milled flour which is fortified. In recommending cereals or bread the descriptive expressions "whole grain" or "properly milled" should be used. The value of cheap foods, such as peas, beans, and unpolished rice was stressed. The mention of the use of sugar brought out a lively discussion between the proponents of various theories concerning the causation of dental caries. It was pointed out that another section, section I, was charged with the responsibility for reviewing research and would undoubtedly take up this question.

For the pregnant and lactating woman the Children's Bureau folder, The Expectant Mother, was used, and also the folder, Daily Diet During Pregnancy, prepared by the Department of Child Hygiene, Harvard School of Public Health and Boston Lying-In Hospital. This last folder was accepted as adequate by the group. It was emphasized that the diet of the pregnant woman is frequently too low in protein, iron, and vitamin C.

Under the heading of Availability of Foods, several people spoke about sectional problems and problems of low-income groups. It was again pointed out that another section, section II, was considering economic problems. The utilization of foods was taken up first from the standpoint of psychological factors, including food habits and racial and cultural factors, and then from the standpoint of physiological factors. The adjustment of the dietary recommendations to the total family situation was discussed from the standpoint of the nutritionist engaged in both teaching medical students and serving patients in a large city clinic. This completed the first day's discussion.

On the second day the public-health aspects of the problem were considered. The role of the physician was brought out, the role of the clinic, and the role of public-health services. There was some discussion on specific ways of making knowledge available, but it was recognized that a section of the Conference was dealing with problems of education, both popular and professional. The need for further education of workers, physicians, nurses, and nutritionists was emphasized. The roles of the public-health nurse and of the nutrition consultant and of the medical social worker were all considered. Various members of the group entered into the discussion bringing out their particular problems in the public health field and how these problems were being met. Examples of successful programs were presented. Emphasis was placed on the need for recognition of nutrition as a public-health responsibility, and the importance of having a nutritionist on the staff of a State health department. It

was suggested that there be representation of the health department on the State Nutrition Committee.

This section recommended the following food lists for infants, children, and pregnant and lactating women:

Foods the infant needs daily:

Milk:

Breast milk if possible for the first 6 months of life from a mother receiving an adequate diet.

If the baby is artificially fed a minimum of 1½ ounces of milk per pound body weight.

Fish oil: Fish oil supplying vitamins D and A beginning at 2 weeks of age.

Orange juice: Orange juice beginning at 2 weeks.

Additional foods beginning at 4 months or soon after:

Properly milled whole grains.

Egg yolk.

Vegetables.

Fruit.

Foods the growing child needs daily:

Milk: 1½ pints to 1 quart daily adequately pasteurized, boiled, dried, or evaporated. (Evaporated milk is of equivalent food value to whole milk.)

Properly milled whole grains: In the form of cereal or bread: 2 servings.

Lean meat or fish: Once a day if possible.

Eggs: One a day for each child if possible.

An orange or its equivalent in tomato juice: Or some other adequate source of vitamin C.

Green leafy or yellow vegetable and a potato.

Fish oil: Fish oil containing vitamins D and A.

Other foods such as dried or fresh fruits and dried peas and beans may be used.

Foods the pregnant and lactating woman needs daily:

Milk: 1 quart (adequately pasteurized, boiled, dried, or evaporated).

Properly milled whole grains as bread or cereals.

Meat.

Egg.

Citrus fruit, or its equivalent in tomato juice, or some other source of vitamin C.

Other fruit, dried or fresh.

Green leafy or yellow vegetables and potato.

Fish oil containing vitamins D and A.

RECOMMENDATIONS

Section IIIb has been concerned with the nutrition of pregnant and lactating women and of children. We have studied the daily allowances of nutrients released by the Committee on Food and Nutrition of the National Research Council and have accepted these allowances as a working basis.

We recommend that this committee investigate vitamin K and consider the desirability of adding this vitamin as an essential nutrient for women during the late period of pregnancy, or for new-born infants within the first 24 hours of life.

This section has indicated how the essential nutrients may be translated into foodstuffs and has indicated the kinds and quantities of food needed to establish adequate nutrition of pregnant and lactating women, and of children of differing ages. These food lists are appended as an integral part of this report and we recommend their wide distribution.

It is the opinion of this section that all the essential nutrients can and should be provided through natural foods. Great progress is being made in the proper milling of grains so as to retain their full nutrient value. Pending further developments in this field, fortification of flour may be acceptable.

Vitamin D in most instances will be provided by fish oil. We recommend this source of vitamin D since it also augments the intake of vitamin A.

We have taken cognizance of geographic and economic considerations which influence the availability of these natural foods. We look forward with interest to the report of other sections which have given particular consideration to these matters.

The utilization of an adequate diet by children is significantly affected by food habits. We are not in this report making specific recommendations with reference to habit formation or to the methods of preparing and serving food so that it is attractive and palatable, but we wish to record our appreciation of the extreme importance of psychological factors.

The food lists which have been recommended are for normal children and should be applied on an individual basis. Certain children, such as the premature infant, the diabetic or allergic child, and others with developmental or pathologic variations require special consideration.

We recommend that in the general nutrition program increased emphasis be placed on the importance of the nutritive requirements of pregnant and lactating women. In providing adequate food for pregnant and lactating women we appreciate the necessity for taking into consideration the whole family situation and the limitations of the family budget. Ways and means should be found to provide a satisfactory diet for the pregnant and lactating woman without reducing the food available to the other members of the family.

To make effective a program for better nutrition, it is essential that the technical workers who will interpret the facts to the general public should be themselves well grounded in the fundamentals of good nutrition. Among those in this category are included physicians—those in training, in private practice, and in public health positions—dentists and dental hygienists, nurses, nutritionists, dietitians, home economists, teachers, and social workers. We recommend that a definite program be developed to assure to these groups adequate education in nutrition and in its practical application.

In extending the knowledge of nutrition to the individuals of the country, full utilization should be made of all available or potential resources in the community and of the most effective means of education.

The official health agencies at the Federal, State, and local levels should assume greater responsibility in the field of nutrition. As an aid to this it is recommended that the services of persons especially trained in the field of nutrition be made available to communities. Such persons should give expert advice and assist in the training of other personnel concerned in the furthering of good nutrition for mothers and children.

It is essential in order to accomplish the ends in view that all agencies in the community, public and private, be coordinated in a single effort to improve nutrition.

Members of the Drafting Committee:

Chairman: Dr. Horton Casparis, Vanderbilt University Medical School, Nashville, Tenn.

Mrs. Bertha S. Burke, Harvard School of Public Health, Boston, Mass.

Dr. Amy Louise Hunter, Chief, Bureau of Maternal and Child Health, State Board of Health, Madison, Wis.

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SECTION IV

NUTRITION FOR WORKERS IN DEFENSE INDUSTRIES

Presiding, FRANK G. BOUDREAU, M. D.
Executive Director of the Milbank Memorial Fund, New York City
Chairman

AGENDA

I. The Labor Recruit.

As the demand for defense workers intensifies, the supply of the skilled and experienced will become exhausted and recourse will be had to young men and women who have never had working experience, and to older men and women who have been unemployed for long periods. Many of the young men who have been rejected for service with the armed forces will enter defense industries. A comparatively large proportion of these men will be suffering from physical defects associated directly or indirectly with malnutrition, such as underweight, general debility, defective teeth, and low-grade chronic infections. Results of selective service and army medical examinations will give a fair idea of the health of labor recruits of similar ages.

There is some evidence that a large proportion of WPA workers are malnourished (Milbank Memorial Fund Study of Nutrition in New York City) and that those on other forms of relief or in similar income groups are even worse off.

II. Workers in Newly Established Plants and Communities.

To meet the needs of the national defense program, plants for the manufacture of munitions and other defense products are being established in new localities, where it is sometimes necessary to build up completely new community facilities to meet the needs of the workers. Older plants which are being rapidly expanded may bring so many new workers to an established community that the normal facilities become inadequate. New and expanding plants are likely to be supplied in large part with new workers or workers who have been unemployed for longer or shorter periods. All of these conditions present special hazards to the workers' nutrition. Moreover, certain industrial processes associated with volatile or toxic products peculiar to munitions plants require special nutritional measures.

It is evident that in new or rapidly expanding plants, particularly where such plants are established in new localities without adequate community facilities, special attention and care are required to safeguard the health and nutrition of the worker.

III. How Adequate Is the Defense Workers' Diet?

There is very little precise information available on the nutrition of workers as distinct from other classes in the community. Studies of the United States Department of Labor and of the Bureau of Home Economics of the United States Department of Agriculture have shown that a large but varying proportion of employed workers' families in the different regions of the country consume diets which are below the margin of safety as regards essential nutrients. Adequacy of the diet varies roughly with the level of family income, although among families in the same income group there are wide variations in the quality of the diet, demonstrating the importance of education.

While nutritional deficiency diseases are fairly common in this country, it is probable that latent malnutrition is far more common and much more important. Poor diets are usually inadequate in several nutrients; mild forms of malnutrition are apt to be the result of several deficiencies. Individuals with latent forms of malnutrition are liable to break down under strain. Heaviest strains on human nutrition are associated with infancy, adolescence, pregnancy, arduous physical work, and war.

IV. Concern of the Industrial Plant in the Workers' Nutrition.

The capacity of workers whose diet is inadequate may be increased by the right kind of supplemental food. Moreover, this method is said to reduce the number of industrial accidents, and may lessen absenteeism, although this problem requires further investigation. Experimental diets deficient in thiamin cause cheerful, cooperative, industrious young adults to become morose, noncooperative, and indifferent. When adequate amounts of thiamin are restored to the diets, these same young adults return to their normal selves. As there is reason to believe that dietary deficiency in thiamin is widespread in this country, authorities believe that some forms of labor unrest may be due to this cause.

No one concerned with production for defense can remain indifferent to these facts. In many plants attempts are being made to improve workers' diets. The plant which is concerned with the most efficient production, the smallest number of accidents and illnesses, and the least friction between management and labor has a large stake in the nutrition of its workers.

V. Suggestions for Improving the Working Efficiency of Labor (and Labor Recruits) in Industrial Plants Concerned with Defense by Improved Diets and Additional Nutrients.

The report of the Subcommittee on Nutrition in Industry of the Committee on Food and Nutrition of the National Research Council has been adopted by the Committee on Food and Nutrition and by the Subcommittee on Industrial Health and Medicine of the Health

and Medical Committee. The report includes a series of recommendations on:

1. The nutritional conditioning of classes of the population which are likely to become industrial workers.
2. The need for special attention to the nutrition of defense workers.
3. Supplemental feeding in factories.
4. The need to demonstrate the influence of diet on health, working capacity, incidence of accidents, absenteeism, and the psychological state by carefully controlled studies.

VI. Federal, State, and Local Programs for the Improvement of the Nutrition of Defense Workers.

In order to obtain good results, there must be appropriate organization and action on the Federal, State, and local levels. It is desirable to define the type of program best suited to each level. The problem might also be approached in another way, as follows:

Responsibility of the medical officer of an industry or plant.
Responsibility of the community department of health.
Responsibility of the State (nutrition committee and departments of health and education).
Responsibility of the Federal Government.

VII. Need for Further Studies and Investigations as Regards the Diets and Nutrition of Defense Workers.

So little is known concerning the diets and nutritional states of defense workers, that there is urgent need for further studies and investigations. This need is referred to briefly in the report mentioned under item V.

SUMMARY OF DISCUSSION

The members of this section discussed the nutrition needs of all workers in industry, especially of those directly concerned with national defense efforts. Data presented on the diets of employed workers' families indicated that economic situation and availability of various foods appeared to exert the most important influence on adequacy of diet. Although several studies of the diets of employed workers were cited, it was pointed out that little precise information on the subject is available and that research in this field is urgently needed.

In considering the health and nutrition of labor recruits it was stated that many of the men rejected by the Selective Service would eventually become recruits for industry. It was proposed that nutritional deficiencies responsible for certain dental defects and for other adverse health conditions in rejected selectees and in other labor recruits should be corrected as quickly as possible through education and the supplementation of diets of workers entering defense industries. The migration of workers to areas where facilities for

housing and for the preparation of nutritious meals are inadequate was discussed.

The need for quick action was stressed. While long-time studies should be undertaken, the results of such research will not be available at once to aid in the emergency now confronting us. It was recommended that immediate action be initiated at the Federal level to secure the cooperation of industry and labor in carrying out a nutrition program for workers. It was generally agreed that the Office of Production Management, working with other Government agencies, might well assume leadership in (1) gaining the help of trade groups, manufacturers' associations, the United States Chamber of Commerce, and other organizations, and (2) in securing the cooperation of medical divisions and of other groups and individuals in industrial plants who could provide supervision for a nutrition program for workers.

In this section, as was the case in other Sections of the Conference, extension of the Food Stamp Plan was urged so that "protective foods," such as milk, enriched bread, and vegetables might be made available at reduced cost to families of low-income whether they were on relief or not.

DISCUSSION

I. The Worker.

In his opening remarks the chairman drew the attention of the section to the mimeographed agenda for section IV and to the report of the Subcommittee on Nutrition in Industry of the Committee on Food and Nutrition of the National Research Council. He stated that the section was expected to formulate recommendations for presentation to the whole Conference, and suggested that the subcommittee's report which had been accepted by the Subcommittee on Industrial Health and Medicine be considered as the basis for such recommendations, with such amendments or other additions as the section might decide to make.

Dr. Esther F. Phipard then presented a discussion (illustrated with the attached charts, figs. 3–7) of a study of the diets of employed workers' families. The data were collected in 1934–37 by the Bureau of Labor Statistics of the Department of Labor and analyzed by the Bureau of Home Economics of the Department of Agriculture. The analysis had to do with the amounts of food purchased and those used in a single week by each of 4,000 families of industrial workers in various sections of the country. The sample included representation of both large and small cities and was not selected by income level.

Considering the gross quantities of food consumed by each family during the week and with certain assumptions of median values for nutrient constituents, including mineral, protein, and vitamins, each family's diet was classified as good (definitely above the safety line), fair (doubtful or close to the safety line), or poor (definitely below safety line). As regards adequacy of diet, it is recognized that many of the values used would be considered inaccurate in the light of present-day knowledge but it is also believed that the resulting estimates tended to be high rather than low so that the charts of "adequacy of diet" are more optimistic than they ought to be.

One reason for this is that no allowance was made for waste and at the time there was a very incomplete basis for computing loss in cooking.

No attempt was made in this study to appraise the diets of individuals of the family although it was observed that the mother was generally less well nourished than either the father or the children. There was little observable differentiation in adequacy as between occupational groups, if the cost factor remains constant. Similarly, there is little significant difference in adequacy associated with educational opportunity. Both caloric content and vitamin sufficiency vary directly with the dollar expediture per family per week.

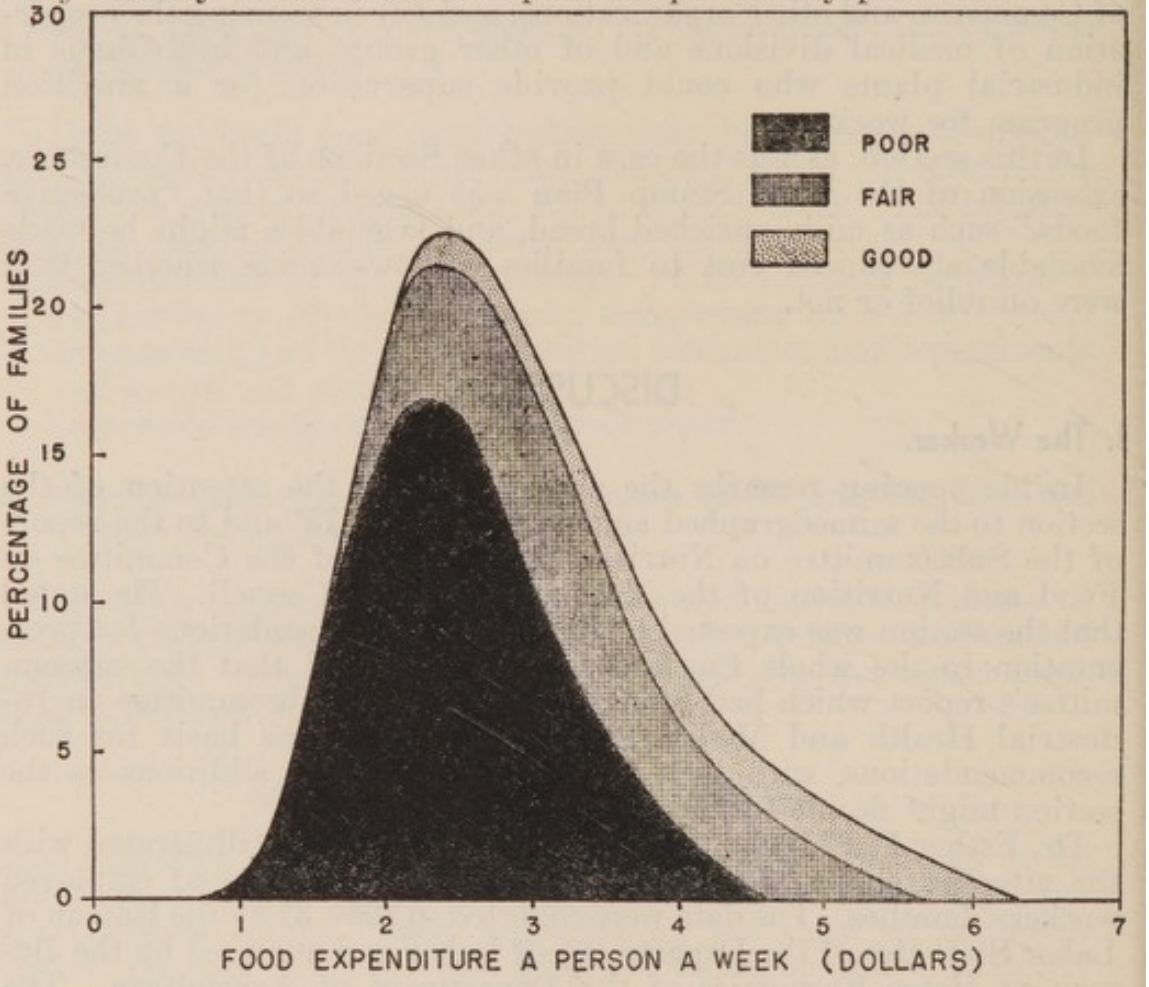
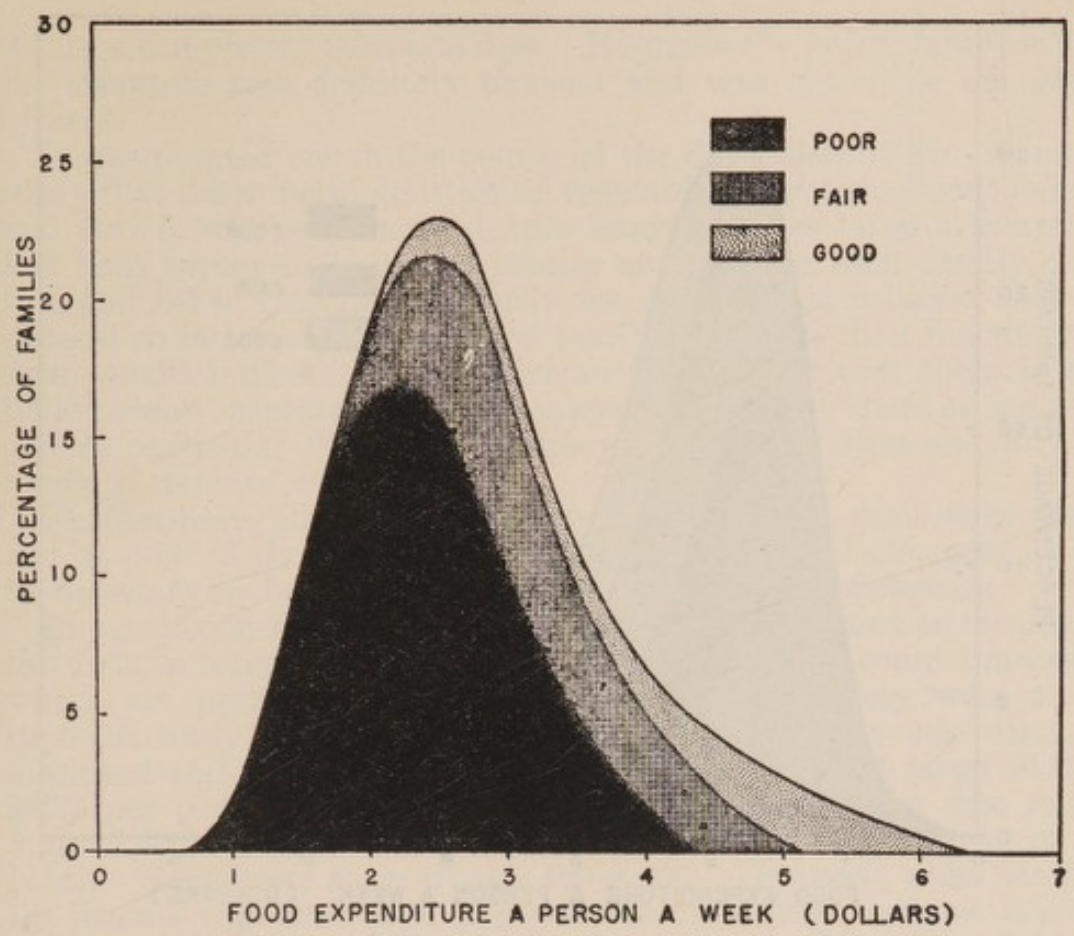


FIGURE 3.—North Atlantic families: Distribution by expenditures for food a person a week, and proportion obtaining diets graded poor, fair, and good. Source: U. S. Department of Agriculture, "Diets of Employed Workers," *Circular 507*, p. 75.

In answer to questions by the chairman and Drs. Harris, Palmer, and Cowgill, Dr. Phipard stated that the economic situation, coupled with the availability of various foods, appeared to exert the most important influence on adequacy of diet. Furthermore, present food-consumption habits influence in important ways individuals' willingness to accept adequate but unpalatable diets. At this point Dr. Henry Borsook reported on a small survey in which the diets of 50 families were analyzed, with findings quite similar to those reported by Dr. Phipard. He spoke in particular of a Pennsylvania Quaker family in which, even with low income, through unusual interest in food and by very careful shopping, the housewife had been able to



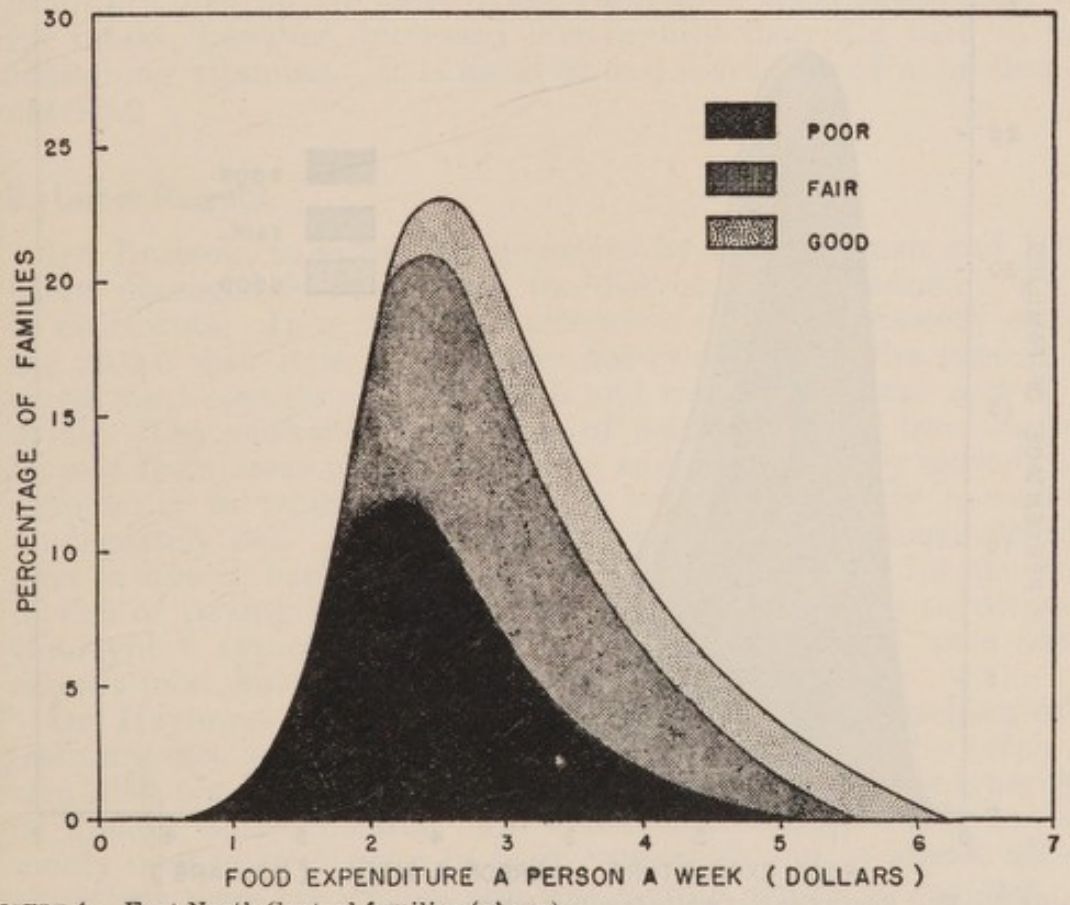
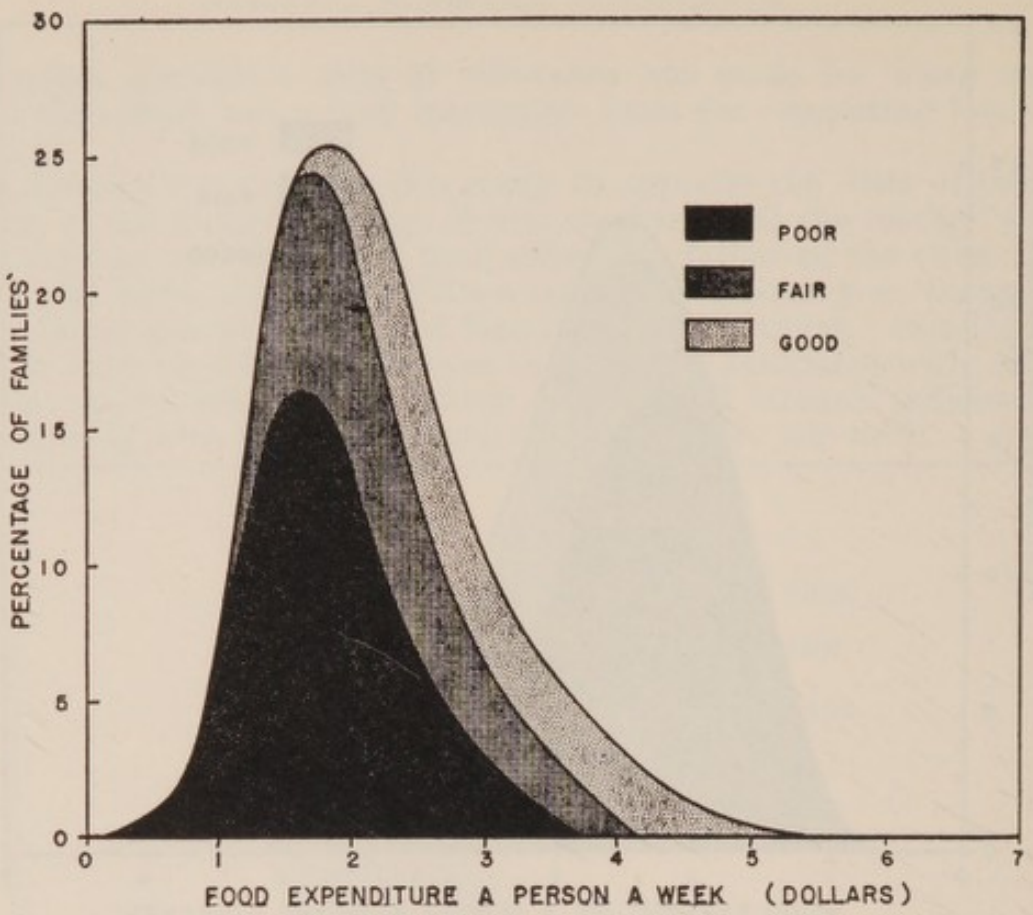


FIGURE 4.—East North Central families (above).

FIGURE 5.—Pacific families: Distribution by expenditure for food a person a week, and proportion obtaining diets graded poor, fair, and good. Source: U. S. Department of Agriculture, "Diets of Employed Workers," *Circular 507*, p. 76.



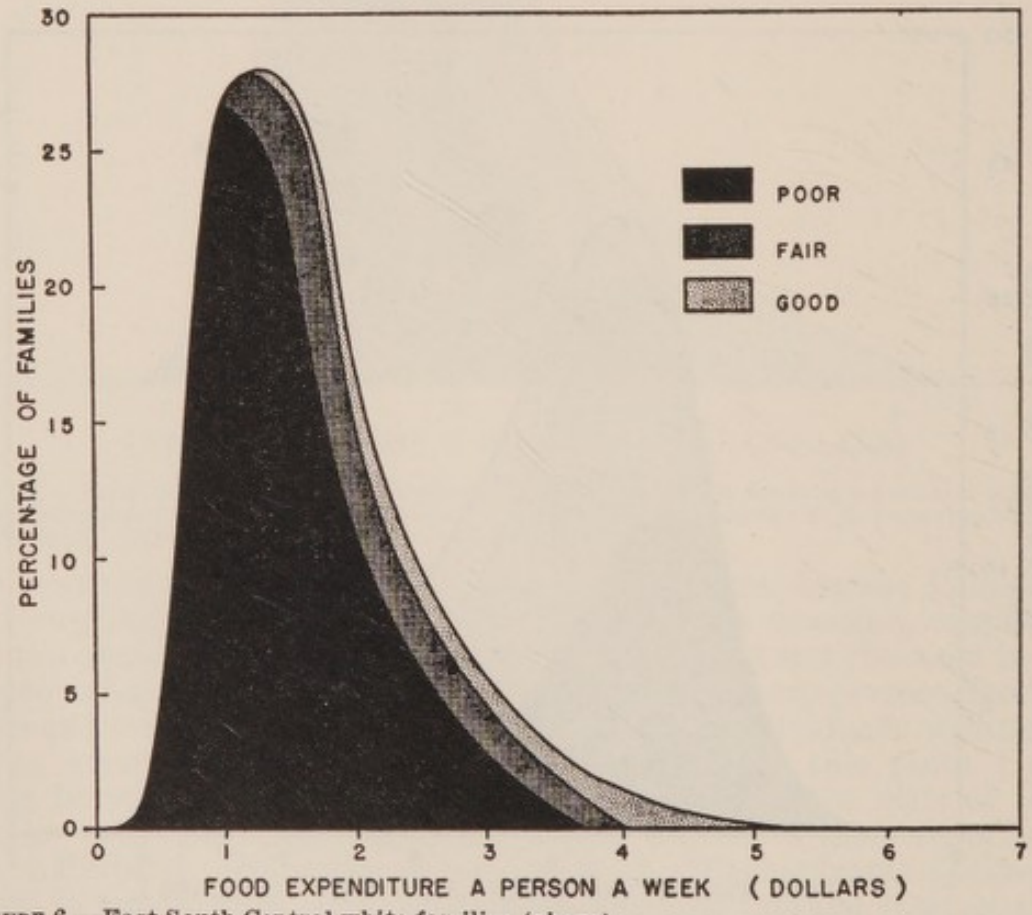


FIGURE 6.—East South Central white families (above).

FIGURE 7.—Southern Negro families: Distribution by expenditure for food a person a week, and proportion obtaining diets graded poor, fair, and good. Source: U. S. Department of Agriculture, "Diets of Employed Workers," *Circular 507*, p. 77.

secure a completely adequate diet. He made the point, however, that the situation was definitely unusual and was not to be considered typical.

It was pointed out in the course of the discussion of Dr. Phipard's study that the mineral analysis of vegetables might vary considerably and that it was not practical, in a study with as large a sample as had been surveyed, to secure precise analyses for each family. For this and other reasons previously mentioned it is believed that the general situation among workers' families is worse than the study results would indicate. The chairman pointed out that there is very little precise information on the subject of workers' diets or nutrition and in particular there is little known about the diets and physical needs of defense workers.

Furthermore, since, in the study just discussed, diets were classified as poor if they were deficient in any of several elements, it will be necessary in future work to determine specific deficiencies.

In conclusion Dr. Phipard stated that it was planned to recalculate the diets in terms of new standards and take into account limitations which are perhaps better understood now than they were at the time the study was made. The caloric content of low-cost diets was discussed and the statement made that when a family spent $1.25 to $1.87 per person per week the average calories of the diet ranged from 2,300 to 3,000 calories per adult unit in one region of the South. Some were as small as 2,400–2,600. However, when the family income was over $500 per year usually there was not a severe shortage of calories. The foods that increase fastest as food expenditure goes up are meat, fruit, vegetables, eggs, and butter. The fat intake, however, increased less rapidly than did that of foods containing vitamins. It is usual to find deficiency of more than one nutrient.

II. Labor Recruits.

Dr. Borsook, in answer to questions by the chairman and Dr. Le Clerc, discussed in some detail the diet of defense-industry workers in California. In a large new aircraft-construction factory employing 20,000 men it is the common observation that the typical luncheon meal consists of a sandwich and a bottle of some sort of soft drink. The workers in factories of this kind have been recruited largely from areas outside the State and have recently moved to the community in which they are now both inadequately housed and inadequately fed. It is not uncommon for three or four unmarried men to live in bachelor's quarters, with one cooking for the others in lieu of paying his share of the rent. Under living conditions of this type a typical meal consists of fried meat and some sort of canned food, but seldom vegetables.

Dr. Hayhurst pointed out that one of the common defects of the ordinary diet is the substitution of highly seasoned soups which contain little nourishment but give a sense of satisfaction for other foods of greater nutrient value. He stated that canned foods are commonly used in preference to fresh vegetables and in almost all such situations there are seldom any whole-grain cereals in the diet. Dr. Hayhurst also called attention to the fact that in the type of diet

being discussed there is almost always great mineral deficiency. He attributed this to the general dependence of the public upon fruit and vegetable sources for minerals, and suggested that if something approaching natural ocean salt were used as a condiment instead of table salt some of the trace minerals might be supplied.

At this point Dr. Baggs directed the attention of the session to the large number of rejections, in Selective Service induction, of men who are now or will eventually become recruits for industry. He suggested that the same problems would arise in industry as have already been so widely publicized in the Selective Service program. Dr. Baggs also raised the question of the effect of nutritional deficiency on dental defects and pyorrhea and urged the Conference in its recommendations to stress the need for immediate remedial measures. Both education of the individual and supplementation of diet in groups that will enter or are now entering industrial defense work, were mentioned.

Both Dr. Harris and Dr. Cowgill emphasized the fact that there is among young people apparently little interest in the subject of good eating. It was said that action, perhaps initiated on the Federal level, would be necessary to get to the workers those foods that they need; and it was suggested for the consideration of the Conference that a resolution to that effect should be formulated. The British experience at Canterbury Depot in rehabilitating several hundred rejected volunteers was cited as worthy of imitation.

It was also recalled that the National Youth Administration in Michigan is planning an elaborate study of nutrition among NYA groups in residence and others out of residence. Dr. Borsook thought that the results of such a study would come too late to be very helpful in the present emergency. He spoke again of the situation in California, calling attention to the fact that nearly 100,000 workers in aircraft and shipbuilding are crowded together in one small community and that a large percentage of them have come into the state within the last year. If, as is expected in the near future, the group approaches a quarter of a million, the situation will become even worse. Furthermore, any nutritional program having to do with defense workers who are already overworked and subject to the stresses of the general labor situation, will necessarily meet resistance both from management and from labor. For these and the other reasons previously discussed, Dr. Borsook appealed to the section to initiate action on the Federal level in order to secure the cooperation of industry.

Dr. LeClerc advocated a modification of the stamp plan, making available at reduced cost the "protective foods" (but restricted to that group of foods) as a most practical means of immediate remedial action. He said that with our annual consumption of 160 pounds of white flour and 100 pounds of sugar per capita an individual consuming 2,500 calories per day received 46 percent of his caloric intake from these sources alone. If the individual consumes only 2,000 calories a day then 57 percent of the intake comes from white flour and sugar, making it almost impossible to get all the necessary minerals and vitamins from the other 43 percent of the net intake of food. He suggested that these characteristics of the general diet of the public strongly point to the need for education in what constitutes

a good diet and how to go about getting it. Accordingly, he strongly advocated making protective foods such as milk, enriched bread, vegetables, etc., available through a stamp plan and at reduced cost as a defense measure.

Dr. William DeKleine (American Red Cross) urged the members of the section to initiate a program in an industrial plant where the management could be interested in the nutritional aspects of efficiency. He considered it advisable for the section to advocate direct action of the nature described.

Dr. Mary Bryan of New York called attention to the work of the various dairy councils, especially in Connecticut. The dairy councils and the milk industry had succeeded in interesting a number of industries in supplementary feeding of milk. In some instances the milk is furnished without charge, in others dispensers have been installed. In some factories in New Jersey with very large increases in employment (for example, from a normal 2,000 employees to a present 15,000) it has not been found feasible to install dispensers although milk and other protective foods are made available. Mrs. Bryan suggested the immediate distribution of nutrition posters for display in all types of factories. She urged the need for an immediate educational program and suggested that supplementation be begun with milk.

In her view, industry would not be as resistant to the consideration of nutrition as had been represented previously in the session. There were opportunities in almost every community for mass feeding projects which would solve breakfast and luncheon problems for men who have no good place at which to get lunch. Inasmuch as high-school cafeterias are used only for the lunch meal, it seemed feasible in an emergency of this sort to use such cafeteria kitchens as general community kitchens.

The chairman referred to the work of the Committee on Food and Nutrition of the National Research Council and pointed out that it had been instrumental in making "enriched bread" available all over the country, thus making it possible to improve defense workers' diets. He also noted that the Food Stamp Plan has resulted in more and better food for large sectors of the population who are now badly fed, although the plan should no doubt be extended. Miss Armstrong suggested that the present restrictions on the Food Stamp Plan should be relaxed so that those with quite low incomes, yet not on relief, might have access to the surplus commodities being distributed. It was also suggested that it was tactically more feasible to interest labor than management in nutritional supplementation.

Dr. Osborn, State health commissioner for Connecticut, speaking as a representative of the health officer group, argued strongly in favor of the enforcement on the part of an agency such as the Office of Production Management, of contract requirements calling for cafeterias or other means of supplying proper food to workers in all factories filling defense orders. Unless some such action were taken the natural resistance to change, on the part of both industry and labor, would defeat educational efforts. He felt that the present emphasis was too much on the efficiency of machines and too little on the health of human machines.

The chairman emphasized the importance of adequately controlled studies so that the nutrition experts would have a more adequate basis on which to urge important action. Mr. Bloomfield stated that he believed the Walsh-Healey Act might easily be implemented to enforce certain requirements with reference to the nutrition problem. Mr. Davis also suggested that the vitamins, in particular, might easily be added to products that the workers are known to favor and buy.

Dr. Borsook doubted that action as drastic as that mentioned by Dr. Osborn would be necessary. After the initial hurdle had been passed there would be little difficulty in further progress. Drs. Hayhurst and Cowgill concurred with this point of view and suggested further that it might be possible to make greater use of the organizations in industry, such as trade organizations, manufacturers' associations, and others. They stressed the need for leadership and initiation of the program from the Federal level. Dr. Carlisle, chairman of the State Committee for Industrial Health in New Jersey, spoke of the importance, in approaching the larger industries, of securing the cooperation of their medical divisions.

At the conclusion of the session Dr. Bloomfield again mentioned the possibility of securing national interest in the subject of nutrition through enlisting the cooperation of organizations such as the United States Chamber of Commerce, which is already interested in the general problem of industrial hygiene. Drs. Borsook and Cowgill reemphasized the necessity for study of the situation on a family basis in a number of industrial organizations and stressed the need for leadership and the employment of competent individuals to supervise and conduct such nutrition studies or projects as are already under way in isolated industrial plants.

Research with reference to vitamin-A deficiency and dark-adaptation were referred to and it was emphasized that the practical applications of the results of research are frequently of particular interest to the armed forces.

The meeting was adjourned after a committee had been appointed to prepare the draft report of the section: Dr. Cowgill, chairman, Dr. H. Borsook, and the chairman and the secretary of the section ex officio.

Dr. Cowgill, chairman of the Drafting Committee, presented to the session on the following day (May 27) a draft of suggestions, recommendations, and ideas expressed at the preceding day's meeting, with the thought that members might care to make revisions or amendments before acting formally on the report. The chairman told the session that he understood the report of the section to the Conference would have to be restricted, by direction of the Planning Committee, to three typewritten pages.

Miss Armstrong urged casting recommendations in language that would not restrict any program advocated to cities, adding that it would be appropriate to include the work of State extension nutritionists. Dr. Osborn suggested that industrial hygienists and industrial nurses be included.

Mr. Bloomfield and the chairman spoke briefly of the propriety and necessity of including a recommendation that the nutritional

problems of defense workers be called especially to the attention of the appropriate governmental agencies, particularly the Office of Production Management.

Drs. Harris and Borsook and Miss Armstrong discussed the feasibility of assisting low-income workers' families through school lunch programs or other community feeding methods, as a means of indirect attack on the workers' own nutrition problems. It was pointed out, however, that the section should limit its consideration to defense workers and largely to protective foods rather than the whole diet. The subject of income levels was again discussed and the consensus was that "low income" should not be defined in terms of money but be left to local interpretation.

Drs. Cowgill and Harris advanced the idea that studies should be made under the auspices of the Committee on Food and Nutrition of the National Research Council, or its appropriate subcommittee. It was emphasized that factual information on workers' diets, then nutrition and the results of supplemental feeding is urgently needed and that through the efforts of the National Research Council such information could best be secured in a short time.

Mr. Folks urged the need for State leadership and proposed that the governors of the several States should be invited to call State nutrition conferences. He presented the following resolution, which was duly seconded and adopted:

> It is desirable that the governor of each State be asked to consider calling at as early a date as practical a State conference on nutrition in defense for the purpose of formulating and devising ways and means by which the resolutions and recommendations of this Conference may be carried out by the cooperative efforts of the appropriate and available Federal, State, and local authorities and agencies, with special reference to the particular conditions and needs in that State.

The session also approved the report of the Subcommittee on Nutrition in Industry of the Committee on Food and Nutrition of the National Research Council as well as the report of the Drafting Committee as amended during the session. The chairman was authorized to make such changes in the draft report as would be necessary for presentation in the form required by the Planning Committee.

The meeting was adjourned.

RECOMMENDATIONS

I. The Worker.—Under modern conditions, those who forge the weapons of defense are just as important to our safety as are those for whose use those weapons are intended. Every care is taken to provide healthful surroundings and good food for the armed forces, who have been selected with the greatest care. The health and nutrition of defense workers, many of whom may have been rejected for military services, must nevertheless be maintained at high levels if industry is to meet the needs of this emergency.

It is therefore urgently recommended that special attention be paid to the diets and nutrition of all workers in industry and particularly of those most directly concerned with the national defense effort. The pressing importance of this problem should be drawn to the attention of the governmental agencies concerned with defense industries such as the Office of Production Management.

Supplemental feeding in factories should be practiced wherever it is found that the diets of defense workers are not fully adequate from the point of view of modern nutrition. Such feeding has been found to increase the worker's efficiency, reduce accidents, and decrease the volume of absenteeism.

In this emergency, defense plants are being constructed in sparsely populated areas where normal community facilities are lacking.

In such instances community feeding with its advantages of economy and expert supervision may be required and is recommended.

It is also recommended that the approval of contracts calling for construction or expansion of defense plants should include consideration of appropriate facilities for feeding the workers. Special attention must be paid to the nutrition of workers who are exposed to the effects of specific industrial techniques or hazards such as are found in chemical factories.

Information regarding the diets of defense workers is not available, but it is known that the diets of a large percentage of workers' families are inadequate by modern standards. In the emergency conditions confronting defense workers, their diets will tend to become even less adequate than they are today unless particular attention is paid to this problem.

It is therefore recommended that the families of low-income workers in defense industries should be included in the distribution of protective surplus foods.

Education in the need for adequate diets is a continuing need and should be carried on by the most practical methods.

II. The Labor Recruit.—The health conditions among labor recruits are reflected by the results of selective service and army medical examinations. A comparatively large proportion of the new workers who are being employed by defense industries are undoubtedly suffering from physical disabilities associated directly or indirectly with malnutrition such as underweight, general debility, defective teeth, and low-grade chronic infection.

It is therefore recommended that steps be taken to condition nutritionally those classes of the population which are likely to become defense workers.

Such nutritional conditioning might well be carried out among organized groups such as are found in CCC camps, NYA, WPA, and defense training schools. Such work is already under way in Michigan and Wisconsin. Similar conditioning at an English camp resulted in the induction into the Army of 87 percent of 834 young men who had previously been rejected.

III. Definition of the Problem.—Greater and more precise knowledge concerning the nutrition of defense workers is an urgent need. Prompt and effective measures can be taken to improve diets when it is known that they are inadequate in certain essentials. The improvement in health which results when specific nutritional deficiencies are appropriately treated is a great stimulus to education in diet. Properly controlled studies provide the only convincing evidence of the benefits which result when the deficiencies of inadequate diets are suitably supplemented.

It is therefore recommended that adequately controlled studies be conducted in selected defense plants to determine the facts concerning

the influence of diet on health, working capacity, incidence of accidents, absenteeism, and the psychological state (industrial unrest).

Workers and employers who cooperate with governmental or private scientific agencies in carrying out such studies will be performing a national service.

IV. Implementation of These Recommendations.—There are numerous agencies at Federal, State, and local levels to consider and carry out the recommendations of the National Nutrition Conference for Defense. In order to bring these recommendations promptly to the attention of State and local agencies:

It is recommended that the governor of each State be asked to call at as early a date as possible a State conference on nutrition in dedense for the purpose of formulating and devising ways and means by which the resolutions and recommendations of the National Conference may be carried out through the cooperative efforts of the appropriate Federal, State, and local authorities and agencies, with special reference to the particular conditions and needs in that State.

SECTION V

METHODS OF EDUCATION IN NUTRITION

Presiding, G. DOROTHY WILLIAMS, Extension Nutritionist
New York State College of Home Economics, Ithaca, New York
Chairman;
Mrs. MILDRED WEIGLEY WOOD, Supervisor, Homemaking Education
Phoenix Union High School, Phoenix, Arizona
Cochairman

AGENDA

I. General theme for discussion and recommendations.
   A. How can we translate our knowledge of nutrition into everyday reality for all the people?
II. Questions for discussion:
   A. How can an educational program grow out of the needs of the members of the community or group to be reached?
      1. Assisting local people to get a picture of nutrition needs of their group or community.
      2. Determining the groups that need help.
      3. Securing effective coordination of educational agencies and programs.
   B. Determining what to teach and how to make it effective.
      1. How may basic subject matter be selected for and adapted to the needs of various age, racial, cultural, or income groups?
      2. How much agreement is necessary in subject matter used by various agencies in the same community?
      3. How can methods of teaching be adapted to the varying needs of individuals and groups?
      4. What steps can be taken to evaluate results of programs?
      5. How can provision be made for the continuing education which is necessary to help people deal with their food problems?
   C. Mobilizing an educational personnel adequate to do the job.
      1. How can the services of the present employed personnel be made more effective?
      2. How can their service be augmented by:

a. Drawing upon professional workers in related fields?
b. Using professionally trained workers in public service organizations, business, press, and radio?
c. Using lay leaders?

3. How can a community plan be developed for the most effective use of available professional and lay leaders and for bringing and keeping them in touch with the results of recent nutrition research pertinent to the job in hand, and also with effective methods of education?

D. Providing, evaluating, and using educational tools.
1. Types of educational materials available.
2. What further materials are needed?
3. What materials can be developed effectively at national, State, and local levels?
4. How can materials be adapted to meet the needs of different educational, cultural, and income groups?

SUMMARY OF DISCUSSION

Representatives of governmental agencies, of schools, colleges, and universities, of professional associations, voluntary agencies, and business organizations as well as of the press, met to discuss methods of securing effective results in nutrition education. Eight reports were presented to illustrate different kinds of community projects being carried on in different parts of the country.

Four subsections discussed in detail the methods to be employed in developing educational programs through the use of all community resources, including professional and lay groups and leaders as well as all available publicity media. One subsection discussed plans for mobilizing educational personnel by using new or already existing State and local nutrition advisory committees and representatives of special groups, such as religious leaders and members of: The medical profession, youth groups, labor groups, and service groups (e. g. Rotary and Parent-Teacher Associations). It was suggested that the services of professional workers be supplemented by those of lay workers from business organizations and from other community groups, all of whom might cooperate in using available educational and publicity facilities. Specific suggestions were made concerning the preparation of educational material for the press and for magazines. Educational tools were enumerated and evaluated, and it was especially stressed that clearing houses were needed in the States so that nutrition information might be assembled, analyzed, classified, and disseminated effectively.

DISCUSSION

Throughout the meeting of this section there was evidence that the participants desired to make recommendations that would foster cooperation by the various agencies interested in nutrition rather

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than competition for an opportunity to do the job. In this spirit it was suggested that a State or local nutrition committee would render maximum service if it could bring these various groups together to study the situation, and, recognizing the particular abilities and resources of each group or individual, work out a program to which each could contribute.

The following list of national, State, and local agencies, organizations, and associations is appended to give some idea of the diversity of interests and background represented by the members of the section.

Government agencies:
- Department of Agriculture:
  - Agricultural Adjustment Administration Consumers Guide.
  - Agricultural exhibits.
  - Bureau of Home Economics.
  - Extension Service.
  - Farm Security Administration.
  - Surplus Marketing Administration.
- Federal Security Agency:
  - Office of Education:
    - Elementary education.
    - Business education.
    - Home economics education.
    - Vocational agriculture.
  - United States Public Health Service.
  - National Youth Administration.
- Department of the Interior:
  - Office of Indian Affairs.
- Department of Labor:
  - Children's Bureau: Maternal and child health service.
- Work Projects Administration: Nursery schools.
- Office of Government Reports.

State and regional representatives of Government agencies listed above and of other agencies:
- American Red Cross: Nutrition Service.
- Public schools: Principals of elementary, intermediate, and high schools; city supervisors of home economics; teachers of home economics, biology, health education.
- Colleges and universities: Presidents; heads of home economics departments; professors and research workers in nutrition; teacher trainers.
- Centers, services, and foundations: Welfare, health, visual education, films.
- Professional associations: Educational, medical, dental, nursing, library, research, home economics, dietetics.
- Farm and farm women's organizations.
- Press and business: Newspaper columnists; magazine editors and writers; radio; home economists in public service companies; food companies, life insurance companies, dairy councils, other positions.

In order to present material for group discussion and to assist in recognizing the various factors that contribute to the success of an

educational program, several illustrations from various parts of the country were presented. It should be emphasized that the illustrations selected were meant to be only representative of kinds of projects which are being carried by many organizations and agencies. Time did not permit any adequate presentation of experience in nutrition work. The illustrations, however, did show the effectiveness of certain general procedures as they have been used. They have been briefed for inclusion in this report:

Report 1.—A Study of Negro Infant Feeding in a Selected Community in North Carolina was reported by Miss Flemmie Kittrell, head of the Department of Home Economics at Hampton Institute. This report describes one way of finding the needs of the people. The infant feeding practices in a fairly representative group of Negro families in Greensboro, N. C., were studied in 1935. Data on 260 babies, whose ages ranged from 3 to 12 months, were collected by questionnaire. More than 50 percent of the breadwinners were employed at the time of collecting the data. The writer believed that the economic set-up had a great influence on the general nutritional welfare not only of the infants, but of the entire family.

Personal visits were made to the homes, the parents were interviewed, and daily charts of what the people were eating were filled out. Three basic facts were found to be at the root of the difficulty: People lacked money; they did not know how to select food; and they did not know how to buy food with the little money they had. The facts revealed by the survey led to efforts to improve the nutrition of the Negro families. "We set out to help them (1) learn the kind of foods they need, (2) buy the inexpensive foods, and (3) prepare these foods so they are palatable and nutritious. Many of the children of these families have gone to schools where continued nutrition instruction has been given and reports indicate that their nutrition has improved."

Report 2.—To illustrate methods of changing practices in food preparation and buying techniques, Elizabeth Ellis, extension nutritionist in New Hampshire, reported on the two-meeting project Rolling in Dough followed by the two-meeting project Bread Round Up.

Help with newer methods of making breads, especially those with whole grain products, was requested by home demonstration women at county program planning meetings. The State specialist trained a total of 300 selected food leaders from 150 local clubs, who presented information through talks and demonstrations to 2,500 persons. Subject matter included buying flours, principles and costs of bread making, and importance of whole-grain breads in diet. Methods included questionnaire on women's practices in buying flour, experiment to determine relative yields of hard wheat and all-purpose flours in the same recipe, lectures, discussions, demonstrations, and reports of practices adopted, including bread made for sale.

Report 3.—Nevada's 17-year-old State-wide "keep growing demonstration" in which the Extension Service, school superintendents, public health workers, newspapers, and communities cooperated, was reported by Mrs. Mary Stilwell Buol, Assistant Director for Home Economics, Agricultural Extension Service, University of Nevada. This project was selected to show the value of program planning,

of holding to a clear-cut basic program over a period of years, of effective motivation, and of cooperative effort within an agency and local participation with other agencies.

Initial support was gained by capitalizing on the interest of men in a livestock State in problems of animal nutrition and on the willingness of parents to make changes for the benefit of their children. Beginning with a few communities the program gradually expanded until it became practically State-wide.

Community situations were canvassed for causes of undernutrition and possible avenues of attack with regard to local food supplies, strongly entrenched family food patterns, and available community resources. Long-time and yearly goals were set in terms of continuing weight gains of school children, and improvement in a series of factors indicating good or poor growth. Outstanding needs in the diets of children and their families were kept before the local community and the State through food habit checks, home visits by trained leaders selected from home demonstration clubs, school work, newspaper articles, and radio. Some outstanding needs was selected for intensive work each year, and followed up in succeeding years, stressing production for home use in many instances. For example: A quart of milk a day for children; home dairy cows; clean milk supply; hearty breakfast with bowl of hot, whole-grain cereal—later, use of wheat germ in cereal and bread; two vegetables besides potatoes, involving a continuing home garden campaign; sufficient sleep and rest.

Each year the local situation was reappraised, progress measured, gains celebrated, new goals set, and specific recommendations made for the following year.

By 1940 the farm family per capita consumption of milk was 0.9 quart per day; the percentage of children "in good nutrition" had increased from 24 in 1922 to 80, and the percentage in really poor nutrition had decreased from 28 to 5; the University of Nevada reports marked improvement in physical development, nutritional condition, and posture of freshmen entering college which it attributes largely to the years of the keep-growing demonstration. Growth as an indication of nutrition and health and a widely varied diet rich in protective foods as an essential for good growth have been accepted on a State-wide basis. Larger problems of production are being reported to land-use committees to help solve. They are still problems, particularly as regards fruits and vegetables and an inexpensive food supply for low-income urban families.

Report 4.—How a high-school teacher of home economics coordinated the experiences of various groups in an effort to attain better nutrition for all was reported by Miss Pauline Drollinger, State Supervisor of Home Economics in Wyoming.

This teacher had 3 classes of girls and 1 class of boys, supervised the school lunch, and conducted a nutrition class for 38 adults in the community.

A home project which grew out of the study of foods and nutrition in the eighth grade home economics class illustrates how young people can help to bring about changed food practices in the home. The class member selected for illustration became interested in studying her family's food habits to find out whether their meals

included all the things they needed. On the basis of this study, she found that her family was eating too much white bread and jelly, and that their meals did not include enough milk, whole-grain cereals, or vegetables. With the help of her home economics teacher and an aunt who had been studying in the adult class, she planned the menus and arranged for a free supply of milk and carrots. After carrying on this plan for some weeks she reported that while her family still ate too many starchy foods they had increased their consumption of milk and vegetables. The mother reported that their meals were definitely improved and they had not spent any more for groceries than formerly.

Report 5.—A story of the improvement of family nutrition was reported by Miss Erna Proctor, Regional Home Economist of the Farm Security Administration. This project illustrates the value of working with individual families on family planning to improve the food supply and family diet.

Each family with the Farm Security Administration compiles detailed information as to its food supply and resources and is visited by the farm and home supervisors, who assist them in developing a program to supply the food needs of the family.

Work with a farm family in Florida beginning in 1937 was reported. County farm and home supervisors assisted the family to determine whether the farm was capable of producing subsistence for the family and sufficient income to meet other needs. It was found that soon the family would need additional land and the plan that followed to help the family gradually increase its production and conservation of food was described. It included fencing the garden, building a smokehouse, purchasing a cow, and obtaining additional fruit jars.

The food produced and preserved in 1940 included 447 quarts of fruits, vegetables, and meats, including the canning of one beef weighing 150 pounds; 216 pounds of lean pork; two and one-half 50-pound cans of lard; and 15 bushels each of sweet- and Irish potatoes. They had 50 hens, and purchased a second cow. At the end of 1940 the family was able to meet its food budget.

Report 6.—A description of a school program in which all the teaching was coordinated around the idea of better health of the youngsters was given by Mr. A. B. Crawford, principal of the Lafayette High School, Lexington, Ky. This is a story of cooperative effort among school divisions for the improvement of nutrition and of the programs of the elementary, junior, and senior high schools which contributed to nutrition education in the school.

Early in the school year of 1940 a committee of teachers appointed to study school and community needs and to locate problems needing attention in the school's program of training for total national defense reported that a nutrition education program was urgently needed.

A committee of 30 pupils, representing junior-high-school home rooms and departmental groups, was asked to determine pupil attitude toward a concentrated effort on the part of the entire school in working together on one major problem. Pupils and teachers made a survey of food habits, food production, and food preservation, and

developed a nutrition program, listing the following objectives for the school and the community to consider:

1. Develop an interest in the social and economic welfare of all members of the community.
2. Produce food for family consumption.
3. Preserve food for the family.
4. Establish desirable food habits.
5. Improve buying habits.
6. Evaluate the program.

All divisions of the school worked together on the problem of food needs of the individual to stimulate the interest of pupils in determining ways of solving their own food problems.

Junior high school pupils worked on individual problems like "food and health," "food and the athlete," "food and personality," "food needs of high school boys and girls." The departments of home economics, vocational agriculture, biology, chemistry, and the cafeteria personnel helped pupils carry out these studies by furnishing information, materials, and laboratories for nutritional experiments.

Some 60 percent of the student body was reached by the correlation of the work of the junior high school, and of biology, chemistry, and home economics in senior high school. The regular programs of these classes benefited rather than suffered.

The social-studies groups examined the food habits, group and individual health of peoples, races, classes, religious groups, and other elements of the world's population, and the effects of such factors upon nations, peoples, and governments in peace and in war. A group studying Spanish included in its study of Mexico and South America the comparison of food habits.

Mathematics classes related to food study whenever possible, problems and formulas dealing with ratios, percentages, content, volumes, etc.

The physical education group motivated the study of food and health and stimulated desire to discover existing needs, meeting them in some way.

After completing the comprehensive study of the food needs of the individual, all groups directed the study in terms of the family food needs.

The development of cooperative school gardens contributed to the production of food for the school lunches.

To encourage an increased production of food for the family, projects were developed in home gardens, cooperative poultry raising, and in tree planting. The preservation of food for the family, the purchase of foods for family use, and the preparation of food for family consumption were significant phases of the program for the improvement of family nutrition.

It is impossible to report everything that each part of the whole school contributed to this program; but to be as successful as this program has been and will continue to be, each and every part must cooperate to the fullest extent, and each teacher must watch her opportunity and make a contribution to the whole program.

Report 7.—How the State department of education, through its State supervisors of home economics and health education worked with other agencies in promoting State-wide improvement in school lunches was reported by Miss Alida Fairbanks, State Supervisor of Home Economics in Vermont. This report illustrates the value of a specific program in which the efforts and interest of many agencies may be coordinated.

There was interest in a hot lunch in the schools of Vermont for the following reasons:

1. Malnutrition among the children.
2. Poorly balanced diets evidenced in some lunches brought from home.
3. Lack of fruit and vegetables in the diet because children were not at home for the noon meal.
4. The long, cold rides to school made it desirable to have a hot dish.

The cooperation of many interested agencies was secured in the development of a coordinated nutrition program. In 1939 and 1940 the State supervisor of health and the State supervisors of home economics cooperated with the Department of Surplus Commodities and superintendents of schools to give demonstrations to teachers in rural schools and in high schools on the use in the school-lunch program of the surplus commodities then available.

In 1940 and 1941 a meeting was held of the State supervisors of health, home economics, and WPA hot-lunch projects, directors of surplus commodities, and of women's work (WPA). A memorandum of understanding was drawn up for the cooperative relationships of the various agencies working on the hot lunch program in the schools. It covered the assignments of each representative interested in the school lunch program, such as the specific responsibility of the school administrator, the home economics teacher, the State supervisor of the WPA lunch workers, and of the WPA worker who is assigned to the project.

The State supervisors conducted three meetings for the WPA workers who were to prepare the hot lunch in schools, to teach the planning of menus, to demonstrate food preparation and methods of serving, and to study the WPA regulations. District meetings were conducted for teachers of rural schools, elementary schools, and non-city schools who were interested in a hot-lunch program. The meetings were arranged to acquaint these teachers with: Regulations for obtaining surplus commodities; responsibilities of administrators, WPA workers, and supervisors in the development of the hot lunch program; and desirable standards for planning, preparation, and serving hot lunches.

The methods used to promote interest and understanding among the cooperating groups, to train workers, to develop a workable program, and to teach nutrition to the children and their families seemed to be successful. The superintendents reported that they felt the program had been very valuable from the standpoint of improved health of the children and desired that it be continued if possible.

Report 8.—A report of the work of the State Nutrition Committee in adopting and using a Texas food standard was given by Miss Mil-

dred Horton, State home demonstration leader in Texas. The use of one basic guide for food selection prevented misunderstandings resulting when agencies working in the same area seem to use different standards.

The food standards worked out by the committee were printed as a small, illustrated folder, used as a basis of teaching by all agencies through their various types of programs. It has been distributed with the groceries to families who use food stamps, and has also been used as a basis for posters and exhibits placed in public eating places and grocery stores, in class rooms and school halls. This experience of many agencies getting together to develop material for use by all of their representatives suggests possibilities for other types of pooling of resources.

Reference to "some basic assumptions for an adequate nutrition education program" sent to the Conference members preceding the Conference, showed how these reports illustrated the application of these assumptions.

In the discussion which followed, Dr. Alice Keliher pointed out that we need to think a great deal more about the emotional factor. We can point out to people that they ought to eat vegetables, but they won't eat them if they hate them. In meeting the problem with children in the school we need to accustom them to certain foods, by allowing them to participate in growing, cooking, and working with foods in order to build up a readiness for them.

Mrs. Wood discussed the need for working with parents as well as with children. She said: "The youngsters often get one set of attitudes in school and an entirely different set at home from the parents."

Dr. Andrus commented on the value of parent participation in nursery schools.

Dr. Eichelberger made a plea for more nutrition education in the lower grades of school, and a number of other participants brought out the need for reaching the boys as well as the girls and for making nutrition teaching a part of the total health education program.

Because of the size of the group it was necessary to break up into four smaller groups designated as committees, where the discussion was continued. In order to try to cover the scope of nutrition education each committee was asked to consider and report on a special part of the problem. Following are the reports of these four committees:

COMMITTEE I

Chairman, Elizabeth A. Rivers; Secretary, Marjorie E. Luce

How Can An Educational Program Grow Out of Needs of the Members of the Community or Group To Be Reached?

After considerable discussion of ways and means of getting at the needs of the people in a community the following recommendations were drawn up and accepted by the committee:

A. To insure democratic procedure we believe that participation of a local community in planning, building, and carrying on its own nutritional program is basic to success; therefore we recommend that:

1. All interested groups and persons (boys and girls and men and women) living within a community be provided an opportunity for participation in formulating, putting into effect, and evaluating a local program for nutrition.
2. If data are available regarding the nutrition needs in a local area, they may be assembled, analyzed, and interpreted by the people of the area in the light of accepted nutritional information and criteria as a basis for program planning. If no local data are available, the community should plan to find out what needs to be done as soon as possible.
3. To focus attention on health and nutrition situations, procedures, materials, and measuring criteria should be made available for use by local community groups in evaluating their own health and nutrition conditions.
4. Emphasis should be placed on the use of those methods of education adapted to all ages and economic levels which will build interest in a high standard of health, especially toward the development of those attitudes which will result in desirable action.
5. All phases of group, family, and individual situations having a bearing on ability to buy, produce, prepare, conserve, and consume food should be considered in a local nutrition program.

B. A well-coordinated plan of action and activities from the State through the county and to the local level is fundamental as a procedure for getting a program under way on all fronts at once; therefore, we recommend that:

1. The suggestions proposed by the National Nutrition Committee to the State nutrition committees be used as a guide in organizing local groups for immediate action. In those situations where such a plan is not practicable, adaptation should be made to meet the local needs for a concerted nutrition program.
2. Existing organizations, agencies, and personnel concerned with health, welfare, and education be utilized wherever possible in preference to setting up new organizations.
3. Local programs be known as community programs and that names of organizations and agencies concerned be submerged in the united front.
4. Common basic instructional material be agreed upon and made available for use by all groups and agencies working in the same area.

C. We believe that programs having community significance, such as the School Lunch Program, should be made avenues for nutrition education for both children and adults.

COMMITTEE II

Chairman, Alma Keys; Secretary, Inez M. Hobart

Determining What to Teach and How to Make It Effective

In the discussion, many problems were presented which emphasized the difficulty in making education really effective in the life of the individual. The group as a whole developed the following report:

A. Recognizing that every individual in America has a right to information which he can use to guide his selection and use of food, we recommend that:

1. Education start with people where they are and be built on existing food patterns.
2. Each State nutrition committee set up a single guide for food selection based on accepted food allowances, and that it make plans for studying the various types of food patterns in the State as affected by individual, racial, or cultural patterns, by food supplies available, by incomes, and by education, and that plans be made for assisting local groups in helping families make the necessary adjustments.
3. Subject matter materials selected and developed be simple and adapted to the group with which used.

B. If educational programs are to meet the needs of all people it is necessary:

1. That they be made available to urban and rural families.
2. That problems affecting food selection, purchase, preparation, production, and conservation be considered. (Local situations will determine the emphasis needed.)
3. That real-life problems which include the opportunity for individual and group participation in their solution be made the basis of the study of nutrition. Situations should be selected which are appropriate to the age level, to the economic level, and to the previous experience of the learners.
4. That teacher-training institutions study their State and local nutritional problems and base their nutrition education program on these findings. In-service training of teachers and leaders will be necessary and should include experiences in dealing with the many types of family situations which exist in the State.

C. It is recommended that the State nutrition committee serve as a technical advisory committee in the preparation of materials.

D. It is recommended that results of studies which shed light on effective education procedures such as those of the Food Habits Committee of the National Research Council be made available to all agencies working with nutrition education.

COMMITTEE III

Chairman, Roberta Hershey; Secretary Louise F Keller

Mobilizing an Educational Personnel Adequate To Do the Job

Considerable time was given in this committee to discussion of the problems of extending education through the use of lay leaders. Tentative recommendations were drawn up by a set committee and revised and accepted by the larger committee.

A. We recognize that adequate nutrition is not only a matter of food, but is related to the individual's whole self (physical and constitutional). It is furthermore influenced by emotional, social, and economic conditions of the family, and of the community, and therefore all the resources of a community are needed to develop an effective nutritional program. Cooperative planning is necessary to recognize needs, determine goals, and to utilize the particular abilities and other resources of each group. Some guides for the utilization of community resources follow:

1. That new or already existing State and local nutrition committees be composed of representatives of all interested professional and lay groups and include youth as well as adults. The importance of including in the planning meetings representatives from a wide variety of groups was emphasized. This would include medical, dental, religious groups; representatives of the school—on the elementary, secondary, and college levels—administrators, teachers, and librarians; representatives of public health and social agencies. It would include workers from agriculture, home economics, extension, and farm security programs; nutritionists and home economists in other public and private agencies; representatives of service clubs and such other lay organizations as are made up of parent groups, and special-background groups. It was suggested that some kind of community "intern" experience be provide this summer for college girls in home economics so that they could be a part of the nutrition program and what they have already learned could be used. This would be advantageous to the girls and to the program. It was suggested further that we need to be creative in using young people in many ways for community service. They have an advantage over lay leaders in that they have had recent training.
2. That the services of professional workers be supplemented by lay leaders, other lay workers, and individuals working with radio, press, and home service organizations. Lay workers can contribute to a study of the problems, to the setting up of policies and programs. They can assist with projects, such as the making of surveys, and can call

upon professional workers whenever their technical knowledge and skill are needed.

3. That a training program for professional workers and for lay leaders needs to be given special attention.
4. That in the pre-service and in-service education of professional workers in nutrition there should be provided experiences in discovering what the needs for nutrition education in the community are, and in developing plans to meet them. All teachers in elementary and secondary schools, nurses, and social workers need education in nutrition.
5. That training of lay leaders should include experiences in discovering needs for nutrition, training in furnishing the basic simple nutrition information necessary to solve the problem revealed, and in the use of educational procedures to reach the group concerned.

COMMITTEE IV

Chairman, Alice H. Smith; Secretary, Henrietta Fleck

Providing, Evaluating, and Using Educational Tools

Committee IV submitted the recommendations for "a truly effective nutrition program" as indicated in the final report of section V.

The committee further recommended:

1. That there be a wider dissemination of all available tools, such as posters, films, and demonstration, to all groups regardless of whether they are working directly in the field of nutrition.
2. That additional tools, both visual and auditory, which are simple, easily understood, and suitable to all groups, be devised and made available to all communities
3. That responsibility for evaluation of educational tools continue to be assumed by those agencies which have qualified nutrition personnel and that such other clearing houses as are essential be set up.
4. That there is a definite need for the following type of tools:

   a, Good posters; b, Exhibits, including those for loan and for permanent use; c, Food demonstrations; d, More films; e, Simple dramatization of nutritional facts; f, More pictorial presentation in papers, magazines, posters, etc.; g, More use of the press; h, More effective use of radio, talks, forums, market reports; i, Interpretation by visual aids of components or essentials of a dietary (of new food allowances) in terms of foods and meals for all groups; j, A series of handbooks suggesting ways of using these materials, each handbook to be directed to a specific group of workers who are in a position to influence nutrition practices; k, Simplified textbooks in nutrition including scientific nutrition material adapted to various levels.

These tools should be adapted for use in the following channels:

Libraries.
Clinics.
Every home.
All school groups.
Factories.
Industries.
Allied labor groups.
Churches.
Welfare organizations.
P. T. A.
Fraternal organizations.
Social organizations.
Women's clubs.
Professional clubs.
Home economists in public utilities.
Men's service, civic, and professional clubs.
Labor unions.
American Legion and auxiliaries.
Medical and allied groups.
Dental and allied groups.
Conventions and meetings.
School administrators.
Food distributors.
Food producers.
All farm organizations.
Health and allied groups.

5. Recognizing that business has contributed materially to the field of research and education, it is urged that authentic materials, such as publications and visual aids prepared by such organizations, be accepted and used when they make a contribution to specific phases of nutrition education.

The reports of the four committees were submitted to the section for discussion and approval. Changes were made in these reports on the basis of this discussion and the chairmen and secretaries of section V were authorized by the committee chairmen and secretaries to condense them into a series of more general recommendations for the report to the general Conference.

RECOMMENDATIONS

I. Proposals for Immediate Action.

A. A truly effective nutrition program will:

1. Reach the whole population—all groups, all races, both sexes, all creeds, all ages.
2. Recognize motives for action and include suggestions on what to do and how to do it.
3. Develop qualified leadership.
4. Drive home the same ideas many times and in many ways.
5. Employ every suitable educational tool available, or that can be developed on national, State, and community levels.
6. Adapt those tools to the many and varied groups to be reached and use them with intelligence and skill.
7. Consider all phases of individual, family, and group situations that have a bearing upon ability to produce, buy, prepare, conserve, and consume food.
8. Afford opportunity for participation in making, putting into effect, and evaluating local nutrition programs.
9. Enlist the fullest participation of all citizens and work through every possible channel to reach the people.
10. Be adequately financed.

II. Proposals Looking Toward Long-Time Planning.

A. A wise and farseeing program, while making full use of defense motives and needs, will build for a permanent, coordinated program for all the people.

1. A vast educational program in our Nation must be conceived in terms of active participation of all the people to focus attention on health and nutrition situations.
2. To carry out this broad nutrition education program, the services of professional workers will need to be augmented by qualified lay leaders and many other individuals outside the professional nutrition field. Such leadership should include young people as well as adults.
    a. Present educational personnel, even when supplemented by trained local leaders, is inadequate to meet the vastly increased requirements.
3. That professional and lay leaders be given pre-service and in-service education in nutrition. This training should include nutrition information and also experiences in discovering needs and in developing plans to meet them.
    a. For many professional groups not now especially prepared to contribute to a nutrition education program, practical in-service training should be provided as soon as possible.
    b. The preemployment training of these workers should be modified to include nutrition education that will better fit the graduate in the future to make a contribution to nutrition education.
4. Studies should be made concerning the degree to which various racial and cultural food patterns may need supplementing in order to make them nutritionally adequate.
5. To be well fed, people have to know what foods they need every day, how to combine these foods into meals, how to check meals against standards. To provide meals for a family, they need to know how to buy and prepare food. Many rural and urban families need to produce more or less of their food supply, and to understand production techniques. Farm families need to make the production of family food a part of their yearly farm mangement plan.
6. Only when paralleled by appropriate education, will the various action programs for the wider distribution of food make their full contribution to community betterment.

7. If we are to succeed in this giant task of education, we shall have to use our ingenuity and inventiveness in providing the tools and materials that make ideas, have interest and meaning, and help people to take wise action. We have many such tools at our disposal now. We need to know where they are, how good they are, how to get them, and how to use them. A system of clearing houses should be set up immediately for widest possible dissemination of such information. But we also need many more tools and materials than we now have, and we need desperately to create new, vital, lively ways of using them. We propose, therefore, that all concerned—State, local, and national groups—assist in providing:
   a. Good documentary and theatrical films, including news reels and short subjects.
   b. More effective use of radio, including dramatizations, talks, nutrition news, town-hall discussions, forums, market reports, etc.
   c. More effective use of the press in release of significant news material.
   d. More pictorial presentation in papers, magazines, posters. etc.
   e. Exhibits, including lively techniques of presentation.
   f. Film slides and lantern slides, radio recordings.
   g. Posters with dynamic presentation.
   h. Food demonstrations.
   i. Simple dramatizations of nutritional facts.
   j. More simply written and highly illustrated free bulletins.
   k. Many other types of tools are available and can be used.
8. It is believed that each State and community needs some central group to act as a clearing house for information, to adapt national guides to meet local needs, to mobilize resources, and to serve as a technical advisory group in the preparation of material. In most areas the State, county, or city nutrition committees will logically serve these purposes. To stimulate the widest and speediest use of the intelligence and insight of our people we need to enlist the united effort of the many individuals, community groups, and agencies that can be mobilized. All will be needed in order that the basic facts and plans of the national nutrition program may become the common possession of the American people.

SECTION VI

PROFESSIONAL EDUCATION IN NUTRITION

Presiding, LYDIA J. ROBERTS, PH. D.
Chairman of the Department of Home Economics, University of Chicago
Chairman of the Subcommittee on Dietary Standards,
National Research Concil
Chairman;
JOHN H. MUSSER, M. D., Professor of Medicine, Tulane University
Medical School, New Orleans
Cochairman

AGENDA

I. What has been accomplished to date in making nutrition a part of the basic training for professions giving health and welfare services to large groups of the population, as—physicians, dentists, nurses, social workers, teachers of elementary grades, and others?

II. Along what lines may courses in nutrition, as now presented in college and university curricula for both men and women students, be redirected with the view to enlarging their usefulness?

A. For the present and future undergraduate students in premedical, predental, social work, nutrition, and teacher-training courses.

1. Do courses in nutrition need reexamination as to their subject matter content?
2. Should the basic scientific background necessary for the proper application of the principles of nutrition be enlarged for undergraduate students in such courses as those in agriculture, home economics, social work, and physical education?
3. Should greater emphasis and more thorough grounding in economics and social psychology be given to all those groups of professional workers going out to teach, or to serve in other professional capacities, large groups of the population?
4. How can the present theoretical work in nutrition be augmented with field experiences from actual family situations, and/or with more experience in prepara-

tion of good meals as a means of translating the nutrition teaching into action and practice?

5. Can the undergraduates' technical training be more profitably and effectively brought into responsible use than it is at present?

III. What is being done in the way of graduate work for persons being trained in certain specialties in which there are greater-than-average opportunities to foster good nutrition? Specifically, what is being done for:

A. Physicians engaged in internal medicine, pediatrics, and obstetrics.
B. Public-health physicians and nurses.
C. Dietitians, nutritionists, medical social workers, and child-welfare workers.
D. Teachers of health education, social sciences, biological sciences, home economics, and agriculture.

IV. What provisions should be made for persons now engaged in professions, who need to review and expand their knowledge of nutrition?

A. For the dental, medical, dietetic, and nursing groups, who may instruct many of their patients in matters of proper food.
B. For teachers of all age groups, who may have opportunity and need to teach the principles of nutrition to their students.
   1. What types of courses are needed—special short courses, resident scholarships, summer courses, etc?
   2. Exactly what kind of practical training in nutrition do these professional leaders need?

V. What provisions should be made for training members of a community with some scientific training, e. g., homemakers with home economics, chemistry, or nursing training, who may become leaders of lay groups in an active civilian program of nutrition in defense?

A. What phases of the problems in organization of "refresher" or review courses for the benefit of such groups should be considered by this section of the Conference?

VI. Should the subject matter and application of nutrition be incorporated into curricula not now embracing it; and if so, into which curricula should it be integrated?

A. Within what types of educational programs (and/or institutions) would the introduction of courses in nutrition be practical and useful?
B. Are there professional workers not now receiving any nutrition training who need this knowledge?
   1. As a means of developing an appreciation of the importance of nutrition.
   2. As a guidance factor in their own living.
   3. As a basic science tool to serve as a background for all their work.

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VII. What provisions should be made for an adequate number of well-qualified teachers and consultants in nutrition to meet the increasing need of the professional education field?

SUMMARY OF DISCUSSION

The section on professional education in nutrition was charged with the responsibility of considering what can be done to improve the nutrition of our population through more effective education of our professional workers who must be depended upon to do this task of nutritional betterment. It was recognized that the group of nutritionists and dietitians whose sole activities are in the field of nutrition education and service is relatively small and can therefore at present reach only a small proportion of the population directly. Other groups of workers, however—physicians, nurses, dentists, teachers, social workers—are in strategic positions to help on the nutrition problem through their close association and influence with large groups of people. The nutrition problem will be effectively solved only when all these workers have enough fundamental training and understanding to enable them to do this task.

Immediate steps must be taken to provide additional training for workers already in the field. In addition, the schools that offer professional training must strengthen their courses so that they will send out graduates in all these fields more adequately equipped to deal with nutrition problems. Such developments in the nutritional content of professional education can be realized only through the cordial understanding and wholehearted support of administrators of professional schools, of other educational programs, and of service agencies. The various professional organizations and associations, from their firsthand knowledge of the needs of the field, are in a position to give invaluable assistance to administrators and educators in putting these modifications into effect.

Certain needs seem to be shared by most or all of the professional groups reporting. Courses in nutrition must be built on a sound foundation of physics, chemistry, and physiology. The economic, social, and psychological aspects of nutrition must be given due emphasis. A considerable body of nutrition knowledge may well be incorporated into other subjects in the professional curriculum, but the various aspects so presented should be coordinated and supplemented to give an understanding of the science as a whole. As early as possible, students should be made aware of the contribution of nutrition to the well-being of the individuals and the groups which they are preparing to serve. Opportunity should be provided to develop proficiency in presenting nutrition information both to individuals and to organized classes.

A larger number of skillful teachers is needed to make education in nutrition in the professional schools more effective. These teachers must have an understanding of the total needs of the particular field as well as a thorough grasp of the fundamentals of nutrition. To serve more adequately workers already in the field, there must be additional well-qualified specialists in nutrition to serve as supervisors, consultants, and staff educators.

The relative acuteness of the needs varies from group to group. For example, medical and dental students should have greater opportunity for practical work with family food problems whereas students of home economics, who are preparing to become specialists in nutrition, need stronger courses in the fundamental physical, chemical, and biological sciences.

DISCUSSION

The session was opened by the chairman, Dr. Lydia J. Roberts. In her introductory remarks she pointed out that the group whose sole activities are in the field of nutrition education and nutrition improvement—nutritionists and dietitians—is relatively small and can therefore reach only a small proportion of the population directly. Other groups of workers, however—physicians, nurses, dentists, teachers, social workers—are in strategic positions to help on the nutrition problem through their close association and influence with large groups of people. The nutrition problem will be effectively solved only when all these workers have enough fundamental training and understanding to enable them to do this task.

The chairman suggested that one of the most effective ways of studying what needs to be done would be to review briefly what is already being done in the various fields of professional education represented by the section.

The remainder of the opening session was given over to prepared statements from workers in the fields of professional education, and to general discussion of these statements.

Medical and dental education.—Dr. Otto A. Bessey outlined the nature and extent of nutrition instruction in both the Harvard Medical School and Harvard School of Public Health. The deans of both schools have asked for a survey of the present curriculum and recommendations. At present nutrition instruction is more highly organized in the school of public health, in which about three-fourths of the students enrolled elect one semester of nutrition and one-tenth elect an entire year. Enrollment and time given over to nutrition have both increased markedly in the past five years. In the second semester the students observe the work of clinic and community nutritionists; they also have scheduled conferences with the biochemist and the nutritionist who give the nutrition course. In the medical school students are introduced to nutrition in the first-year course in biochemistry and receive variable amounts of instruction in their clinical years, probably most in connection with pediatrics. Next year an experimental elective course in nutrition will be offered to third- and fourth-year students, who will have their attention directed to practical dietary problems, including the economic and psychological aspects of nutrition.

Dr. L. H. Newburgh, professor of clinical investigation and internal medicine, mentioned some of the difficulties involved in strengthening the nutrition content of the curricula in medical schools, but expressed the thought that such work could be developed in schools of public health.

Dr. James Paullin mentioned the desirability of having in the out-patient clinic a consultant in nutrition to whom medical students

could go for advice in dealing with nutrition problems. He also pointed out the extreme need for refresher courses for practicing physicians, especially those whose medical training antedated the newer knowledge of nutrition.

Dr. Dwight L. Wilbur stressed the need for more well-trained dietitians to interpret the physician's dietary recommendations to the patient.

Speaking as a dentist, Dr. Fred Miller urged the development of an increased respect for the subject matter of nutrition, and the provision of assistance from nutritionists for the practicing dentist.

Mrs. Anna dePlanter Bowes (consultant in nutrition, State Department of Health, Pennsylvania) described an experiment to improve the nutrition instruction in the dental curriculum at the University of Pennsylvania. Senior students, assigned to clinic service, were required to complete case studies on two patients presenting nutrition problems.

Dr. Phillip C. Jeans (University Medical School, Iowa City, Iowa) told of a project recently tried at the University of Iowa, whereby dental students come to the pediatrics department of the medical school for instruction in child nutrition with special emphasis on dental health.

In the absence of the cochairman, Dr. John H. Musser, Dr. L. H. Newburgh was asked to serve as leader of the representatives of medicine and dentistry in preparing recommendations for consideration of the section.

Nursing education.—Miss Mary Dunn reported on a current study of the nutrition content of the curriculum in public health nursing. In 22 of the 26 approved courses in public health nursing, some nutrition instruction was given with a median time allotment of 30 to 36 hours. The study gave consideration to the responsibilities of public health nurses to the field of nutrition and outlined a tentative course in nutrition that would enable public health nurses to be more successful in integrating nutrition into their generalized program. Nutrition is one of the major subjects in programs for in-service training of public health nurses.

Miss Henderika Rynbergen outlined the courses in nutrition for student nurses and graduate nurses at the New York Hospital. Sixty to ninety hours of class instruction in nutrition are supplemented by experience in teaching in the wards and in the out-patient food clinic.

Some of the major problems mentioned were: (1) More adequate training in methods of teaching for dietitians who are assigned to the teaching of nurses; (2) lightening the load of dietitians to provide time for the preparation of class work and for the teaching; (3) more adequate supervision of the teaching of nutrition to student nurses, with emphasis on giving the instructor a more accurate idea of the needs of the students. In the discussion which followed, Miss Margaret Edwards and others reaffirmed the desirability of including methods of teaching in the undergraduate training of students entering the field of dietetics.

Dietetic education.—Dr. Kate Daum (director of dietetics, University of Iowa) summarized the nutrition content of courses for student dietitians, approved by the American Dietetic Association. In about one-third of the approved courses students are given op-

portunity to apply their theoretical knowledge of dietetics in the out-patient department or food clinic. All courses include class instruction in dietetics by the medical and dietetics staff and about 40 hours of seminar in advanced nutrition. Normal nutrition is stressed in these courses. If dietitians were relieved of part of their administrative responsibilities, they would be able to give much more attention to the instruction of patients and staff in the hospital.

Speaking from the point of view of the community nutrition worker, Miss Dorothy Duckles (Community Health Association, Boston, Mass.) pointed out the limitations of present dietetic internships as preparation for this field. There should be some differentiation of training, even at the undergraduate level, for persons going into community work, and more provision for field experiences with community organizations.

Social work.—Dr. Flora Slocum (Social Security Board, Washington, D. C.) stated that the recent study of preparation for public social services did not include consideration of consultative service in home economics and nutrition, and recommended that a special study be undertaken. There is a demand by departments of public welfare for consultants with training in home economics and nutrition and their application to social welfare.

General education.—Dr. Kenneth L. Heaton (workshop advisory service, School of Education, Evanston, Ill.) said that strengthening preservice education must be accompanied by greater attention to in-service education and improved methods in this field. The value of the "workshop" type of in-service education has been demonstrated. Of the 128 colleges and universities announcing workshops during the summer of 1941, 25 to 30 are offering some leadership in nutrition or health education.

In the ensuing discussion, Dr. Helen Judy Bond brought out the importance of elementary school teachers as educators in nutrition. Considering the crowded curriculum of teacher-training institutions, instruction in nutrition must be limited in quantity but the quality should be of the highest.

Health education.—Dr. C. E. Turner (professor of biology and public health, Massachusetts Institute of Technology) outlined a program for public health education and school health education. He emphasized the importance of convincing health officers and school administrators of the need for well-trained consultants to work with the staff and in the community. To meet this need, there must be more and better prepared health education specialists to serve both as special teachers and as supervisors. Teacher-training institutions should offer strong courses in health education. School administrators should provide more in-service training through employment of full-time health educators.

Miss Bess Exton (Association of Health, Physical Education, and Recreation, Washington, D. C.) urged that means be devised for furnishing elementary and secondary school teachers with current information and materials for health education.

Education of the nutritionist.—Dr. Grace MacLeod (professor of nutrition, Columbia University, New York) led a discussion which pointed out the difficulties of providing the undergraduate student in home economics with the broad training she needs and at the

same time of laying the scientific foundation for specialization in nutrition. There was general agreement, however, that undergraduate instruction in nutrition can be made more effective by (1) presenting scientific facts more graphically and appealingly; (2) making it function in the lives of students; and (3) providing field experiences which will give an appreciation of the social and economic aspects of nutrition. Dr. Elda Robb and others emphasized the necessity for continuing to give basic scientific courses that lay the foundation for specialization at the graduate level and for developing a scientific attitude among undergraduates.

At the conclusion of these discussions, the membership of the section divided into groups for the purpose of preparing recommendations in the various fields of professional interest.

With the cochairman, Dr. John H. Musser, presiding, the second session was given over to the presentation, discussion, and adoption of the following sets of recommendations from each committee:

I. Professional Education in Nutrition for Physicians, Dentists, and Public Health Officers.

At present, there are few physicians, dentists, or public health officers who are qualified to take an authoritative position in the field of nutrition, but the need for them is very great. This situation urgently requires remedies in each of the three following ways:

A. *Better training in nutrition for medical, dental, and public health students.*—We recognize the inadequacy of the teaching of nutrition and dietary needs to medical and dental students. Much attention has been paid to this teaching in pediatrics, and more recently, in obstetrics, in some schools. But, in general, the teaching is inadequate in other departments where the subject could be emphasized with great profit. Students are usually given sufficient training in the biochemical and physiological principles of nutrition, but we are of the opinion that this information is not appreciated nor effectively used by the student because he is not given sufficient training in the practical application of this basic information.

The problem should be called to the attention of the Association of American Medical Colleges, the Council of the American Medical Association, and the Council on Dental Education of the American Dental Association. But inasmuch as action initiated by such bodies must necessarily be delayed, the attention of educators, of medical, dental, and public health students should be focused on this problem by calling a conference of the deans of these faculties for its solution.

B. *Extensive post-graduate courses in nutrition for physicians, dentists, and public health officers.*—In relation to post-graduate activities, we especially recommend that the House of Delegates of the American Medical Association, meeting in Cleveland June 2, 1941, the House of Delegates of the American Dental Association, meeting in Houston in October 1941, and the American Public Health Association be requested to urge that special attention be given to nutrition on the national, State, and county programs of the medical, dental, and public health societies, and that they also urge State societies to

arrange post-graduate courses in nutrition and dietetics. We also recommend that the attention of medical and dental schools be called to the importance of offering post-graduate courses in nutrition for physicians and dentists.

C. *Development of a certain number of physicians and dentists with a broad and extensive knowledge of the general field of nutrition and with sufficient experience in the recognition of nutritional diseases to provide expert medical and dental advice to public school teachers, social workers, public health nurses, nutritionists, practitioners of medicine and dentistry, and many others concerned with the nutritional needs of the people.*—In order to encourage the development of more medical and dental experts in nutrition, we recommend the establishment of nutrition clinics in association with professional schools, where facilities for research and advanced training will be available.

Members of the Drafting Committee:

Chairman, L. H. Newburgh.

I. Schour.
Fred D. Miller.
O. A. Bessey.
P. C. Jeans.
D. L. Wilbur.

II. Professional Preparation of Nurses in the Field of Nutrition.

A. For the undergraduate student nurse it is recommended that:

1. Courses in nutrition and diet therapy, as outlined by the Curriculum Guide for Schools of Nursing, and by the American Dietetic Association (see Outlines for Teaching Nutrition to Nurses) be more closely followed and applied by schools of nursing in the teaching of undergraduate nurses.
2. The instructor in nutrition be a full or part-time member of the faculty of the school of nursing.
3. Greater emphasis be placed on improving the quality and suitability of the instruction in nutrition, within the prescribed hours specified in the School of Nursing Curriculum Guide. This recommendation presupposes a sufficiently large, well prepared teaching staff.
4. Opportunity be provided for more practical experience, not only in the diet kitchen, but in the wards and the clinics, and, if possible, in the homes under close supervision.
5. The elements of nutrition be integrated throughout the entire basic nursing curriculum.

B. For the graduate nurse who is majoring in public-health nursing, it is recommended that:

1. In addition to the preparation in nutrition outlined for the undergraduate nurse, a course be included in the curriculum which will provide for:
   a. An appreciation of the family as a unit of service;
   b. A broader implication of the economic and social factors involved;
   c. An ability to instruct individuals and groups in the basic principles of normal food requirements of the body.

d. A closer working relationship with all community agencies interested in providing for every individual, and particularly for every child, a diet essential for normal growth and development.

C. For all graduate nurses, pursuing further study and advanced professional preparation, it is recommended that:

1. A course in nutrition be included in the curriculum or major; and also, that nutrition be taught as an integral part of all postgraduate and refresher courses, such as obstetrics, orthopedics, communicable diseases, et cetera.

D. It is further recommended that the in-service or staff education program of health agencies be enriched by utilizing all facilities that will contribute to the nutrition program.

1. In the larger agencies, this need may be met by the appointment of a full-time nutrition consultant.
2. In smaller agencies, particularly in rural areas, this need may be met by securing the service of a nutrition consultant on a part-time basis to conduct institutes, extension courses, et cetera. Such a consultant for example, may be from the State Dietetic Association or from the State or local department of health.

Members of the Drafting Committee:
Chairman: Mary J. Dunn, R. N.
Helen Stacey
Henderika J. Rynbergen
Reba Edwards, R. N.

III. Professional Education in Nutrition for the Dietitian.

A. For the long-time program:

1. At the undergraduate level
   a. Emphasis on field work in nutrition or contacts with social science and public health courses.
   b. Emphasis on methods and materials which the student can use in her later teaching of nutrition.
2. At the graduate level—that advanced and specialized study be encouraged.
3. In hospital training
   a. Emphasis on the teacher role of the dietitian particularly in the line of normal nutrition.
   b. Special emphasis on the methods and tools which can be used for teaching (1) the patient and his family under home conditions, and (2) the medical student and the intern.

B. The subcommittee recognizes also an urgency because of the shortage of dietitians and recommends that:

1. Short courses be established for the well-trained dietitian coming back into the field after a period of professional inactivity.
2. Refresher courses—for the working dietitian who wants to be brought up-to-date.

Members of the Drafting Committee:
Chairman: Kate Daum
Dorothy Duckles

IV. Professional Education of the Social Worker.

In the light of the vast sums spent by public assistance agencies and the large proportion of the budget of dependent families that goes for food, nutrition and food economics would seem to have a place in preservice education and in-service training for the social work profession.

Because of the highly specialized problems related to nutrition and food economics that confront both public and private welfare agencies, there is need for the services of special consultants who are well-grounded in family economics (including food economics), in principles of public welfare administration, and in certain agencies —in social case work.

Thoroughgoing studies may well be made on (1) the place of nutrition and family economics in the basic training of the social worker, and (2) the preparation of special consultants in family economics for service in the social welfare field.

Presented by Marjorie Heseltine, Secretary to the cochairman.

V. Professional Education for the Teacher Who is Not a Specialist in Nutrition.

The health of the Nation depends upon the development on the part of each citizen of individual concern for his own nutrition. The development of desirable food habits must become an objective for all students in elementary schools, secondary schools, colleges, and adult education programs. This objective must not only be the concern of the specialist in nutrition and health but also of those teachers who are not specialists in this area.

Since the problem is in part economic and social in its origins it cannot be completely solved by the development of individual concern for nutrition—education must also be concerned with the economic and social factors involved. This would suggest that the help of teachers must be solicited in the development of a concern for the aspects of the problem which are not individual in their basic origin.

There are certain aspects of the problem which are related to school administration and general school planning. We have in mind the necessity that nutritional instruction be accepted as a part of general education rather than as specialized education for a minority of the school population and the necessity that a place be found for it in the general curriculum. The significance of school-lunchroom administration as a potential educational opportunity, the ill-effects of the sale of candy by school organizations, and the like, should be considered in relation to the general curriculum. These considerations would suggest that the school administrator and faculty administrative committees must be included in any extended program of teacher education.

Since we are interested in the development of desirable individual habits and community practices as well as in the sharing of information, attention should be directed to the importance among the

educational experience of students of such out-of-class activities as (1) guidance in use of school lunchroom, (2) home projects in nutrition, (3) school gardens, (4) student experience through work in nursery schools, (5) community projects for the improvement of food resources of the community.

The objectives of the school program can be more easily attained if the school program is a part of a community program and if the combined resources of State and local community are utilized. This points to the importance in teacher education of an emphasis upon the values of cooperative action and the methods of community organization.

Instruction in nutrition should be incorporated in the preservice curriculum of teacher education institutions. Since, however, the annual turn-over of teachers is becoming small and the infiltration of new points of emphasis into the school program through the appointment of new teachers must always be slow, it is suggested that the major point of emphasis must be upon in-service teacher education if immediate progress toward the solution of the problem is to be made.

In view of these general considerations the following concrete proposals for action are made:

I. Urge increased attention in summer sessions to instruction in nutrition and the relationship of education to problems of nutrition, including courses and workshops both for the specialists who are to assist in in-service teacher education programs in local communities, and for teachers in general.

A. Write letters to deans of education and summer session directors recommending that they encourage teachers to take courses in nutrition and health education.

B. Encourage larger summer sessions to offer special courses or workshops dealing with problems of nutrition this summer, and encourage all summer sessions to consider this possibility in planning for 1942.

C. Encourage students in courses and workshops to devote independent study time to the development of plans for promoting this emphasis in local school districts.

D. Make field consultants on the teaching of nutrition available to summer sessions that can use them for consultation with teachers. Many of these could be provided through State and local committees interested in the problem.

II. Encourage teacher-education institutions, State boards of health, and other interested agencies to provide courses and seminars for teachers and community leaders during the school year 1941–42 under the combined leadership of competent nutritionists and those familiar with methods of teaching.

III. Make materials available for use of teachers.

A. Information on facts of nutrition.

B. Descriptions of school programs which give increased emphasis upon nutrition in schools.

C. Methods of community organization and possible types of community services and activities.

IV. Urge upon school administrators the importance of this problem, through:

A. Meetings of State educational associations and county institutes.
B. National meetings of administrators.
C. Professional publications.

(If such contacts are to be made during the coming school year, it will be necessary that program committees and editors be contacted in the immediate future.)

V. Recommend to local school authorities the importance of providing to teachers the services of nutritionists who can assist in in-service teacher education and the development of local programs in school and community. The providing of Federal or State funds for the salaries of such specialists is considered desirable.

VI. Urge upon parent-teacher and other civic organizations the importance of the problems, through:

A. National meetings.
B. Publications.

Members of Drafting Committee:

Chairman: Kenneth L. Heaton
Helen Judy Bond
Margaret Chaney
Martha Koehne

VI. Professional Education of Health Educators in Nutrition.

Those who supervise health education in the public schools, teachers of health or hygiene as a special subject at higher grade levels, and public health educators should have sound basic instruction in the area of nutrition. This instruction should provide an understanding of individual nutritional needs as affected by growth, activity, and related factors. It should equip the health educator to make wise food selections for individuals in terms of common foods available in the region and adapted to the economic level concerned.

Adequate courses in nutrition should be made available for health educators now in service.

More graduates in nutrition should be encouraged to prepare themselves to be supervisors of health education and public health nutritionists through sound programs of graduate study.

Members of the Drafting Committee:

Chairman: C. E. Turner
Helen A. Hunscher
Vera MacNair
Bess Exton

VII. Recommendations From the Group Considering the Training of the Professional Worker in Nutrition.

A. We feel the need of strengthening the teaching of nutrition in the undergraduate years in the direction of making it function for the

student herself and impressing upon her the importance of teaching it so that it functions for those she teaches.

B. We recommend that the fundamental physical, biological, and social sciences be made stronger and more functional for the home economics student and that she be given a philosophy which will enable her to recognize her opportunity and responsibility to make her special contribution in whatever situation she may find herself.

C. Those being trained in nutrition should be brought into personal contact with the problems of all social and economic levels by such means as requiring them (as students) to work in health or welfare agencies, or with extension workers, or with farm security agents.

D. We need to develop ways and means of presenting material more graphically and realistically and to teach these methods to the students.

E. The importance of this rapidly developing field and the opportunity it offers the well-equipped person should be presented to home economics students in their undergraduate years with emphasis on the fact that additional work beyond the 4-year course will be needed to fit one for this professional field and that after that one must continue to keep up to date.

F. In view of the rapid developments in nutrition the colleges might well plan on rendering definite service to professional nutrition workers by offering at frequent intervals seminars, refresher (post-graduate) courses, and other facilities as needed. This would doubtless lead to a demand for more thoroughly trained nutrition experts who could render this kind of service.

Members of the Drafting Committee:

Chairman: Grace MacLeod

Ava B. Milam
Grace Godfrey
Alberta Dent
Olga P. Brucher
Elda Robb

Dean Ava B. Milam moved to request the Executive Committee of the National Nutrition Conference to make available to all members of the section, at an early date, copies of the full reports of the above committees. The motion was carried.

RECOMMENDATIONS

I. Considering the importance of nutrition in health and welfare, it is important that all workers who have contact with large groups of the population should have fundamental training in nutrition. This includes teachers and administrators in the schools, nurses, social workers, and the public health dentist and physician. Strong courses in nutrition should be incorporated in the curriculums of institutions training such workers.

II. Professional workers engaged in certain specialties have a greater-than-average opportunity for fostering good nutrition. Among these are nutritionists and dietitians, physicians of internal medicine, pediatrics, obstetrics; public-health physicians, nurses, and dentists; teachers of health education, social and biological sciences, home economics, and agriculture; child welfare and medical social

workers. Such workers should have strong additional work in nutrition as a part of their specialized training.

III. Leaders interested in nutritional betterment should plan with the heads of their various professional schools for: (1) Short refresher courses for workers already in the field, especially those whose basic training antedates the newer knowledge of nutrition; (2) training courses for specially selected individuals to give emergency service as lay leaders under supervision; and (3) strengthening the curriculum in the basic training and the subsequent specialization of present and future students.

IV. Professional workers and those engaged in the specialties related to nutrition should have access to in-service education and consultation from specialists in nutrition. There is need for an additional number of nutritionists, thoroughly trained in the scientific background of nutrition and in its practical applications.

SECTION VIIa

NUTRITION PROBLEMS IN DISTRIBUTION AND PROCESSING OF FOODS: DISTRIBUTION

Presiding, HECTOR LAZO, Executive Vice President, Cooperative Food Distributors of America; Chairman

Section VIIa and section VIIb first met together at 2 p. m., Monday, May 26, under the chairmanship of Mr. Hector Lazo. Approximately 150 persons were present.

Chairman Lazo's opening statement included the following:

We should at the outset understand what we are talking about. It seems pertinent to point out that as we prepared for this Conference we visualized the problem as threefold:

1. Find out what the Nation needs for adequate nutrition.
2. Find out how we can make the public conscious of this need and desirous of filling it.
3. Make it possible for the public to obtain these foods efficiently and economically.

We here are primarily concerned with the third part. What we need to do is to produce, process, and distribute these foods as efficiently as possible, and to bear in mind that this does not necessarily mean as cheaply as possible. Efficiency is related to price, of course; and as long as one-third of our population must live on incomes that are certainly far from adequate, we must keep price in mind constantly; but price in itself is neither the sole aim, nor the most important goal.

We are concerned with the answer to this question: "How can we best produce, process, and distribute this food that technical experts tell us the people need?"

We should understand ourselves from the beginning that when we say:

Produce: We mean the farmer's job.

Process: The packer's or manufacturer's job.

Distribute: The marketing job. In a larger sense, marketing may well mean every step taken to bring the food from the farmer's field to the consumer's kitchen. That's the sense in which we shall refer to marketing during this Conference.

We are not here as representatives of organizations, but as individuals seeking a way to contribute to the national welfare. Probably we should right here caution all that we are concerned with general principles and not with methods or techniques. We are not going to foster anyone's pet hobby; we are not here to tell the Government officials how they should undertake anything; we are here to see what we can do to better the program, and to make general recommendations of policy for such a program.

We should consider all our deliberations on the general background of a better nourished nation for war, but more importantly for the Battle of the Peace which must follow. As intelligent citizens we cannot help but feel a

tremendous responsibility in our role as citizens when a large number of the young men who 15 years ago were little boys, come up for military duty and are rejected because they have not eaten enough, or properly, during these past 15 years. It is an indictment of the food industry, of the Nation as a whole, that we must seek to correct, fearlessly and impartially.

We should not consider these problems from a sentimental aspect alone, because we have adequate surveys to show that if the lowest income families of the Nation could be be placed in even the second income category—raised an average of only about $350 per family per year—there would be a potential market for additional food in this country of somewhat near two billions of dollars. So income, plus proper education as to nutritional needs, will play a very practical role in our business, from a business point of view.

The two sections then separated, VIIa continuing under the chairmanship of Hector Lazo, while VIIb was presided over by Lawrence V. Burton, Cochairman.

AGENDA FOR SECTION VIIa

I. Efficient marketing:
  A. Possibilities for reducing costs of food distribution.
    1. Simplification of food marketing system by: self-service retailing, cheaper food forms, store sales of milk instead of route delivery, etc.
    2. Changes in marketing structure by: consolidation of terminal produce markets, direct marketing, and elimination of duplicating services and facilities.
  B. Special forms of distribution to meet needs of low-income families.
    1. Distribution methods outside the regular channels of trade.
      a. Push-cart markets, farmers' markets, municipal retail markets, milk depots, consumer cooperatives.
      b. Use of relief and WPA labor to distribute food to needy families.
    2. Advisability of further development of such special methods.
    3. Distribution methods most desirable for the low-income family, for the farmer, and for the established trade.
    4. How, and to what extent, these programs can be tied in with the regular marketing system.
  C. Cheaper forms of food and less expensive packaging.
  D. Factors which may prevent marketing efficiency.
    1. Monopolistic practices; price-fixing or price regulation; interstate trade barriers; racketeering; taxes upon foods or upon food industries.
    2. Extent of such factors and their effect on marketing efficiency.
    3. Action that can and should be taken.
  E. Greater efficiency in marketing vs. social and economic consequences.
    1. Reduction of employment and business opportunity.
    2. Disposition to be made of unneeded workers in the marketing system.

II. Surplus disposal and agricultural policies.
  A. Distribution methods to furnish foods for undernourished families.
    1. Direct purchase and relief distribution.
    2. School lunches.
    3. The Food Stamp Plan.
    4. Low-priced milk.
  B. Adjustment of agricultural production.
    1. The problem: surpluses in agriculture are cotton, tobacco, and grains. If all American families could be given a fairly good diet, while we were simultaneously feeding Great Britain and her allies, there would be few or no surpluses, and production of many foods would have to be increased.
    2. Long-time policy regarding agricultural adjustment.
  C. South American trade as a factor in nutrition.

SUMMARY OF DISCUSSION

Representatives of marketing organizations, consumer councils, Government agencies, and of both wholesale and retail associations took part in the discussion. Interest centered on methods that might be employed to simplify the present food-marketing system and to extend distribution facilities so that all consumers might benefit by the greater efficiency and so that low-income families, in particular, might receive larger amounts of the foods they either lack entirely or have in insufficient quantities. There was considerable discussion of monopolistic practices and of restrictive laws that prevent marketing efficiency. It was generally agreed that milk could and should be made available to large numbers of persons in the low-income group at prices below those now prevailing. The Food Stamp Plan was commended and its extension urged. Rescinding of the present Federal tax on retail food dealers handling oleomargarine was urged so that this product might be brought within the reach of families unable to afford butter.

It was proposed that research be undertaken by governmental agencies on a Nation-wide basis for the purpose of determining sound policies of adjustment in agricultural production. Such policies will need to take account not only of the present needs of this country and of Great Britain and her allies but also of the post-war needs here and abroad. Any planning must take account of: (1) The food requirements of the entire population, (2) the financial return to the farmers who produce the food and to the packers and manufacturers who process it, and (3) the efficiency and costs of marketing.

DISCUSSION

I. Efficient Marketing

Several representatives of consumer organizations indicated that they believed costs of food marketing and distribution were too high and suggested some ways of getting greater efficiency. Special emphasis was given to the high cost of milk distribution in large cities.

A. *Possibilities for reducing the costs of food distribution.*—Attention was called to the high transportation rates on fruits and vegetables and to the need for modern, centralized wholesale markets. Evidence was given that markets in many of our large cities were outmoded and inadequate to handle the business they are now receiving both by rail and by motor truck. It was indicated that large savings might be made if proper facilities were provided.

Several representatives of retail organizations stated that considerable gains in efficiency in food retailing had been made during the past half year. Representatives of chain stores and of cooperative groups reported they had been able to cut costs by moving produce from the point of origin direct to the city warehouse instead of moving through the regular market channels, and also by the development of supermarkets.

Paul M. Williams (Fruit and Vegetable Division, Agricultural Marketing Service, United States Department of Agriculture) submitted a statement embodying four suggestions which relate to processing and distribution problems in connection with foods.

1. If the consumer's dollar, particularly of those consumers of the lower income group brackets, is to do its utmost duty, it is necessary to classify and standardize the various qualities of processed and other foods. One of the urgent needs is the development of official standards not now available and the improvement of existing standards, so drafted as to express on labels or through other suitable media the actual quality of food.

2. Means should be placed in the hands of the various Federal agencies now engaged in standardization and inspection activities to effectuate this program. Otherwise, increased wages cannot be fully reflected in enlarged consumption of protective foods.

3. With consumer standards available it is possible to develop more fully facilities for the education of the public through the various channels of market news distribution.

4. Involved in the distribution problem is the necessity for standardizing containers in which food is sold, particularly in the processed form. Steps should be taken to cause the cessation of manufacture of containers which are deceptive in appearance.

B. *Special forms of distribution to meet needs of low-income families.*—A representative of the New York City Department of Markets told what the city of New York has done to provide pushcart markets and to develop the Wallabout and Bronx jobbing markets. Some difference of opinion was expressed about the merits of such programs in New York City and in other places in the country. Some distributors said that too much money had been spent to provide expensive facilities which were not needed. There was general agreement, however, as to the need for maintaining some kinds of low-cost outlets to meet the needs of low-income people.

William C. Lynn (New Jersey Department of Agriculture) made the following statement:

The development of shipping point auction markets in New Jersey for the sale of fruits, vegetables, eggs, and poultry to the high bidder is considered a progressive step toward more efficient marketing. There are now 11 such markets handling fruits and vegetables, and 5 for poultry and eggs, all located in important producing sections. All are farmer-owned and farmer-controlled, and all but two have been organized under a cooperative association act.

A number of advantages are ascribed to this system of selling:

1. More direct marketing and less handling.
2. Higher net returns to producers compared with New York and Philadelphia sales.

3. Better grading and packaging and more uniform quality article available to the consumer.
4. Fresher products.
5. Low selling costs for the producer (1 to 5 percent, depending on the market and services rendered).

There was some discussion of consumer cooperatives as a means of reducing food costs.

C. *Cheaper forms of food and less expensive packaging.*—Food technicians discussed developments in processing and packaging and indicated that in many cases foods had been improved without raising prices. They stated this was true in many instances, not only of processing but also of packaging. On the other hand, it was generally agreed that the fancy packaging in other cases is used more for sales promotion and means higher prices to the consumer.

Miss Alice Edwards (Agricultural Marketing Service, United States Department of Agriculture) made this statement:

> American Industry in the War, a Report of the War Industries Board, by Bernard M. Baruch, enumerates many ways in which needless expense and waste in distribution may be reduced. Among these is simplification of various sizes, styles, and construction of products. Consumers are having to pay for many variations in sizes of containers and packages which serve only to bewilder the customer without in any way benefiting the producer, manufacturer, or consumer.

There was considerable discussion of grades and standards. Several consumer representatives discussed the need for grade labeling and whether or not the consumer is adequately protected by the Pure Food Laws together with the trade-marks of food manufacturers and descriptive statements on labels.

The group also argued at some length whether the lowest grades of farm products should be sold as food, or whether they should be converted into nonfood products. Several farm representatives and dealers favored keeping low-grade foods off the market in order to protect prices of the higher grades. On the other hand, there was substantial support for some method of making low-grade foods available to undernourished families.

D. *Factors which may prevent marketing efficiency.*—The discussion of this topic was started by a representative of the Department of Justice who told what that Department is now doing to suppress monopolistic practices in food marketing. The efforts of that Department and of the Federal Trade Commission were supported by the groups present.

In this connection, Paul T. Truitt (Interdepartmental Committee on Interstate Trade Barriers) submitted a statement in which he pointed out that trade barriers are found in a variety of nonuniform and unnecessarily restrictive food inspection laws; in excise taxes and license fees, which produce little or no revenue, yet which exclude food products from certain markets and seriously limit the sales and use of such items in others; in grading and labeling laws, which restrict the movement of lower grade products; in the regulation of highway-borne commerce much of which consists of farm produce seeking a wider market; in egg laws requiring that eggs to be sold as "fresh" must be laid in the home State; in the variety of container sizes, weights, and standards required by the States for fresh fruits and vegetables; and in other fields.

Mr. Truitt stated that the effect of these barriers is to exclude the products from lower cost producing areas from competitive markets, to force goods and services through artificial channels of distribution, thereby raising consumer prices and lowering total consumption. He concluded:

It is our judgment that Federal, State, and local legislative bodies and administrative officers should be constant in their efforts to remove existing trade barriers and vigilant against the erection of new ones.

In connection with the cost of distribution, W. R. Ogg (American Farm Bureau Federation, Washington, D. C.) presented this statement:

The excessive costs of distribution penalize both farmers and consumers. Reduction of these excessive costs would result in increased consumption of food and larger income for farmers.

Among the measures which can be taken to reduce distribution costs are:

(a) Greater use of marketing agreements to improve distribution of food, reduce marketing wastes, eliminate unfair practices, and lower cost of distribution.
(b) Vigorous enforcement of antitrust laws to break up monopolistic controls in the processing and handling of foods, including labor rackets.
(c) Improvement of terminal markets to reduce handling costs.
(d) Development of curb markets and farmers' markets in areas convenient to urban residents.
(e) Improved methods of distribution.

Dr. J. S. Davis (Food Research Institute, Leland Stanford University, California) submitted this statement:

Improvements in marketing efficiency in general, and in grading and labeling, now in progress should be encouraged. Specific obstacles to specific marketing improvements are widespread in such varied forms as food taxes, chain-store taxes, interstate and intrastate trade barriers, restrictions in differential pricing, variety of qualities (as distinct from brands) and packages (with limits). They should be progressively reduced and removed in the interest of better nutrition at all the lower income levels.

Miss Asho Ingersoll (Milk Consumers Protective Committee, New York City) made the point that:

Dried skim milk is not available at retail in New York City and most other markets. Yet it is sold to bakers and other food manufacturers at 7 to 9 cents a pound (3½ quart equivalent) in barrels. Dried skim milk should be sold to the public.

Grades known to the trade should be made known to the public—with the Government working out fair standards and enforcing compliance, so that consumers can judge whether prices are justified.

Advertising has focused on high priced products, and may be to blame for fancy packaging, etc. We cannot be too fussy about the best while people are unable to buy what they need.

No sales tax!

The discussion then turned to price-fixing under Federal and State laws. Most of the group were opposed to the fixing of retail food prices. However, a few representatives of trade groups indicated that they were in favor of State "fair trade" laws and similar acts which are intended to prevent price-cutting.

Insofar as the Federal license tax on dealers in margarine is concerned, the following statement was made by the National Association of Retail Grocers who submitted that section VIIa should urge immedi-

ate repeal of the Federal license tax on retail food dealers in oleomargarine for the following reasons:

1. Oleomargarine is a pure food product; is universally recognized as a wholesome, healthful food, and is subject to the same vigilance of the Federal Food and Drug Administration in respect to misbranding, adulteration, or deleteriousness as are any other foods entering interstate commerce. A tax is, at best, a poor method of insuring the purity and wholesomeness of any product.
2. The reports of the National Resources Committee indicate that the more expensive fats cannot be purchased in sufficient quantities, if at all, by some groups, and the tax sought to be repealed operates to reduce the number of retail stores selling oleomargarine and thereby deprives a large percentage of the American people of the opportunity of purchasing a cheap nutritious food which is essential to an adequate minimum diet.
3. The shortage of 16 pounds per person of fats means that the United States produces and consumes over 2 billion pounds less of these products than American families need for an adequate diet.
4. Oleomargarine is a low-price product which the United States Department of Agriculture states has the identical digestibility and caloric or energy-producing value as butter.
5. The tax effectively prevents many thousands of retail grocers from selling oleomargarine who otherwise would do so, and thereby denies to millions of consumers, who cannot purchase butter, the opportunity of purchasing oleomargarine.
6. 72 percent of all retail food stores in the United States have sales of less than $20,000 annually; 52 percent of all such stores have sales of less than $10,000 annually, and 37 percent of all such stores have sales of less than $5,000 annually which on a maximum net profit of 5 percent of sales would enable the owners of such stores to make approximately $83, $42, and $21 monthly, respectively; the Federal occupational tax for selling oleomargarine is a real handicap to these retailers.
7. Neither the retail dealers, nor this Association is concerned with the welfare of the oleomargarine manufacturers, as such, but are concerned with this singularly unjust and unfair occupational tax on one legitimate, wholesome food product out of the hundreds of items carried by food stores.

General opposition was expressed to many forms of interstate trade barriers which interfere with the marketing of foods.

The first day's session ended by several people expressing some disappointment with the accomplishments of the first day's meeting and indicating that we needed a definite, concrete program for improving marketing in the interests of nutrition.

The meeting on May 27 convened at 2:20 p. m. The general topic was:

II. Surplus Disposal and Agricultural Policies.

Most of the session was taken up with a detailed discussion of several programs being conducted by the Department of Agriculture. These included direct purchase and relief distribution, school lunches, the Food Stamp Plan, low-priced milk plans and the Cotton Stamp Plan. The group appeared to be united as to the need for Government programs to make surplus farm products available to low-income families. Representatives of several trade groups indicated particularly their support of the Food Stamp Plan and urged that it be extended as rapidly as possible to meet the needs of undernourished families throughout the country.

A. *Distribution methods to furnish foods for undernourished families.*—Several delegates in the section submitted statements giving their own views or the views of the organizations they represented concerning the twin problems of undernourishment and farm sur-

pluses. W. R. Ogg (American Farm Bureau Federation, Washington, D. C.) stated:

In considering the welfare of low-income groups, it should be recognized that farmers constitute the lowest income group in America. They receive only about 5½ percent of the national income. The average per capita income for farmers in the United States is $140 compared to an average per capita income of $615 for nonfarm workers.

Therefore, fairness requires that farmers should receive prices for producing food that are on a parity with the incomes of industrial workers and the prices of industrial goods bought by farmers.

Farmers should not be expected to subsidize, out of their inadequate incomes, the low-income groups in the cities who are not paid an adequate wage by industry. Farmers have been subsidizing city consumers at the rate of over 2 billion dollars per year for the past 10 years, because farmers failed to receive prices for their products that were comparable to industrial prices and industrial wages.

Governmental subsidies may alleviate the inadequate diets of low-income groups, but the fundamental remedy is a higher income for these persons, so that they can pay for adequate food and other necessaries.

The Food Stamp Plan is primarily a relief measure and should be financed out of relief appropriations, instead of being charged to agricultural appropriations, thus reducing the funds available for direct purchase and distribution of farm products. Larger funds should be made available for the latter purpose.

Dr. John B. Canning (Stanford, Calif.), submitted the following statement on the questions under discussion:

The first urgent need is a national budget of the main categories of the critical foods:

Animal proteins: meats, sea foods, dairy products, poultry products.
Fruits and vegetables—fresh and processed.

The standards of adequacy for these categories must be set with respect to the following objectives:

1. Supporting an expansion of munition-making commensurate with an all-out war effort.
2. Balancing our aid to allies.
3. Provisioning our armed forces on a war footing anywhere (to keep the war out of America).
4. Obtaining and maintaining a sound national diet.
5. Providing reserves necessary to post-war needs.

To get what we want produced in time we must not only have a budget of requirements, but—

1. The public must assume the price risks, e. g., announce minimum farm prices and processor differentials well in advance of the crop year.
2. Give the widest publicity to all programs clear down to the farm and farm-land level.
3. Err on the side of real abundance. The national damage to health and efficiency in a war effort of having too little (or inferior) food is far greater than the wastes of some items because everyone has enough without them.

To get the distribution needed we should:

1. So set the minimum subsidies or bid prices for products as to make the protective foods plentiful and cheap at retail in relation to cereal staples—thus using our exchange economy to the full;
2. Expand the Food Stamp Plan and kindred programs to make all low-income groups eligible—thus assisting our exchange economy where it most needs help.

The National Association of Retail Grocers made the following statement about the Food Stamp Plan:

The facts presented here indicate the seriousness and extent of hunger among the lowest-income groups. The Food Stamp Plan is a proven device for the

amelioration of this condition within the framework of the free enterprise system. It is favored by the farmers who produce foods, the distributors who handled them, and the lowest-income consumers who would benefit from the opportunity thus provided to obtain an adequate diet at a price they can pay.

The extension of the Food Stamp Machinery to every community in the United States would be a practical hedge against the more serious consequences—in the form of widespread hunger—of the inevitable post-war recession.

In connection with the costs of distribution and their relation to national policies, F. W. Morf, Jr. (C. H. Weaver Co., South Water Street Market, Chicago, Ill.) presented this statement:

What is the irreducible minimum below which the costs of distribution cannot go? The Federal Trade Commission report shows that freight and other transit costs took 32.80 percent, packing, loading, storage, etc., 18.13 percent, wholesale margin, 2.98 percent, other distributors' margin, 2.61 percent, proceeds to growers, 43.48 percent. Not much wholesale margin is left from which to squeeze excess costs.

On the one hand, consumers demand more food for their money; on the other, growers, more money for their food. Each is right. To achieve these two apparently divergent aims there are a couple of courses.

First, we may go the whole hog and discard the profit motive and, as the totalitarian countries do with their manufactured articles, place the commodities where the people want them, when they want them, at the price they want to pay, regardless of the cost of the operation.

Second, we may make outright gifts of foodstuffs to the third of the population that is unable to pay the cost. This can be done either through direct distribution or through the Food Stamp Plan. The latter is greatly to be desired not only because it gives a choice of commodity to the consumer but also allows him to take the quantity he can use most efficiently.

That allowing undergrade fruits and vegetables to come to the market would be beneficial is extremely doubtful.

On the subject of grades, it would be well to point out that grades in fresh produce are of necessity different from those of processed foods. In fresh fruits and vegetables, government grades are a minimum requirement, more for the use of the wholesaler and retailer in their transactions than for the consumer, because the great majority of consumers still see and handle what they buy before they buy it.

B. *Adjustment of agricultural production.*—Several prepared statements were submitted to the section covering various aspects of agricultural production and the cost of distribution as these relate to national policies dealing with wider distribution of food to low-income families and with adjustment of agricultural production. Several delegates stressed the importance of maintaining farm income at satisfactory levels.

W. Garfitt (vice president, United Fresh Fruit and Vegetable Distributors, Chicago, Ill.) submitted the following statement:

(1) That while production of fruits and vegetables for marketing in the natural state has materially increased during the past decade, the tonnage handled by rail has decreased more than 25 percent.

(2) That as to field crops of those commodities, producers have sought (through application of the law of diminishing returns), by increasing acreage, to maintain income, but the additional effort expended has gone for naught.

(3) That freight rates on the products of field and orchard, notwithstanding the depressed condition of the industry, remain, in general, at a level approximating that of the period of inflation following the first World War.

(4) That during the ten years 1928–37, fresh fruit and vegetable traffic represented 1.44 percent of the total tonnage of class I railroads, whereas freight revenue thereon accounted for 7.59 percent.

(5) That in 1936 freight charges on those commodities (exclusive of charges for transit protective services) were 48.72 percent of f. o. b. origin value and 32.76 percent of "on track" destination value, compared to 5.83 percent and 5.51 percent

on "Manufactures and Miscellaneous," and to 9.24 percent and 8.47 percent on all carload traffic.

(6) That, due in large part to high transportation charges, fresh fruits and vegetables are not available to families classified under low bracket incomes.

(7) That, according to a recent report, because prices to growers were inadequate to meet costs of harvesting, packing, and transportation, the quantities of vegetable crops, which could not be shipped and marketed, would have supplied 13,000,000 people (the population of Greater New York) for 32 days in 1940, for 36 days in 1939, and for 90 days in 1938.

F. H. Rawls (Chief, Merchandise Unit, United States Bureau of Foreign and Domestic Commerce) was in favor of conducting research throughout the country to ascertain regional needs. His statement contained the following recommendations:

With the 48 States of the Union and 3,000 counties, and with the varied living conditions throughout the country, it is evident that no progress can be made with this subject unless it is dealt with on a regional basis. The regions might be similar to the Federal Reserve districts and would represent different climatic conditions, different products produced, different income levels, etc.

While it is true that the Department of Agriculture is well organized throughout agricultural sections of the country, the job of coordinating the information as to the needs of our population should be done by the Federal Security Agency. No time should be lost in hastening a survey throughout the country which would cover practically every family in the land.

John A. Logan (president, National Association of Food Chains, Washington, D. C.) submitted the following statement:

1. We urge that efforts of wholesalers, retailers, and all distributors to improve the marketing system and to reduce distribution costs be continued.

2. The progress in sanitation, modern equipment, bright, clean, conveniently located outlets for food products has improved the health standards and encouraged the consumption of nutritious foods. The health regulations of some communities may be antiquated in view of developments. We suggest that health regulations be examined with a view to determining their adequacy in the light of existing conditions and needs. Government—Federal, State, or local—should not find it necessary or desirable to enter the field of business in competition with private enterprise if business is given the proper opportunity to do the job.

3. We recommend further research and experimentation to find practicable means of utilizing substandard grades of nutritious foods, by processing, canning, dehydrating, etc., to make them available to low-income families at reasonable prices, and at the same time improve the farmers' income.

4. We recommend the examination and repeal of all State and municipal laws which establish barriers to free trade between one section and another or lessen competition between one business or branch of business and another.

Milo K. Swanton (executive secretary, Wisconsin Council of Agriculture, Madison, Wis.) made the following recommendations in his prepared statement:

1. This Conference must look beyond the producer to find the answer to the problem of improper and inadequate diet.

2. This Conference should be especially careful not to take any position that would tend to affect adversely the health, morale, and economic welfare of our American farm families.

3. Until scientists are in a position to know more of the full effect of synthetic vitamins, which if incorporated with cheap and less potent foods will threaten the preservation and economic security of large groups in our American agriculture, this Conference should take no position with respect to fortification with vitamins.

4. We urgently recommend a Nation-wide campaign of adult and youth education on dietary needs and problems.

5. We recommend an exhaustive study of marketing methods and distribution and processing costs for the purpose of developing greater marketing efficiency and lower costs to consumers.

6. We recommend a thorough investigation and prevention of monopolistic practices by food distributors and processors and by groups of organized labor.

7. We recommend a continuation and expansion of the Food Stamp Plan as a means of subsidizing low-income family groups for the purpose of insuring adequate diet.

8. We strongly recommend increasing the use of such protective foods as whole milk, meats, dairy products, vegetables, and fruits.

C. *South American trade as a factor in nutrition*—There was some discussion of the possibility of extending the Stamp Plan and similar devices to handle the exchange of surpluses between North American and South American countries. A good deal of interest was expressed in this matter.

A committee was set up to draft a report for the section and several people suggested that a continuing committee should be appointed to work out a more detailed program and to help put it across.

RECOMMENDATIONS

It is the belief of Section VIIa that malnutrition among a large segment of the population is of national concern and that positive steps should be taken to see that every person in the Nation shall have an adequate diet. While there was difference of opinion regarding specific steps to be taken, the section was united in the belief that we need to explore fearlessly and impartially the possibilities of assuring all classes of consumers, but especially those with limited income, of adequate amounts of proper food.

The first essential for a well-fed nation is a supply of food large enough to give everyone an adequate diet. To this end we believe that agricultural production should be adjusted to provide adequate supplies of those foods in which the American diet is deficient, and away from those crops for which the export market has for the time being been curtailed. In order to attain this, it is necessary that farmers get fair prices and fair incomes as these adjustments are made.

A second essential to improved nutrition among low-income families is greater efficiency in the transportation, processing, and distribution of food products. We recognize that the food industry has already made much progress in this direction. For those low-income families who can afford only a minimum of services we would urge further development of economical retailing adapted to low-income consumer requirements, improvements in terminal market facilities, cheaper food forms, and the most economical packaging.

In some cases such a program might require public planning and possibly public financing of certain facilities, but in practically all cases the interests of the public will be served best if the actual marketing functions are performed by private business operating under fair rules, but free to compete both on the basis of services and on the basis of charges. If, in obtaining greater efficiency, it is necessary to displace some workers, consideration should be given to finding alternative employment in the economic system.

There are some bottlenecks, both public and private, which now contribute to keeping food prices and margins higher than they otherwise would be. Where monopoly, racketeering, and illegal practices tending to raise food prices are found, whether this be in agriculture, industry, or labor, the Government is urged to continue its vigorous enforcement policies under the antitrust laws. The ability to produce,

process, and distribute foods at prices within the reach of low-income families is hampered at present by some forms of municipal, State, and Federal legislation. Examples of such legislation include restrictions not designed solely for the protection of the health of consumers, or the public welfare; certain forms of price-fixing or price maintenance legislation; internal trade barriers; and taxes upon foods and upon particular methods of distribution. We urge a careful and judicious reexamination of all such laws to determine their effect on all parties concerned, and where their result is to increase food prices unjustifiably, or to prevent efficient distribution, we believe they should be revised.

We feel there is need for additional information about the quality of foods available in retail stores so that consumers can spend their incomes more wisely. There is also need for greater uniformity in the size of some retail containers, to give adequate information to the consumer.

I. *Food technology.*—There is definite need for rapid methods for vitamin assay. It is therefore recommended that the Federal Government designate tests which are now acceptable, and develop further tests and methods from the viewpoint of the Association of Official Agricultural Chemists.

Extensive education of the consumer is needed to the end that all the nutritional factors in processed foods are utilized without waste or loss, and it is therefore recommended that the Federal Government actively carry on such an educational campaign.

The addition of vitamins or minerals or both to processed foods should be directed primarily to those foods which, in the opinion of properly constituted nutritional authorities, are in need of enrichment.

In view of the experiences of the first World War and the present emergency, it is recommended by the Processing Section: (1) That the National Selective Service System be requested to recommend to local boards deferment of those technically trained men who are essential in the production of processed foods; (2) that the Office of Production Management give effective priorities to the food-processing industry for material and supplies essential to the production of processed foods and food accessories; and (3) that the United States Maritime Commission and the Transportation Division of the Office of Production Management give effective priorities for the transportation of materials and processed foods, and the supplies and personnel necessary for their production.

The Government and other official agencies carrying on educational campaigns should emphasize the nutritional importance of ordinary foods.

The Government and other official agencies should assume and accentuate further responsibilities in educating consumers as to their nutritional requirements, and to the manner in which processed foods can help to meet these requirements.

It is recommended that the National Selective Service System recommend to local boards deferment of students, graduate or undergraduate, who are being trained in the field of food technology.

It is recommended that all governmental agencies cooperate with industry in making known to consumers the existence of large amounts of low-cost and nutritionally valuable foods that are not now fully

used. Ample consideration should be given to the time and facilities necessary to increases in plant manufacturing capacity for their production.

It is recommended that closer cooperation be developed between the food-processing industry and governmental research organizations, and that fundamental research be adequately supported and encouraged by the Government.

II. *Government aid to low-income families.*—Even with the wisest possible adjustment on the farm and in the marketing system it would not be possible to provide under present income levels adequate diets for low-income families without some form of Government aid.

Very substantial progress has been made in this field in recent years by the development of the Food Stamp Plan, the school-lunch program, low-cost milk schemes, and similar methods of enabling low-income consumers to buy greater quantities of foods needed in the diet. We urge that programs of this kind be extended as rapidly as possible to all needy families in the United States, and that these programs be used to help move the increased supply of food recommended above. We urge that these programs be kept flexible and that continued experiments be made in order that they may be adjusted to give maximum benefits to low-income families and to the farmer.

III. *Continuing cooperation between industry and Government.*—The research, service, planning, and action programs of the Government in the field of agricultural marketing and food distribution should be greatly strengthened and expanded.

We recommend that agricultural and trade groups be asked to set up a continuing body to work with the Government, with the Food and Nutrition Committee of the National Research Council, and with appropriate local organizations in order to work out the most effective methods of cooperation to put across a successful nutrition program.

SECTION VIIb

NUTRITION PROBLEMS IN DISTRIBUTION AND PROCESSING OF FOODS: PROCESSING

Presiding, LAWRENCE V. BURTON, Editor, Food Industries
Chairman

AGENDA

I. Conservation of vitamins occurring naturally:
   A. The relation of various forms of food preservation to nutrition:
      1. Canning.
      2. Dehydration.
      3. Freezing.
      4. Fermentation.
      5. Smoking, salting, and other treatments.
   B. The present status of the conservation of food factors occurring naturally in raw materials:
      1. The prevention of losses by oxidation.
      2. The prevention of losses by metallic catalysis.
      3. Improved methods of processing, packaging, etc., designed to prevent nutrient losses.

II. The present status of enrichment of commercially processed human foods:
   1. By the addition of vitamin A.
   2. By the addition of vitamin D.
   3. By the addition of vitamins of the B group.
   4. By the addition of vitamin C.
   5. By the addition of mineral components.

III. Future policy and recommendations:
   A. Practical limitations preventing the enrichment of specific foods.
   B. Problems of technical control arising out of an enrichment program:
      1. The number of available persons properly trained to exercise such control.
      2. Possibilities of finding additional personnel and of training them within a reasonable time.

C. Kind of cooperation needed between nutritional policy-making bodies and the food industry:

1. Cooperation, well in advance of possible needs, required for formulation of plans and for economic and distributional studies.
2. Time in which to execute recommended changes.
3. Understanding of costs.
4. Educational activities to encourage consumption of enriched foods.

SUMMARY OF DISCUSSION

Representatives of the food industry, of the consumer, and of public and private research organizations discussed the present status of methods for conserving vitamins occurring naturally and for enriching commercially processed foods. Executives and technologists from canning, milling, baking, and other manufacturing and processing associations and corporations, as well as representatives of research organizations and of consumer groups were in general agreement that:

(1) Vitamins and other nutrients should be obtained from natural foods rather than from manufactured concentrates.

(2) Foods which have been devitalized in processing, especially flour, or that are lacking in essential vitamins, as in the case of oleomargarine and certain grades of butter, may appropriately be vitaminized.

(3) Caution should be observed about any wholesale plan for indiscriminate food enrichment.

(4) Practical considerations, such as present or anticipated shortages of certain vitamins, and limitations on supplies of metals and other materials needed for defense and necessary for vitamin manufacture, might restrict food enrichment programs.

(5) Deferring technologists for the food industry, priorities in training and in allotting materials for processing, packaging, transporting, and marketing essential foods should be recognized by the Federal Government as a fundamental requisite for defense.

(6) The public should be educated, through the media of commercial advertising, distribution of governmental pamphlets, lectures, the radio, and the press, to select foods for their nutrient value, and to conserve and use all the nutrients in processed foods, and

(7) The Federal Government should take the lead in initiating research relating to vitamin determination, food enrichment, vitamin balances, and other problems relating to the food needs of the entire population and should make known its findings to the food industry which stands ready to cooperate.

DISCUSSION

I. Conservation of Vitamins Occurring Naturally.

Representatives of the canning industry discussed the relation of canning to nutrition. Dr. E. J. Cameron (director of research,

National Canners Association, Washington, D. C.), stated that canning preserves in an effective way all, or substantially all, of the original attributes of the product canned. Dr. Carl R. Fellers (agricultural technologist, Massachusetts State College) conceded that processes incidental to canning resulted in loss of the less stable vitamins, especially vitamin C, but pointed out that canning in itself—placing of food in a can and sterilization—is not particularly destructive. The true measure of nutrient losses is to be found by comparing the canned product with the fresh product as both are served at the table, not by comparing the canned product at the moment it is served with the fresh product at the time of harvesting.

Vitamin losses in canning, it was stated, could be prevented or reduced by processes now known, the important thing being to keep the product while hot away from contact with the air. The vitamin-C loss is small in tomato juice and in the citrus fruits, but in vegetables it is somewhat larger. Riboflavin seems to be very stable, thiamin somewhat less so.

There was some discussion of the content of commercially packed against home packed foods. Because of a lack of standardization in both types of canning, comparisons are difficult to make. Insofar as tomatoes are concerned, Dr. Fellers thought home canning was equal to commercial canning.

Processors who have been experimenting in dehydrated foods reported success in conserving vitamins in some cases.

Mr. H. S. Bailey, of the California Fruit Grower's Exchange, pointed out that in both canning and concentration of citrus juices practically all of the vitamin C could be retained if precautions were taken to prevent oxidation. On the other hand, according to Mr. Bailey, there is no known commercial process of dehydration sufficiently free from oxidation to prevent destruction of from 15 to 25 percent of vitamin C. Even after the product is put up, loss continues in storage. Vacuum packaging is essential for either the canned or dried product.

Dr. Paul D. V. Manning, of the Golden State Co., San Francisco, reported that is seemed to be impossible to preserve the entire quantity of vitamin A or carotene by any dehydration process now known. In the case of B_1 there is practically no loss as a result of heat or oxidation, but there is loss from exposure to light. Vitamin C loss is extensive, the amount depending on the degree of exposure of the material to oxygen. The flake process of drying tomato pulp makes possible the retention of one-third to two-thirds the vitamin C content of the original tomatoes, according to Dr. Fellers. Strawberries and cranberries can be similarly treated with comparable results if they have proper packaging.

Dried skim milk was recommended by Dr. James A. Tobey (American Institute of Baking of New York) as an important source of riboflavin. Stating there were from 19 to 29 micrograms per gram of milk powder, he suggested: "If there were wider use of dried skim milk throughout this country other than in breads, of which it is an important constituent, there would be a great deal more riboflavin available to the consumers, and methods of getting the use of that milk would be worth considering." The riboflavin content of dried skim milk was reported as ranging from 9 gamma per gram up to

about 25 or 26, according to Dr. Manning who thought it would be possible to retain vitamin C by vacuum drying if (1) the milk were sufficiently deaerated before it was heated, (2) it were free from riboflavin, which is known to catalyze the oxidation destruction of vitamin C, and (3) exposure to the air after drying could be prevented.

Dr. J. S. Abbott, of the Institute of Margarine Manufacturers, pointed out that about 50 billion pounds of skim milk goes to waste annually insofar as human nutrition is concerned. Not over about 10 billion pounds is used annually for human foods in the form of skim-milk powder. The remaining skim milk goes to feeding pigs or chickens, or goes out on the ground or down the sewer. Over a billion pounds of milk sugars and more than a billion pounds of the finest proteins are wasted. What is fed to the pigs is wasted in the ratio of 10 to 1, for it takes 10 pounds of powdered skim milk to make a pound of pork. It would be a wiser utilization of nutrients if the skim milk were used directly for human consumption rather than for the production of pork, according to Dr. Abbott.

Quick freezing of foods was reported successful in preventing loss or deterioration of vitamins. Dr. Joseph Guinane, of the Frosted Foods, Inc., stated that tests indicated a vitamin content in such foods as high as in fresh foods that had been cooked immediately after harvesting.

Fermentation was approved as a means of food preservation. Cabbage can be made into sauerkraut with small loss of vitamin C if a good fermentation process is used, according to Dr. C. S. Peterson of the New York State Experimental Station, Geneva, N. Y. Pickles, which show a greater loss because of the washing out of substances into the brine, are only a fair source of vitamin C. Good vegetables for fermentation are those having a nice balance between the sugar content and the protein content as is the case in corn and cabbage. The possibility of making ensilage from sugarcane as a byproduct was suggested by Dr. Day. Such a development would be important in furnishing fodder especially to anyone starting a new industry of cattle raising.

Following the discussion of vitamin losses resulting from various processes of preserving food, there was a general résumé of improved methods now in use in processing and packaging for the prevention of vitamin losses. In the preservation of milk, research has been done on the prevention of loss by oxidation and catalysis and also on methods of avoiding the off-flavor or tallowy taste resulting from contact with metals, especially copper. Dr. Harold Aaron (Consumers Union, New York City) thought that since milk is not a good source of vitamin C there was little justification for making an extra effort to conserve the small quantity of this vitamin available in milk especially if the process would entail any rise in cost to the consumer. Opinion was divided. Several delegates, quoting the results of researches by Dr. Paul F. Sharp of Cornell University, pointed out that the cows of the country produce as much vitamin C as does the entire citrus crop, but most of it is lost as a result of pasteurization. However, it was pointed out by Dr. G. C. Supplee (director of research of the Borden Co., New York), who confirmed Dr. Sharp's findings, much of the vitamin C content could be pre-

served by deaeration of the milk prior to pasteurization. There is at present a loss of 25 to possibly 35 or 40 percent in vitamin C from the time the cow secretes it to the time the milk reaches the distributor or the processor. Processing methods cannot control that type of loss, but the residual vitamin C can be retained through vacuum treatment directed toward elimination of dissolved oxygen and of the secondary catalyzers—light, heat, and copper contamination. The technological principles for conserving the residual vitamin C are known; the question, then, is whether it pays to apply them.

The functional problem of preventing losses after products were packaged was discussed by Dr. Louis E. Dietrich (P. Duff & Sons, Inc., Pittsburgh, Pa.), Dr. F. F. Fitzgerald (director of research of the American Can Co., New York), Dr. H. F. Taylor (president of the Atlantic Coast Fisheries Co., New York), Dr. L. W. Waters (vice president, General Foods Corporation, New York), Dr. S. M. Jackson (Loose-Wiles Biscuit Co., New York), Dr. E. J. Cameron (director of research, National Canners Association), and others. It was stated that biscuits and crackers, which may start with a potency of 60 or 65 percent of the quantity of available vitamins when the dough is in the process of fermentation, suffer a shelf loss. In dried foods, air tightness and vapor- or moisture-proofing are important factors in preserving the nutritive elements. Aluminum wraps have proved helpful, but because of the existing aluminum shortage other new papers are being used for moisture proofing. It was found in the case of graham crackers that the vitamin B_1 content was conserved by wax-wrapped packages. With quick-frozen foods moisture- and moisture-vapor-proof containers must be used to keep the moisture in the package and thus prevent desiccation. Dr. Taylor pointed out that waterproofness of a wrapping material did not guarantee the wrapper to be oxygen-proof. Dr. Waters referred to the packaging laboratories of the large fruit companies where foods in various packages are subjected to artificial climatic conditions by means of an all-weather device that will reproduce, with the turn of a switch, the climate of Miami or of Seattle.

II. The Present Status of Enrichment of Commercially Processed Human Foods.

Enrichment of commercially processed foods with vitamin A was discussed at length by Dr. Harden F. Taylor, president, Atlantic Coast Fisheries Co., New York, who said:

> Vitamin A is the only one of the vitamins which is not synthetic. There seem to be no practical limits to how much synthetic vitamin D can be produced through the irradiation process, but vitamin A is limited to the total quantity in existence, being found in certain natural sources and in those only, carotene being one and fish-liver oil being the other. For fortification of foods, carotene is scarcely available. From the point of view of conservation of that which already exists in food, carotene is important, but from the point of view of extracting it, of finding it, and of transferring it to other foods, it cannot compete with fish-liver oils which are more concentrated and already exist as natural vitamins.
>
> We have never found a fish in the ocean, except possibly one, that did not have vitamin A in its liver. We have never found a fish, except that possible one, which did not have more vitamin A than cod-liver oil. That is the smallest potency of fish-liver oil we know of, yet the total quantity of

6 million gallons a year imported into this country amounts to a great deal, but under present war conditions it has diminished almost to the vanishing point. The great producers of it were England, No. 1; Norway, No. 2; Germany, No. 3; Newfoundland, No. 4; the United States or Japan, No. 5; and the other of these two, No. 6. With the outbreak of the war the British seized all the trawlers of the fish industry, and their total cod-liver oil production was discontinued. Germany's production was entirely discontinued. With the invasion of Norway a year ago, that large source was discontinued. Iceland's cod-liver oil is practically unobtainable, so we have the very trifling amount made in this country, and a small amount from Japan. Much of that is being shipped through Siberia into Germany, and because of fear of an outbreak of war in the Orient at any time, the production of vitamin A has been limited largely to fish that have a market for their flesh.

We do not know of any fish in the ocean which it pays to catch for its liver alone, except one, the soup-fin shark of the west coast of this country and of foreign countries. All the other fish yield vitamin oils as byproducts. I mention these sources and their possible limitations because if this Conference considers the addition of vitamin A to foods by way of fortification, it will be very important to know how much of it is going to be available for that purpose and what it will cost.

Dr. Taylor indicated that although only certain foods are now fortified with vitamin A, such as part of the oleomargarine, some of the canned milk, and a few confections, general fortification of even these foods would greatly increase the total amount of vitamin A required. Many foods are not conveniently fortified with vitamin A because their very nature exposes them to both development of rancidity in the oil and destruction of the vitamin.

"Some progress is being made," according to Dr. Taylor, "in the preparation of vitamin A in a powdered form which is stable and can be added to other powdered material such as powdered milk. Unless that is successful, the addition of vitamin A to food products is probably limited to those which are of a fatty nature and are suitable solvents for vitamin A."

In discussing other possible sources of vitamin A, Dr. Taylor said that whale oil could no longer be counted on because the whaling industry, which was largely Norwegian, German, and English had, for the most part, been stopped by the war. The chief source of vitamin A thus far has been found in those fish caught in large quantities for their flesh: Salmon, halibut, cod, tuna, swordfish, and others used for food. They are generally brought to places having technical and industrial facilities for handling them in quantity as, for instance, in Seattle, where there are freezers, transcontinental refrigerator cars, and all the facilities for extraction, refinement, freezing, and transportation of livers. We have not as yet made use of large sources of fish livers in regions remote from such industrial facilities as, for example, along the 1,000 miles of the Florida coast where fishing is done at little villages which have no equipment for preserving fish livers or for extracting the oil.

Dr. F. J. Weiss, who was recently with the International Institute in Rome, and who has written two monographs for the National Economic and Social Planning Association, one on *The Economical Utilization of Fish Products in Alaska*, the other on *Seaweed Utilization in Alaska*, suggested that additional sources of vitamins A and D are to be found in the flesh of fish and in marine products. He proposed that fish products be surveyed as to their vitamin content, for he believed "it would be possible, by eating more fish products,

to have much more vitamin A and D than by importing cod-liver oil and other liver oil."

The effect of a possible vitamin A shortage on the enrichment of oleomargarine was discussed by Dr. H. F. Taylor (Atlantic Coast Fisheries Co., New York), Mr. J. S. Abbott (Institute of Margarine Manufacturers, Washington, D. C.), and Dr. Lloyd K. Riggs (director of research, Kraft Cheese Co., Chicago). Dr. Taylor was of the opinion that present enrichment requirements of the oleomargarine industry can probably be met from vitamin A sources now available, but that difficulty might be encountered were there to be any great increase in the demand for vitamin A. Mr. Abbott pointed out that 98.7 percent of all the margarine now produced is reported by the manufacturers to be equivalent to average butter, and that the manufacturers have gone on record as being in favor of beginning at once to vitaminize every pound of oleomargarine that is made. Dr. Taylor thought that accumulated surpluses of vitamin A in the pharmaceutical industry could be drawn upon, but doubted the supply from that and from other sources would suffice to meet the requirements of heavier production of oleomargarine for use in this country and for export.

In enrichment of oleomargarine, the cost of control was said to equal the cost of enrichment. Dr. Taylor favored spectrophotometric control as being more accurate and reliable as well as less expensive than the biological method. Determination of the vitamin A content by the former method, he said, took only half an hour, but the biological assay requires at least a month and costs $100.

Dr. Abbott reported that the oleomargarine industry had decided to vitaminize oleomargarine to whatever extent seemed desirable, giving it a minimum strength of 9,000 U.S.P. units, as recommended by the Food and Drug Administration, or a strength up to 15,000 or 25,000 units if this is the amount of enrichment recommended by scientific research. He predicted the industry would produce as palatable a spread for bread for the low-income group as most of the butter on the market.

C. H. Janssen, secretary-manager of the National Institute of Margarine Manufacturers, read a letter, dated May 22, 1941, which had been written to Mr. McNutt offering the full cooperation of the Institute. In this communication he stated:

> Oleomargarine as a low priced, wholesome table fat answers a distinct need in the lower-income consumer group and in this classification of our population, this product is largely consumed. The principal criticism directed against oleomargarine as not meeting full nutritional requirements, for which there is any justifiable foundation, is that its vegetable oil constituents, such as cottonseed oil, soybean oil, and peanut oil, do not carry the protective vitamin A element. Aside from that, its dietary value, within its classification, is not open to question. But applied science has found the remedy for this deficiency in the production of potent vitamin concentrates and, at the present time, about 40 percent of the oleomargarine on the market is fully fortified with vitamin A, and therefore in the classification of protective foods.
>
> The promulgation of the now pending proposed Standard of Identity for Oleomargarine should give further impetus to the practice of enriching oleomargarine. However, this practice is optional with the manufacturer.
>
> * * * I undertook to poll all margarine manufacturers to ascertain if they would be willing voluntarily to enrich their total output of oleomargarine for home consumption in accordance with the optional provision of the proposed Standard of Identity for Oleomargarine, now pending with the Food and Drug

Administration, which calls for a minimum unitage of 9,000 U. S. P. units per pound.

The response from these manufacturers was most gratifying. Ninety-eight and three-tenths percent of the total industry tonnage of oleomargarine, as reported by the Collector of Internal Revenue for the fiscal year ending June 30, 1940, and whose percentage volume of total industry production currently is approximately unchanged, have indicated their willingness to enrich total margarine produced for home use in the amount of not less than 9,000 units per pound as approved in the pending proposed Federal Standard of Identity. I am also assured that this will in all probability involve no increase in cost to the consumer. Thus several hundred million pounds of food may be changed from the so-called "non-protective" to the "protective" classification.

The total production of oleomargarine for the fiscal year ending June 30, 1941, is estimated to be 350 million pounds.

There was no general agreement in the section regarding the foods to be enriched with vitamin A. Representatives of the oleo industry favored restriction of vitamin A enrichment to oleomargarine, while a creamery representative thought that butter with low vitamin A content should be fortified just as much as oleomargarine. It was suggested that butter could be enriched through soil and cattle feeding control, but the objection was raised that this type of enrichment would greatly increase the cost of production and that it was cheaper to add carotene to butter than to increase the year-round food content for cattle.

Discussion of enrichment with vitamin B was directed to family flour, which constitutes 40 percent of the total production of all flour, and to commercially produced bread. Mr. Herman Steen, vice president of the Millers National Federation, stated that the program for enrichment of flour is of recent origin, having started with the development of standards under the provisions of the Food and Drug Act and having reached sizable proportions late in the year 1940. The commercial production of enriched flour, begun early in February 1941, affects white flour which represents 98.5 percent of the total amount of all flour consumed in the United States. The enrichment program, calling for addition of vitamins of the B group, is based upon a standard worked out jointly by nutritionists and governmental authorities and accepted by the milling industry. The standard provides for addition to each pound of flour of 1.66 mg. of thiamin chloride and 6 mg. of nicotinic acid besides iron and certain optional vitamins. The optional ingredients include riboflavin, vitamin D, and some mineral products. This enrichment restores to flour certain elements unavoidably lost in the milling process.

Mr. Steen reported that of 47 principal brands of flour, 39 were available at that time (May 1941) in enriched form only. In addition six private brands of widest distribution, controlled by the big chain stores, had been enriched and were then available only in that form. He estimated probably 50 percent of all flour being produced for family use had been enriched with nicotinic acid and thiamin of the vitamin B group and with iron. By the end of the year probably all or nearly all family flour will go to the consumer in enriched form. There will also be included vitamin B_2 or riboflavin which is now an optional ingredient seldom included. The supply of B_2 is limited, however, and Mr. Steen thought it would be impossible to produce by January 1, 1942, an amount sufficient for all the enriched flour that will be milled by that time.

The flour used by commercial bakers, which constitutes 40 percent or more of all that is produced, is not enriched because the baking industry is obtaining B vitamins from yeast or other commercial concentrates. Mr. Steen's report was confirmed and supplemented by Dr. James A. Tobey (American Institute of Baking) who stated that, "Bread enriched with vitamins and minerals equal to whole wheat can now be obtained in practically every market in the United States." Several hundred bakers, including all the larger companies, are furnishing such bread, and the chain stores have made it available at no extra cost to the consumer. Besides thiamin, nicotinic acid, and iron, this enriched bread is also a good source of calcium and phosphorus and, when made with milk solids, nonfat, dry milk solids, it also contains riboflavin. The minimum enrichment standards produce a bread, slightly below the vitamin and mineral content of whole wheat bread, while the maximum standards, if used, would produce a bread exceeding the nutrient content of whole wheat.

In connection with educational programs already operating or to be developed, representatives of consumer, research, and commercial groups all stressed the importance of instructing the housewife to consider the food values of the entire contents of canned goods and not to throw away the liquid of canned salmon and vegetables. Dr. Ernest D. Clark (Association of Pacific Fisheries) stated that the canning industry endeavored to make the housewife understand the nutrient value of the entire contents of a can of salmon by printing recipes on the cans calling for the use of both fish and liquid. The latter, containing oil, vitamin D, and soluble iodine products, is generally poured down the sink. Dr. Carl R. Fellers (Massachusetts State College) stated that what applied to canned fish with regard to liquid contents was equally applicable to vegetables where from 25 to 35 percent of the thiamin and riboflavin and from 40 to 50 percent of the vitamin C are in the liquid.

Mrs. Laura A. Cauble (food economist and nutritional advisor, American Institute, New York) pointed out that the liquids in canned fish can be used as a base for sauces. Furthermore, both clams and clam juice may be given to children who are allergic to milk. In this way there is made available to them calcium, other minerals, and riboflavin which are difficult to obtain in many diets.

In discussing educational methods, Miss May C. McDonald (supervisor of home economics, State Department of Social Welfare, New York) made a plea for spot radio programs and for popular informative advertisements that would be helpful in bridging the gap between technologists and consumers. Several representatives of industry thought that through the media of magazine and newspaper advertising, informative leaflets, and the radio much is already being done to educate the public regarding the nutrients in processed foods, methods of preparation, and the need for conserving food values.

It was recommended by Dr. Aaron that the Government undertake a broad program of genuine, scientific advertising as to the nature and composition of foodstuffs. As an illustration of the value of such advertising, the work of Dr. Sherman at Columbia University was cited. Probably there are few families in New York which have not been exposed to the popular educational campaigns

on nutrition conducted in that State. Appreciation was also expressed of the educational work of the Extension Service among rural women in all States. Dr. John Glassford (McCormick & Co., Maryland) thought that much commercial advertising was valuable and that industry had a genuine interest in the results of governmental research in nutrition.

There was a brief discussion of vitamin D which frequently occurs with vitamin A. Mrs. Sarah Ellen Wenger (educational director, Wisconsin Alumni Research Foundation) spoke of the years of experience the Wisconsin Alumni Research Foundation had had with food enrichment problems. Vitamin D, she said, is the most scarce of all the known vitamins today. It is not expensive, but it is difficult to obtain and is found in only small quantities in most of our foods. For many years certain foods, such as milk in various forms, including evaporated and powdered milk, cereals, cereal products, including some crackers, bread, and flour have been enriched by vitamin D. This vitamin is stable, does not oxidize, and, when added to any food, remains there until used.

Dr. Aaron, as a consumer representative, raised the objection that vitamin D milk cost 5 cents more than grade B pasteurized milk and was beyond the means of low-income families and of many others. The point was made that vitamin D milk could be sold for 1 cent a quart more than milk not so enriched and that most of the increase in cost to the consumer resulted from the grade raise from B to A rather than from the enrichment. Many States and municipalities require that any processed milk be sold at a premium to eliminate price wars.

It was pointed out that pressures from political groups and from organized labor are frequently responsible for raising the price of milk. An illustration was cited from one New England city where a dairy was selling irradiated milk at the same price as unirradiated milk until compelled by the milk control board to raise the price. The suggestion was made that price differentials might be avoided by using vacuum irradiated milk instead of fluid milk, but there was immediate objection on the ground that children do not like, and will not drink, evaporated milk.

The discussion of enrichment of commercially processed foods was concluded by a plea by Dr. Ruth Tollman (research assistant to the Food Habits Committee of the National Research Council) for greater dependence on a well balanced diet of natural foods. She was opposed to wholesale, indiscriminate enrichment, and pointed out that a diet including proper proportions of dairy products, meats, poultry, vegetables, and so on, would contain all the necessary vitamins. But more than vitamins are necessary for good nutrition, she argued. Balanced proteins, amino acids, fats, carbohydrates, and minerals are required. Good nutrition still depends upon good food, not upon concentrated vitamins. Dr. Berton S. Clark, supporting Dr. Tollman's argument, said the quickest way to raise the vitamin level is to show people how to cook in such a way as to get the most out of their food. Dr. R. C. Newton (head of the research laboratory of Swift & Co.) thought that educational programs, while not excluding discussion of fortified foods, should emphasize the importance of natural foods lest people begin to think they can

get their food in a pill. He reiterated Mr. McNutt's statement that nutrition was spelled f-o-o-d. He was supported by Dr. Aaron who thought low-income families in particular should obtain their vitamins and minerals "from good, wholesome, natural foods in the widest variety possible, not just one food, not just meat, not just milk full of good proteins, not just sugar and B_2, not just fruits full of vitamin C, or vegetables full of vitamin A, but all of them."

These suggestions were brought together in the following recommendation formulated by Dr. F. C. Blanck (director of research, H. J. Heinz Co.) and approved by the section:

That the enrichment of foods be restricted to those foods which in the opinion of Dr. Wilder's committee (Food and Nutrition Committee, National Research Council, Dr. Wilder, chairman) are in need of enrichment by reason of widespread use with special reference to the needs of the low-income group.

III. Future Policy and Recommendations.

There was general agreement in this division that a Nation-wide program of food enrichment and nutrient conservation would call for certain priorities because of the need for (1) trained technologists, (2) material for processing, packaging, and transportation, and (3) transportation facilities.

The need for biochemists and other technologists in the food industry was brought out by many speakers. Practically all qualified technologists are already employed so that as the draft takes these particular workers there are no qualified new ones available. Several speakers thought that if nutrition is to be regarded as a part of the defense program, then laboratory men, who are essential to the control of enrichment processes, should be deferred whenever possible. It was argued that chemists and other men with comparable education and experience in the food industry, together with their assistants, should be held as a reserve in industry until there is definitely a greater need for them in the Army. There was general agreement that draft boards might advisedly defer more technologists, and that as time went on there would be an even greater need than at present for chemists in food control work and for medical men with training in biochemistry.

The formal resolution covering the matter of priorities for technologists, presented by Dr. L. H. James, was unanimously approved by the division in this form:

This section makes the request that Government agencies, including the armed service, encourage the full undergraduate and graduate training of men and women for the food industry.

In view of the necessity for increasing facilities for manufacturing vitamins, Dr. Charles N. Frey (research director, Standard Brands, Inc., New York) recommended that manufacturers of vitamins be given a high priority rating for the use of stainless steel where they needed it. Mr. Merck suggested that the anticipated increase in demand for compressed foods and for dehydrated foods to be sent abroad, would make advisable extension of priorities on metals to cover all equipment necessary for the essential nutrition program.

Dr. Berton S. Clark, approving priorities in trained men and in materials needed for processing and packaging food, added transportation facilities as a third priority. Pointing out that 50 percent

of the preserved foods of the country came from the Rocky Mountain States and that all the salmon came from Alaska, he said he anticipated severe difficulties in the transportation systems up and down the coast and on railroads. He stated the railroads had ordered 50,000 freight cars but had stopped construction because they could not get needed steel and other materials. Dr. Clark summarized the opinions of section members regarding resolutions on priorities for the food industry as follows:

> I think there should be three parts in this resolution: one on priorities for men, i.e., trained personnel, one on material of all sorts—and I do not mean just processing equipment, but cans, sugar, labels, and boxes, and, thirdly, one on transportation so that we get a break when the time comes to get steamship and railroad space. There is no use producing goods and putting them up in concentrated form with all the vitamins and other nutrients for ourselves and our friends across the sea if we cannot move them.

The division voted on this recommendation and approved it unanimously.

In discussing the kind of cooperation needed between nutritional policy-making bodies and the food industry, several speakers favored the extension of research by governmental agencies to determine more about the vitamin content of food. There is need for more precise knowledge as to the relative value of fresh vegetables as compared with canned ones. Exact studies are needed to show whether fresh vegetables transported hundreds or thousands of miles to retail markets retain their vitamins as well as those which are canned immediately in the place where they are produced. Dr. Aaron stated that Consumers' Union has been in favor of setting up an impartial agency, preferably in the Government, in the Department of Agriculture, for determining the vitamin and mineral content of the vast number and variety of foods the American consumer eats or should eat. Dr. Aaron recommended a wide-scale study of natural foods and processed foods so that the public might be advised by an impartial group whether, for instance, it is more desirable to use canned foods grown under favorable conditions and canned where grown or to rely on fresh vegetables even when they cannot be obtained in retail markets until a week or two after they have been picked.

There was no general agreement about the placement of financial responsibility for proposed enrichment programs. The question was raised whether the consumer, the food industry, or the Government should pay the bill for enrichment. Dr. Aaron made the point that in current enrichment processes often the cheapest, and not necessarily the most useful, vitamin is used by processing manufacturers to enrich food. Although riboflavinosis, due to riboflavin deficiency, is more prevalent than pellagra or even than thiamin deficiency, he said, and although the Food and Drug Administration has suggested that food be enriched with riboflavin as well as with nicotinic acid and iron, the food processors state that riboflavin is too expensive. Dr. Aaron suggested that if riboflavin and a nice balance of B vitamins are essential in undertaking enrichment of foods, then the sources of vitamins should be considered, and an effort should be made to ascertain who controls the manufacture of synthetic vitamins, why the prices are so high, and why the flour manufacturers cannot add riboflavin to their devitalized flour in the enrichment process.

Dr. James A. Tobey (American Institute of Baking) endorsed the suggestion that responsible governmental agencies and other groups stimulated by them should carry on an educational program in nutrition, particulary with respect to "rich" foods. He also stated that it would cost the baking industry 5 million dollars to enrich all the bread in the country and consequently the industry was entitled to a slight increase in profits.

Dr. G. C. Supplee (director of research of The Borden Co.) favored more Government aid in research especially in orienting work now being done by both industry and Government and in interpreting present and accruing knowledge concerning vitamin balances. Such interpretation is needed, for instance, with respect to vitamin B excess in terms of fatty liver production. If there is evidence of a vitamin imbalance that might be prevented by the use of proteins containing amino acid—proteins inherent in meat and milk products—the facts and their interpretation should be made available by Government.

RECOMMENDATIONS

The recommendations from section VIIb were formulated by a drafting committee appointed by Dr. Burton and were incorporated in the final recommendations for section VII as a whole (p. 170).

Members of the Drafting Committee:

Chairman: Dr. Charles N. Frey, Fleischmann Laboratories, Standard Brands, Inc., New York.

Dr. E. J. Cameron, Research Laboratories, National Canners Association, Washington, D. C.

Dr. Paul D. V. Manning, Director of Research of the Golden State Co., San Francisco.

Mr. Ray T. Bohn, Director of Research, General Baking Corporation, New York.

SECTION VIIIa

COMMUNITY PLANNING FOR NUTRITION

URBAN SUBCOMMITTEE

Presiding, HOWARD Y. McCLUSKY, Ph. D.
Associate Director, American Youth Commission
Chairman

AGENDA

I. What information does a community need to have concerning its own nutritional needs before it can make an effective plan for better community nutrition? Many communities are asking themselves such questions as the following:

A. Is nutrition instruction available to all groups?
B. Is nutrition instruction available to meet the special needs of nurses, teachers, and social workers who are planning for and working with low-income families?
C. Are these allowances made to low-income families accompanied by education in nutrition so that a wise use of food money results?
D. Do dependent families receive an allowance which makes adequate diet at minimum cost possible?
E. What efforts are being made to help families increase their own food supply through home gardens and canning of local surpluses? In rural areas especially, production for home use cannot be overemphasized.
F. Are children being fed in schools, camps, and institutions under the supervision of a person who knows the nutritional needs of children?
G. What nutrition programs are being carried through Farm Security Administration, Rural Electrification Administration, Work Projects Administration, Agricultural Adjustment Administration, Extension, etc.?
H. Do schools offer nutrition instruction to all students?
I. Is the school lunch program a part of the health education program in the community?
J. Is the community working toward the Food Stamp Plan?
K. Are public eating places in the community serving well-balanced, properly-prepared meals under sanitary conditions?
L. Are low-cost, well-prepared meals available for those working in factories and those eating away from home?
M. Are market facilities and the food supply adequate?

II. How does a community make an inventory of its nutritional status?

III. How does a community go about mobilizing its agencies to develop a cooperative nutrition program?

IV. What are some of the problems that communities run into when they try to coordinate local, State, and Federal resources?

V. What steps can we take to make sure that lay persons feel a part of whatever type of nutrition program the community develops?

SUMMARY OF DISCUSSION

The problems of urban community planning for nutrition were discussed by representatives of many community groups, such as health organizations, schools, clubs, nutrition committees, and the like. Repeatedly the question was raised whether existing channels should be utilized in planning a nutrition program in any particular community or whether a new organization should be set up, and it was finally agreed that existing agencies should be used. The opinion was expressed that all community groups, both lay and professional, should be encouraged to work together and to pool their knowledge and resources. It was generally agreed that while anyone might start a community program for nutrition, in all probability the initiative would generally come from a professional group or agency. Leadership would frequently come from a school superintendent or health officer, or from the chairman of a State nutrition committee.

The group initiating such a program should have the confidence of the community and the requisite leadership. At the outset this group would find it necessary to appraise community nutrition needs and to enumerate what facilities were available for meeting those needs. Local food habits would have to be studied and surveys would be required to ascertain the economic status of families, the incidence of deficiency diseases and conditions, and whether or not federally sponsored projects like the school lunch program and the Food Stamp Plan had been set up.

Illustrations of community programs now operating were cited by delegates from New York City, Chicago, and Hartford. In these cities it has been demonstrated that labor groups, churches, welfare organizations, health agencies, and many diverse and seemingly unrelated groups can be brought together to work for the common cause of better nutrition not only for defense but for the postwar period.

DISCUSSION

At the beginning of the first session, the rural and urban subcommittees of section VIII for community planning for nutrition met together for a short period. During this period Mr. McClusky outlined the job which these two subcommittees were expected to accomplish in the next two meetings. Mr. McClusky emphasized that the primary concern and purpose of the section on community planning for nutrition was to draw up a list of recommendations which would be incorporated in the final recommendations which would be made to President Roosevelt as a result of the section dis-

cussions. Mr. McClusky further stated that the task of section VIII was one of implementation and that we must not spend too much time on "the how."

The chairman pointed out that there had been very little community organization and still less community planning directed to the specific task of changing food patterns and improving the nutritional status of the population in the United States. He suggested that experience and planning in other fields might be transferred to the field of nutrition. As a starting point, Mr. McClusky spoke of the advisability of making an inventory of the status of the needs and resources of the communities we wish to discuss, giving special attention to the agencies in these communities and their program techniques for mobilization in effecting their programs.

In conclusion, Mr. McClusky pointed out that we could assume there was a certain community interest in nutrition and a mean background of facts. He again emphasized that the task assigned to these two subsections was a difficult one—nice to talk about, but difficult to get action on.

The chairman opened the meeting of the urban subcommittee by stating that he felt the group should know something of the resources that the section represented. He pointed out that although time was limited he felt it justifiable to ask discussants to introduce themselves and to tell what organizations they represented.

Mr. McClusky stated this group first must remember that every urban community is of a heterogeneous character. He then threw out the question of how a community should be organized if it was interested in working on its nutrition problems. The discussion which followed seemed to resolve itself into the following:

1. Should a new organization be set up to do this separate from other agencies? or
2. Should the nutrition program be initiated and worked out through already existing channels in any community?

The consideration of these two questions brought up two other questions, namely:

1. Should such a proposed nutrition program be a part of the general health program? or
2. Should it be a part of the total community problem?

In considering the question that any community's economic and psychological factors need to be taken into consideration before an approach is made through either of these channels, it was suggested that agencies be listed which are apt to be in these communities and which should be the channels through which nutrition information might be disseminated.

The agencies listed were:

1. Work Projects Administration projects.
2. Boy Scouts.
3. Girl Scouts.
4. Camp Fire Girls.
5. Y. W. C. A.
6. Y. M. C. A
7. Junior leagues.

8. Churches.
9. Schools.
10. Welfare departments.
11. Private social agencies.
12. Red Cross.
13. Tuberculosis and health associations.
14. Boards of health.
15. Farm organizations.
16. Farm Security Administration.
17. Extension specialists.
18. Family service organizations.
19. College clubs.
20. Housing groups.
21. National fraternal organizations.
22. Service clubs.
23. Labor groups.
24. Day nurseries.
25. Settlements.
26. Racial group organizations (such as Urban League).
27. Women's volunteer groups.

Following a discussion of these various organizations in relation to their usefulness as community resources, it was agreed that the school in every community was a common meeting ground.

The discussion then turned to the points that needed to be considered in approaching a community planning program, i. e., what needs to be known about a community and what should be developed in any given community? The points enumerated were:

1. An awareness of the nutritional needs of the community needs to be developed in every instance.
2. An appraisal of the nutritional status of the community needs to be made.
3. It should be ascertained what foods are necessary for an adequate diet and whether these foods are available.
4. What are the general food habits of the community (good or bad)?
5. What is the average income of the families in the community?
6. Do families have gardens?
7. Does the community have a school lunch program?
8. What are the storage facilities?
9. Are nutritional deficiency diseases, such as pellagra, evidenced in the community?
10. What is the health status of the community?

It was pointed out that in developing a nutrition program as much information as possible regarding the community should be obtained by asking the above questions of the agencies operating in the community.

Joseph B. Meegan, of the Chicago Back-of-the-Yards Organization, reported that the things his group had found everyone in the community had in common were:

1. Churches.
2. Schools.

3. Labor organizations.
4. Business.

This community which he reported upon has organized an effective educational program on such a basis.

Dr. Frank A. Calderone, the Lower East Side city health officer, New York City, stated that his group plans to organize mothers for health work through:

1. Schools.
2. Firemen's auxiliaries.
3. Police auxiliaries.

He pointed out that the children all went to school and that they knew and respected both the firemen and the policeman in their neighborhood. These three types of organizations touch almost every home in the Lower East Side.

Following quite a discussion on the organizations and resources available, it was agreed that in every community in starting a nutrition program two barriers first faced the community:

1. How to get the group?
2. How to use existing professional leadership as coordinating agencies toward solving any community problem (especially nutrition)?

One representative suggested that how to reach the upper level of society with nutrition information was just as baffling as how to get this information to relief groups. He presented these three questions in relation to this:

1. How to interest the people themselves?
2. Who is going to give this group direct service?
3. Does this group need a professional coordinator?

In connection with this the importance of taking the type of community into consideration when planning a nutrition program was stressed. The group listed the types of communities as:

1. Those differing in size.
2. Those differing in cultural background (such as racial groups, market towns, industrial towns, and defense areas).

From this discussion it seemed evident that some procedure needed to be developed whereby the gap could be bridged between "rank and file" and professional groups in any community.

Dr. Lucy Morgan, of Hartford, Connecticut, reported a successful method of what she termed an over-all type of approach. This suggestion was:

1. To meet the people, and
2. To find out what they wanted and also what they felt their needs and nutrition problems to be.

Miss Larson, of St. Paul, remarked that in every program there was need for some central group to be willing and ready to "see through" a program. She pointed to the Department of Education as a feasible group which was in every community. Miss Larson also discussed the need for a steering committee and the need for working out an individual program for each community.

Following this discussion, Miss Wylle McNeal, of Minnesota, pointed to the fact that a committee was needed in every community as a first step in planning for better nutrition. She stated that such a committee's first responsibility should be:

1. To observe what is now being done in the community to meet nutrition needs.
2. To ascertain what needs are still not planned for.

Miss McNeal also raised the question of who should start a nutrition program.

There was much discussion following this. It seemed to be the opinion of the group that any group or agency, in a community where there was interest in nutrition, could start a program.

From this discussion came the question of the official status of the newly organized State nutrition committees. It was apparent that there was some confusion regarding the organization and function of State committees. In view of this, Mr. McClusky threw out the question "Should the community group planning for nutrition be a subcommittee of local defense councils?"

Miss McNeal further discussed the need for a permanent nutrition committee which would continue to function "war or no war!" She warned against tying community nutrition work too closely with the defense councils. At this time Miss Amy Kelly, of the College of Agriculture of Missouri, also spoke to this point, adding a warning against political implications.

There was considerable discussion as to how more men might be brought into the working committees; also, a lengthy discussion regarding the tendency for urban communities to be neglected when planning for community projects.

Miss Caroline Ware raised one further question as to the advisability of having proposed agency committees for community planning. She discussed the value of agency committees versus the people's committees, in getting the work done.

Dr. Muriel W. Brown, of the United States Office of Education, pointed to the Obion County, Tenn., experiment as a very good example of combined agency and community interests. She remarked that an excellent program was evolved by this community when the *people* discovered their own needs and the *agencies* working in the community planned a program to meet these needs.

The discussion throughout the afternoon seemed to come back to "the how" and the "who."

At the close of the first day's session, a summary of the discussion seemed to indicate the following: For an effective nutrition program the following pattern might be suggested:

1. The existing machinery should be used (this including State nutrition committees).
2. The State nutrition committees should be considered a community or State resource.
3. Some key organization should start the thing off (Superintendent of Schools and the Health Officer seem to be the two key persons in every urban community).

4. When working for better nutrition the people should be helped to recognize their needs and helped to solve their problems in relation to these needs.

At the beginning of the second day's session, Dr. Helen S. Mitchell, principal nutritionist on the staff of the Director of Health, Welfare, and Related Defense Activities, was present to describe the composition of the State nutrition committees.

She explained that last summer a need was felt for having various agencies in the States which were interested in nutrition get together and survey the needs of the States. At a land-grant college meeting of executives, it was proposed that each land-grant college make a start. In some States there were nutrition councils that had already been in existence. If such was the case these were to continue. Thus, Dr. Mitchell pointed out, the pattern for each State was not exactly the same.

A discussion followed regarding the available teaching materials and study outlines. Dr. Mitchell regretted there was such a dearth of materials at the present time.

At this point Mr. McClusky pointed out that the group had only a short time left to work out the recommendations as well as to finish "unfinished" business. Mr. McClusky also suggested that the group endeavor to determine some priorities in carrying through the remaining time for discussions. He then asked for definite statements as to problems and unfinished business yet needing attention. The following questions were stated:

1. Should the financial assistance required for a nutrition program be long-term, immediate, or short-term assistance? (Everyone agreed it should be long-term.)
2. How shall we take account of variations in diet patterns of nationality groups or different group types?
3. Who should start the program?
4. Should nutrition instruction take place? Where? In home, school, library, etc.?
5. What part will Surplus Commodities and the Relief Administration play in this picture?
6. What is to be done about existing committees? If three committees are found in a community, what should be done about it?
7. How are Federal, State, and local nutrition organizations to be coordinated?
8. Are we going on the assumption that it is a long-term program, yet right now an immediate defense issue?

(This prompted the chairman to add that we should take advantage of the defense stimulation to initiate community planning. He added the relationship of a nutrition program must be very clearly defined.)

9. What are the channels through which publicity will "seep down through the community"? We at the Conference can become enthusiastic, but somehow we have to have proper channels so that the community takes the initiative in asking for nutrition material.

10. Should we not have regional and State clearing houses for the dissemination of exhibit materials? For example, if we want something on, say, "liver" we know where to go to find it. We need some centralized dissemination of nutrition material.
11. Should there be a pooling of information in each State?
12. Should there not be a pattern of cooperation of lay groups in the community and this relation to other health programs and will there be a group of citizens receiving support as they do in other programs?

This concluded the statements for unfinished business.

Mr. McClusky suggested that the group start with the problem of who shall start the program. He asked if anybody could give a formulation which would reconcile different issues and which would also respect and utilize the resources of the lay interests. One discussant suggested that the State nutrition committees could have different members, offer their services, pool their ideas, and that some individuals on those committees would know how to get into some of these areas.

Mr. McClusky called on Mr. Meegan to tell the group how the Back-of-the-Yards program was started. Mr. Meegan replied that the program started with the getting together of the labor unions, churches, and business groups in the neighborhood. The labor unions began to organize swiftly and there was a little conflict for a time with the churches, but the local labor leaders, being church members, went to the pastor and clergy and told them that after all they were fighting for economic elevation and that they were parishoners of their churches, and expected in turn the support of the churches. The churches and labor in turn enlisted the aid of business people, had meetings with the chambers of commerce, and found a correlation between church, labor, and business. If there was a problem of juvenile delinquency or the economic structure was low one could not do without the other. The members of this group began to work together and brought in other groups, such as youth organizations. Mr. Meegan stated they found you have to respect the rights, viewpoints, and individuality of all people. This group has a community congress. At this community congress all the people throw their problems into a hopper and they are given constructive criticism. They meet at regular intervals to take up problems such as poor housing, health, etc. This report by Mr. Meegan prompted Mr. McClusky to remark, "I don't believe all these existing agencies will get to first base without doing what you have done."

Mr. McClusky summarized the discussion thus far:

1. These programs start as a result of the efforts of some person, or agency—someone who has a good, confidential, face-to-face relationship with the community and friends. He may be an individual, but more than likely he will belong to a group. The community has a right to expect a certain kind of service and leadership from certain groups. For example, one expects more nutrition leadership from the Department of Public Health than from the local Association of Archaeologists. It is likely that the person starting the program will be someone interested in health, public welfare, education, or agencies concerned therewith. The chairman then

concluded that the answer to the question, who may and will start the program, is that it *may* be anyone, but the *probability is* that it will start from a professional group or agency.

The State nutrition people may or may not initiate the local action of lay people. When you begin to take the first step in a conference or interviews, call people together in groups. Once you get to the group stage it is much safer that at least two or more call that conference. If one group calls a conference it may excite hostility and suspicion. It is probably good strategy, in calling together a conference, to get in, so far as possible, the lay groups or those groups which have wide contacts, and broad mass appeal and participation. Be sure that the representatives who are selected to make contacts are acceptable to the people of the community.

2. Mr. McClusky continued his summary by saying we must remember that much of the material given at this Conference is too technical. Milligrams and International Units must be translated into terms of potatoes and glasses of milk. Perhaps some Federal agency should make the translation. He suggested that we get away from mimeographed sheets and reports, and that Government agencies should develop clearing houses. For instance, translate what the Wage and Hour Law will mean to the youngster, and in summarizing: (1) Make liberal use of visual aid, and (2) make material brief and to the point.

3. Mr. McClusky further pointed out that in every community program there is a place for both the *expert* and the *non-expert*. He pointed to the fact that some of the best work in food and nutrition can be done through advertising. Advertising has changed more food habits already than any other one thing. Mr. McClusky suggested that the nutrition people study what the advertisers are doing and how they influence people.

In the final analysis and summary, it was agreed that our efforts must be directed toward a long-term interest in nutrition and that a nutrition program should be a part of a community program in a broad sense.

RECOMMENDATIONS

It is recommended:

I. That community organization for better nutrition should be planned as a permanent long-range program.

II. That the immediate present emergency should be used to crystallize interest, public opinion, and action with respect to this long-range program.

III. That plans for organization should be based upon the broadest possible community interest and support for the objectives of the total program.

IV. That prestige should be secured for the programs by making use of persons, organizations, and situations which already have prestige value.

V. That responsibility for leadership in the development of nutrition programs within States should be assigned to State nutrition councils or committees.

VI. That this community sanction should be evidenced by wide representation and participation of interest groups and organizations of committees at Federal, State, and local levels.

VII. That producer, distributor, and consumer interests should have explicit representation and participation in community organization at each level (national, State, and local).

VIII. That members of nutrition committees should be selected on the basis of demonstrated ability to give professional and lay leadership and to work well with other people.

IX. That State nutrition committees should be responsible for assisting with the development of local problems in every way possible.

X. That the unit of organization should be the neighborhood or some other natural community subdivision.

XI. That these State committees should be responsible for contacting those persons most likely and able to take effective leadership in initiating local programs.

XII. That deliberate and determined effort should be made to take full advantage of all existing resources, remembering that many different voluntary and official agencies and programs are already operating in American communities.

XIII. That all new committees must be carefully and completely related to existing machinery for community organization.

XIV. That the Federal agency responsible for the National Nutrition Program make available to State nutrition committees one or more consultants to assist with the development of State and local programs as such assistance is desired.

XV. That this same agency serve as a clearing house for the collection, preparation, and distribution of simplified educational materials such as exhibits, movies, radio scripts, film strips, charts, posters, etc.

XVI. That in planning local nutrition programs local nutrition committees should consider the need for at least four types of projects:

A. Projects such as nutrition clinics, special consultation services, etc., through which families can be helped to discover their particular nutrition problems.

B. Projects designed to meet specific needs revealed by consultation services. These will be varied in nature and will grow out of the recognition of specific needs.

C. The development of an integrated program of nutrition education to be carried on through the schools from the first grade through the adult education classes.

D. The development of a community-wide program of public education to be carried on through such agencies as the radio, the press, the movies, forums, and discussion groups. Experience seems to show that such programs are more effective when they are based on discovered needs than when they attempt to create the sense of need.

XVII. That definite plans for continuous evaluation should be made a part of the community nutrition program from the beginning.

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Members of the Drafting Committee:

Chairman: Howard Y. McClusky, associate director, American Youth Commission, Washington, D. C.

Dr. Muriel W. Brown, consultant, Family Life Extension, U. S. Office of Education, Washington, D. C.

Dr. Frank A. Calderone, health officer, New York, N.Y.

Charles E. Hendry, national director of research, Boy Scouts of America, New York, N. Y.

Dr. Lucy Morgan, general secretary, Hartford Tuberculosis and Public Health Society, Hartford, Conn.

Marshall D. Schulman, vice president, Council for Democracy, Washington, D. C.

SECTION VIIIb

COMMUNITY PLANNING FOR NUTRITION

RURAL SUBCOMMITTEE

Presiding, H. C. RAMSOWER
Director of Extension, Ohio State University
Cochairman

SUMMARY OF DISCUSSION

Representatives of State nutrition committees, State land-use-planning committees, farm organizations, and other groups interested in rural community planning for nutrition discussed problems of State and local organization for group action. One of the major points at issue was whether some new organization should be set up in rural counties to develop the nutrition program for defense or whether existing agencies should be used. It was generally agreed that farmers would have faith in existing organizations and would cooperate in developing their own program if they could work with groups with which they were already familiar. The State nutrition committees, comprising representatives of the Department of Health, the Board of Education, and the Extension Service, were believed to be the logical groups to assume responsibility for leadership at the State level. The section was in favor of asking each State nutrition committee to designate certain agencies or individuals in the counties to form the necessary organization.

It was agreed that all existing groups and agencies concerned with nutrition should participate in planning county and community programs. As a first step in developing such programs, needs and resources should be appraised. Organization work would generally start at the county level and should be directed toward the strengthening of existing agencies dealing with farmers. It was pointed out that since rural and urban groups have much in common in their community problems there should be close cooperation between them. The nutrition phase of health and welfare programs should be emphasized for the dual purpose of meeting current nutrition needs for defense and of establishing a permanent nutrition program on a national basis.

DISCUSSION

At the general meeting of both the rural and urban subcommittees of the Committee for Community Planning for Nutrition, Mr. McClusky stated that the primary objective of the section on Com-

munity Planning is to provide a list of recommendations that will constitute part of a larger set of recommendations to be presented to the President. The Conference itself is set up to recommend measures that will bring about better food habits and nutrition throughout the country. He pointed out that our task is one of implementation and that we must not be too much concerned with the details of "how." Our consideration of "how" must be stated in policy terms. When we have finished discussion of "how," we must distill out of our discussion certain general statements of policy and procedure that can take the form of recommendations. Mr. McClusky suggested that another thing to keep in mind is that there has been very little planning at a community level and less organization at the community level for the specific task of improving the nutritional status of the population. We must transfer experience in other fields of planning to the field of nutrition. We must discriminate in our discussion. It will be necessary to make an inventory of the status of the needs and resources with respect to the agencies and their programs, techniques of mobilization, etc.

Mr. Ramsower opened the meeting of the rural subcommittee by emphasizing that all the work of the Conference would be effective in proportion to the degree in which it gets back into the local communities where people live, work, and eat. Unless there is an effective community organization set up to get a lot of people working on this program, utilizing every agency that is available in an effort to get it back to the people, the whole Conference misses its goal. He stated that our task is to suggest to the Conference what a community should do by way of creating an organization through which a far-reaching nutrition program can be carried on.

It was suggested that the following points be considered in the preparation of a community plan:

1. Development of an awareness of the need.
2. Connection between health and nutrition.
3. Gardens and nutrition.
4. Soils and nutrition.
5. Live-at-home problem.
6. Income.
7. Hot lunches for school children.
8. Food habits.
9. Family relationships.
10. A definition or appraisal of the status of nutrition in the community.
11. How many people are there in the community by age and sex groups, and what foods are needed to give them adequate diet?
12. Physical status.
13. Methods of preparation of food in relation to nutritive value.
14. Preservation of food and storage.
15. Relationship between doctors' and dentists' bills and nutrition.
16. Incidence of more common nutritional deficiency diseases, such as pellagra.
17. Nutrition in relation to public relief.
18. What is optimum state of health?

It was pointed out that before a program can be worked out, it is important to know the agencies which operate in a community that have an interest in nutrition, and the role they are able to play. A community should also consider what it can do to make the people aware of the nutritional status of that community. There is need for a special nutrition committee in each county which will embrace land-use planning committees, the Farm Security Administration, Extension Service, and all other agencies interested in improving the health of the community, and which will get them to work on a program.

One representative stated that "being a good neighbor" does a lot in her community. The local, county, and State land-use-planning committees are very much interested in this problem and have suggested that surveys be taken in the community. This was started in some of the unified program counties, and the people themselves are assisting in the work. She mentioned also that the committees have suggested that a study be made of the men rejected in the draft.

Miss Jennie Camp of Texas reported that the Texas land-use-planning committees are doing similar work, and questionnaires regarding health have been circulated and filled out. Here Mr. Ramsower remarked that when we speak of land-use-planning committees, we are thinking of all the agencies working together.

Another representative pointed out that the home demonstration clubs in Arkansas have set up a State Preparedness Committee which is composed of the leaders of groups who are concerned with food. In many communities these leaders have made surveys, finding out the needs of the people in those communities. The home demonstration clubs, in turn, present their recommendations to land-use-planning committees. Miss Bonslagel continued this account by saying that the chairman of the Committee on Preparedness made a report at a community land-use-planning committee meeting and the people were amazed at the number of families who had no cows. The inventories made by these women resulted in a countywide program for dairying.

In another State, the State nutrition committee made a survey of the eating habits of school children. This survey was made public and the county was aroused by the conditions that existed.

The following agencies were listed as those which either are doing something in this field or can make a contribution to it:

1. Board of Health.
2. Extension—4–H Clubs.
3. Schools — Home Economics, Vocational Agriculture, etc.
4. Churches.
5. National Youth Administration.
6. Public welfare.
7. Work Projects Administration.
8. Boy Scouts.
9. Agricultural Adjustment Administration.
10. Farm Security Administration.
11. Farm organizations.
12. Red Cross.
13. Future Farmers of America.
14. Local draft boards.

Mrs. Mary S. Buol (extension nutritionist, College of Agriculture, Reno, Nev.) pointed out that no problem is really solved until the folks in the county solve it themselves. She suggested that an organization be set up of lay people who would call in the trained

professional people as they were needed. The lay people themselves would do the real planning.

Another representative replied that the agencies listed above were listed only as sources of information and not as members of the committee.

It was stated that the lay people cannot set up programs themselves without guidance. Mr. Ramsower pointed out that there are 25 to 30 agencies in a position to make a contribution, and Mrs. Eddy said that the only reason they are represented is that they can make a contribution.

Although these agencies have been working for many years, the nutritional condition is bad because all the agencies contact the same people. One representative reported that in her State county agricultural workers councils were organized to work on a food and feed program. Representatives of each agency came together to develop a plan.

Miss Maude E. Wallace (assistant director of extension, Blacksburg, Va.) remarked that the same thing is being done in practically every county. All States are organizing State nutrition committees and on these committees are representatives of all the agencies we have listed, in addition to others.

Mrs. Raymond Sayre of Iowa said that farm people already are asked to work with too many different committees, and expressed opposition to the establishment of any new committee on nutrition.

The leadership of the extension people was mentioned, and a question was raised as to why the same people are always used.

Dr. John Ferrell (Rockefeller Foundation, New York) expressed the feeling that in each agency's organization on the State level there is leadership that supervises the forces at the county or local level. There is financial and personal cooperation between the two and one must know the State organization's resources in order to get some idea of the possible scope of the agency's work at the county level.

One representative emphasized the necessity of memoranda of understanding on the State level between the various agencies to clarify the relationship to be worked out within the counties. We are more likely to get cooperation at the community level than at the State level, and better cooperation at the State level than at the national level.

Miss Anderson suggested the evaluation of what the organizations are doing, and expressed the opinion that very little nutrition work has been done. The reply to this was that a number of agencies are really coming to grips with this problem in a practical way. Public welfare was mentioned.

A question was raised as to how to get agencies together. The representative from South Dakota replied that all of the agencies are working together, but they are all meeting the same people. She indicated there was a great need for home demonstration agents in the Middle West. People have more confidence in home demonstration agents than in some other professional workers.

In Tennessee, the State Committee on Nutrition, from the very beginning, was set up with men and women in all agencies taking part. All agencies were represented at the first meeting. It was

decided that four counties would be used as a demonstration in setting up county committees on nutrition. To those four counties, representatives of the different agencies on the State committee were sent. The Extension Office was represented by either the chairman or secretary. Interest was aroused in these counties and then spread to other counties.

Dr. Ferrell suggested that from our present knowledge, we should formulate a sound program for the community, whether it be township or county, and it should be flexible. Then we should bring together the agencies which would have an interest in carrying out the program.

Miss Camp stated that if the people themselves formulate the program, they will come nearer to carrying it out. They should request assistance from such agencies as those on the county land-use-planing committees.

Mrs. Buol remarked that we don't have to start from scratch. Every county already has a program and the people only need to get together to strengthen it. Nutrition for defense is so serious that we should put up a plea to have a little Government red tape snipped off, and allow a few people who are already serving on these committees to do the little unusual thing.

Mr. Ramsower summarized the discussion thus far by stating that the people themselves should discover their needs, make an inventory of their resources, decide on what to do, and then ask each agency for assistance. The question to consider now is how a community can bring the agencies together. What must a community do to put itself in a position to develop and execute a real nutrition program?

One representative suggested that the first step is to learn the situation and needs of the community.

When the question, "Why can't nutritional agencies combine?" was asked, Mrs. Sayre remarked that in the land-use-planning committees we have an example of all groups being brought together.

Miss Maude Searcy, of North Carolina, reported that in her county (Caswell County, N. C.) 60 farm men and women were invited to meet with the agricultural agencies in the county. These farm people outlined their own problems and made up a county program of work. This was used by all agencies, and they worked together on it with the farm people. In some instances, the original programs were changed altogether in order to meet the really pressing needs as described by the farm men and women.

Miss Camp stated that in Texas there is a nutrition subcommittee of the State land-use-planning committee and that it has developed a program of action on health and nutrition. Recommendations were made by the subcommittee to the State committee. It was learned that there are enough agencies in the State to carry on the work, but there is need for improvement and modification of their programs. However, there are not sufficient people in the organization already formed to carry out the health and nutrition part of the program. A call should be made on the schools and educational agencies to get all the people conscious of their needs. The State was asked to establish county health units and to coordinate all the health units in the State.

Mrs. J. L. Williams, of South Carolina, explained how the small neighborhoods formulated policies and made recommendations to the county land-use-planning committees. The farm people who take part in the programs assume responsibility for encouraging a certain number of farm families who are not getting sufficient food to grow wheat, raise cows, etc. This is a case of one group of farmers contributing unpaid services in working with other farm people. Farmers have confidence in other farmers.

It was suggested that we should talk definitely about a coordinating agency at the county level. The Federal and State Health Service is working in each county in the country. Perhaps the Extension Service could be extended by added personnel and money. Either of these could be a coordinating agency.

Mrs. Williams believed that the farm people would cooperate better with the land-use-planning committees than with any single agency.

Mr. Ramsower stated that there are two alternatives for getting action. One is to agree upon a certain agency to assume leadership and the other is to have the State Nutrition Committee charged with the responsibility of selecting the agencies in the various counties or States that seem to be in the best position to take the initiative.

Dr. A. R. Mann (director, General Education Board, Rockefeller Foundation, New York) observed that it is difficult to obtain coordination under the guidance of a single agency which dominates.

Mr. Bishop suggested that an adequate nutrition program would be as broad as a whole field of agricultural and land-use adjustments, and pointed out the need for an integration of the activities of all agricultural agencies.

Mrs. Martha H. Eddy (Administration Extension Service, Cornell University, New York) told about the nutrition committee which has been in existence for 4 or 5 years in New York. It represents four departments and is organized to reach more people than would be possible for each agency operating alone. It is the nucleus of the State Nutrition Committee. One person in each county is asked to assume temporary chairmanship, and to call all agencies and interested lay people to meet for the purpose of talking over the needs and resources of the community. In every case, if the county so desires, a representative of the State Committee meets with the county group at the first or second meeting. The county chairmen are called together in nine regional meetings. The total nutritional status of the counties is discussed. Then they go out into the communities and call representative farm people together. Anybody who is interested is invited to the meeting.

In Mississippi, 3 years ago, an agricultural workers council was established to coordinate the activities of all agencies that were working with rural people. When the nutrition program was started a committee composed of technicians set up the objectives to be carried out in the counties.

Miss Wallace stated that in Virginia they followed the same procedure as that in New York. At first, a temporary chairman, or promoter, and other professional people were called together to elect a county lay man and woman as cochairmen in the county. The program was turned over to the lay people.

Miss Nora M. Hott (South Dakota State College) suggested a merger of the land-use-planning committees and the nutrition committees.

Miss Anderson wondered about the place of the regular practicing physician in the picture, and asked how he could do a better and bigger job in nutrition.

Mr. Ramsower asked Dr. Ferrell if physicians had been brought into the program. Dr. Ferrell replied that he knew of only two counties where this is being done. He stated further that the correction of dietary deficiencies is not the role of any single agency in the county. It is so broad and involves so much that every agency and all forces willing to participate can have a share in it. Dr. Ferrell said that physicians of his age have not had any particularly thorough course centering around nutrition. The general courses in medicine do not stress nutrition as much as they should.

Mr. Ramsower asked who should take the responsibility for calling the agencies together, and Dr. Mann suggested that the State nutrition committee take the leadership.

Miss Camp stated that the State nutrition committees and the State land-use-planning committees are the logical agencies to assume leadership.

Mr. Ramsower wondered whether the State nutrition committee would not be sufficiently representative to take over the work.

The P.-T. A. was mentioned as a strong organization in some States which could assume responsibility for a nutrition program.

Mrs. Eddy stressed the fact that we should make use of the agencies already in existence rather than set up an entirely new organization.

Mr. Ramsower replied that we are not recommending the establishment of another agency. Instead, we want to coordinate those that are set up and find out what contribution they can make.

Mrs. Eddy suggested letting the State land-use-planning committee undertake leadership in this field.

The representative from Illinois asked how many actual farm people there are on the State nutrition committees. Miss Hott answered with a statement that there are no rural people on the South Dakota State Nutrition Committee yet, but plans are being made to include them in the membership. Miss Camp stated that farm people are not well represented on the Texas State Nutrition Committee.

Miss Camp again emphasized the desirability of having joint responsibility in the hands of the State nutrition committee and the land-use-planning committee.

Miss Anderson warned against making this only a short-time program and said that it should become a permanent part of the public policy.

Mr. Ramsower summarized the discussion by stating we are agreed that we want to bring the lay people into the planning of the program as far as possible, and that the paid representatives of the different agencies should be called upon to do a good deal of the work. The lay people must be directed intelligently, but it is essential that they do the planning with the guidance of those who are competent in the field.

Mr. Hummel stated that if we are to obtain any essence of democracy in this program, it will be necessary to bring all the agencies that can be of assistance into a cooperative relationship with the lay leaders.

Mrs. H. W. Ahart, of California, indicated her approval of the Federal and State Extension Service and the Board of Education assuming responsibility for bringing interested people together. Farm people look with suspicion on any new agency. However, if these two agencies would get together and call a meeting, the farmers would have confidence in them and would attend. She stated further that she is against agencies formulating a program and then calling in the rural people. Instead, the farmers should sit in at the meeting and form their own program.

Mention was made of the fact that we are prone to forget that this State nutrition committee serves both urban and rural people.

Mr. Ramsower asked whether we want to put this program into the hands of the State nutrition committee or whether we should specify certain agencies to be called together.

Dr. Ferrell wanted to know whether the State nutrition committee includes people who are paid a salary and travel expenses.

In answer to his question, Dr. Mann was advised that the Department of Health, the Board of Education, and the Extension Service were all represented on the State nutrition committee.

Mr. Ramsower called for a vote on the procedure to be followed in setting up the nutrition program. The majority were in favor of asking the State nutrition committee to designate certain agencies or individuals in the counties to form the necessary organization.

Mr. Ramsower opened the session on May 27 by saying that the group is charged with the responsibility of making recommendations for initiating rural planning for nutrition. The recommendations of section VIIIb (see p. 206) were presented and approved.

Mr. J. H. McLeod (assistant director of extension, College of Agriculture, Knoxville, Tenn.) asked whether, under II (p. 206), the plan originally was that the State nutrition committees would assume the responsibility of giving instructional work, and also of going through the literature available that might be sent out to the community. Commercial agencies are now sending out material on nutrition.

Miss Connie J. Bonslagel (State home demonstration agent, Agricultural Extension Service, Arkansas) stressed the fact that the State committee should exercise every precaution to take into account what is now being done. She stated that in Arkansas, 2,100 rural communities have set up committees which are functioning and which have been trained. It would be a tragedy to set up still another nutrition committee where one is already in existence. Whatever committee is set up should be built on what is already under way.

Miss Bonslagel went on to say that we can easily bring the agency representatives together on a county level, but it is difficult on the community level because there are no agencies' representatives at the community level.

Dr. Ferrell suggested substituting the word "local" for "county."

One representative stated that if schools, churches, and clubs are considered agencies, then agency representatives do exist in the communities.

Miss Camp wondered if individuals would be named to take leadership. It was mentioned that such a procedure would be better than merely naming agencies.

Mr. Ramsower pointed out that the sole function of the individual or agency named would be to bring the people together. Most committees will organize first on a county level.

Dr. Ferrell indicated that no provisions are being made for the reporting of activities and achievements as a result of the recommendations. Miss Wallace replied that each agency requires a report from its representatives, but she did not favor putting an extra burden on the people when there are no funds for making reports.

This discussion prompted Mr. Ramsower to ask the following questions: Are we setting up another agency now to do planning in the field of nutrition? Is this nutrition planning we are talking about something different from what we have done before? Is it something apart from the over-all planning in a county or in a community? Is it something apart from the planning of the many agencies that exist in the community, or is it a part of the planning and machinery for planning that are already there?

Mrs. Eddy answered that the work proposed merely increases the emphasis on the nutrition part of the program.

Mr. Ramsower repeated Mrs. Eddy's statement by saying that we should get all the agencies to put a new emphasis on nutrition as a part of their several programs.

Mr. Bishop stated that the activities of the TVA are tied in with nutrition. The basic thing in the improvement of rural nutrition is a readjustment of the farm unit. Miss Wallace continued on this subject by pointing to the TVA as a grand illustration of what we want this program to be.

Mr. Hummel emphasized that we should not set up a new organization and also should not set up a new program. Our purpose is to strengthen an element already in every agency working with farm people. We must get the nutrition phase of our program recognized in relation to its permanent national importance so that it receives the attention it deserves.

Mr. Bishop continued this discussion by saying that our purpose is neither to establish a new organization nor to set up a new program, but to provide an opportunity for the several agencies now working in the field of nutrition to coordinate their work so as to make them integral parts of the whole.

Dr. Ferrell suggested that what the agencies are doing and what they are willing to do should be formulated into a program.

Miss Bonslagel remarked that no matter how much planning we do, we are going to function effectively only so far as the farm families change their attitude on food. A coordinated program would help change their attitude toward nutrition. We must make the people want better nutrition. There should be some educational work.

Mrs. Buol pointed out the need for close coordination of rural and urban plans at the State and county levels in order to solve the closely integrated problems involved.

Mr. Bishop mentioned two problems which cannot be disassociated—that of consumption in the city and that of production in the country. Mrs. Eddy said that the people have no idea of separating these

problems, and that she believes the country people are more conscious of the rural-urban relationships than we are.

Mr. Hummel continued on this subject by stating that, wherever possible, the two programs, rural and urban, should be administered as one.

It is up to each agency to see that its part of the program is carried out, and a publicity program should be developed to keep the people informed and encouraged.

Mrs. Ahart emphasized the necessity of including all elements of the population, geographically, economically, and culturally.

The representative from Maine wanted to know how to get the men interested in the program. He believed we must either call this program new or "something else" in order to get the men and the majority of farmers to meet and plan. Mr. Hummel replied that we interest the men when we find that the agricultural production is leaving the majority of people without the necessary food elements which they could provide.

Dr. Mann stated that we have a dual concern—one with a nutrition program that will fit into the emergency situation and the other with long-time improvement in nutrition. One of the most fundamental limitations is tied in with our system of agricultural marketing and distribution. The Food Stamp Plan has become an important part in improving the nutrition of people. That may or may not be the best solution to the long-term problem. Fundamentally, the long-term improvement in the nutrition of all the people is improvement of marketing and distribution of agricultural products. Means should be devised whereby appropriate private or public agencies will be enabled to extend greatly their analyses of the marketing processes and the means for their betterment.

Several stated the belief that the most important problem in rural nutrition is the deficiency in production for home consumption.

Dr. Oliver of Harvard spoke on food habits. He stated that the food habit level is the community level. Food habits are fundamentally tied up with basic institutions, and food becomes a symbol. Food habits are extremely difficult to change. We should give food prestige, but should do it through local leadership, utilizing organizations already existing in the community. We cannot change food habits by printed matter. We must change them by personal interaction.

RECOMMENDATIONS

I. That the National Nutrition Conference for Defense encourage every rural county and community in the United States to develop a comprehensive and integrated program that will adequately meet the nutrition needs of every man, woman, and child, not only during the emergency, but also on a permanent basis.

II. That the State nutrition committees designate the individuals, groups, or agencies who should assume responsibility for calling together those who should participate in the development of county and community nutrition programs.

III. That in planning county and community programs, all existing groups and agencies concerned with nutrition participate. Ex-

isting planning bodies should be used where possible. In all cases, the county or community planning bodies should include adequate lay representation.

IV. That, as a first step in developing a nutrition program, each county or community become familiar with its local nutritional status and needs. This involves such considerations as the number of families with inadequate incomes, the number of farm families not producing adequate supplies of food for home consumption, and the prevalence of diseases due to malnutrition.

It should be understood that these recommended procedures do not involve the creation of a new administrative authority or agency, but rather provide for the correlated action of existing agencies and organizations in:

a. Appraising needs and resources of the county and community.
b. Formulating the county and community program.
c. Getting action on the program.
d. Keeping the public informed on progress made.

In counties where there are large cities, separate rural and urban organizations may be necessary, but, in all cases, there should be close coordination of rural and urban nutrition programs at State and county levels.

SECTION IX

NUTRITION PROBLEMS IN GROUP FOOD SERVICE

Presiding, KATHARINE ANSLEY, Assistant Professor, Department of Home Economics Food Science Manager at Illini Union Building, University of Illinois
Chairman

AGENDA

I. Application of knowledge of nutrition to group food service.
  A. Specific problems:
    1. Menu planning:
      a. Methods for judging quality.
      b. Ways of determining type and variety of food in relation to dietary needs, racial and sectional food habits, and purchasing power.
    2. Food purchasing:
      a. Nutritive values in relation to cost and quality.
    3. Food preparation:
      a. Effect of storage and handling of foods on vitamin losses.
      b. Methods by which standards of high quality in flavor and appearance can be maintained.
      c. Basic factors in cooking which affect mineral and vitamin values and palatability.
      d. Use of tested recipes to secure high standards in quality.
    4. Salesmanship:
      a. Effective methods employed to encourage good selection of food.
      b. Development of opportunities for training in food selection.
      c. Influence of variety, palatability, and attractiveness on food selection.

II. Methods for improvement of nutrition through group food service.
  A. Meeting the need for better feeding at a low-cost level.
    1. Use made by institutions of available land for food production.
    2. Availability of essential foods through procurement offices in public institutions.
    3. Establishment of standards of quality and specifications for all foods purchased.

4. Instruction of untrained cooks "in service."
5. Training of prospective cooks.
6. Effective use of the services of trained dietitians.
7. Development of the educational possibilities of the school cafeteria.
8. Use of nutrition and health films in institutions, talks by trained dietitians, and other teaching aids.

III. The need for simplified materials on group food service.
   A. Availability of guides in menu planning and tested low-cost recipes to untrained managers and kitchen staff.
   B. Availability of posters, exhibits, and other aids for teaching importance of foods for use in lunchrooms, cafeterias, and other public eating places.

IV. Planning for better nutrition through group food service.
   A. Ways of meeting the problems involved with available resources.
   B. Ways by which commercial concerns, educational groups, and institutions can be led to assume responsibility.
   C. Ways of coordinating plans for meeting nutrition problems with nutrition activities of other community groups and agencies.

SUMMARY OF DISCUSSION

While it is obvious that thousands of citizens are dependent in whole or in part upon food prepared away from private homes, the possibilities of improvement, from a nutritional standpoint, have been given relatively little attention or consideration. Meals eaten by children receiving school lunches, by youth in boarding schools, colleges, and universities, by the unfortunate in public and private institutions, by city dwellers who at least lunch downtown, and by the traveling public, if placed end to end would stretch into miles of frequently uninteresting viands.

All the results of the researchers in the field of nutrition, all the allowances in terms of international units, as has been so aptly pointed out by speakers on this program, are of no avail unless translated into meals that will be eaten with benefit and pleasure.

Food service operators have the responsibility of organizing their establishments and training their employees to the importance of the national program for nutrition. The more enlightened must assume the responsibility for reaching all kinds of eating places, including those patronized by persons with the least purchasing power and hence, in all probability, with the greatest need for adequate food.

Not only does the food administrator have this heavy responsibility, but equally important is the new charge, that he help his patrons and clients to accept and enjoy the combinations of foods that the scientists recommend, both the old and popular and the less well known and less popular nutritionally important foodstuffs.

DISCUSSION

The problem of improving group food service requires the application of the knowledge of nutrition to feeding in commercial concerns,

institutions, schools, camps, and hospitals. Meals must be not only well-planned and well-balanced but properly prepared and served.

In menu planning, consideration should be given to the quality and quantity of foods. A good menu is a satisfactory meal plan which provides the essentials. The diet is adequate or inadequate according to what and how much is eaten. To facilitate menu planning a yardstick such as the standard set up by the Bureau of Home Economics is needed.

The responsibility for the adequacy of the diet is greater where people must be provided three meals a day. In hospitals, the nutritive quality of the meals for patients and staff is given first consideration, while satisfaction or enjoyment receives second consideration. Menus are adjusted to sectional and local food customs to give satisfaction without a sacrifice of nutritional standards.

In providing school lunches the problem is one of educating the children to want the right kind of noon lunch. In one school a study was made of the amount of money children had to spend for lunch. Menus were planned which offered nutritious and attractive combinations for that amount of money. Another school found that a dramatization of vegetables in the classroom and the offering of vegetable plates in the lunchroom increased the sale of vegetables. It was pointed out that the next step should be the imparting of information on the function of the vegetables to sustain the purchases throughout the year. Guidance in the right selection through knowledge of foods could be equally effective with adults. The coordination of classroom subject matter in a health education department with the lunchroom emphasis on well-selected foods was found to be successful. When the importance of vegetables in the diet was discussed, the lunchroom arranged an exhibit of 60 vegetables in glass cabinets in the hall. The child in each grade who could name the greatest number was given a chicken dinner with vegetables.

Surplus vegetables are used for attractive vegetable plates. The child who eats the first vegetable plate can have a second one or as many more as he wants. Posters are used to indicate the food value of foods offered. In safety talks the relation of diet to good vision, alertness, and control is stressed.

Reports from WPA lunchrooms indicate that there is a carry-over of nutrition education into the homes. Mothers come to school to learn how certain foods are prepared and to secure the recipes.

The need for education of the sponsors of school lunches is of great importance in the proper supplementation of commodities available through the Surplus Marketing Administration in order to balance the lunch. Commodities are also available through welfare departments to institutions. Education or information is needed in the institutions in order that commodities may be used widely and properly.

There was general agreement that a knowledge of nutrition and the development of good food habits should be made a part of education for elementary, secondary, and college students. The many students who leave college with the poor food habits with which they entered college are an indictment of college education itself. A representative from a college observed that the colleges should change

their attitude. A student should not not have to be a major in home economics to acquire a practical working knowledge of nutrition.

A representative of a commercial concern reported that menus are planned properly by starting with what patrons want. Then for the price they are willing to pay the right combinations can be filled in to give what is really needed and wanted. A limited menu of seven or eight specials makes this possible.

Several restaurants are trying to encourage the selection of vegetables by cooking them in front of the customers. These restaurants report that this practice has more than trebled the sale of vegetables.

A director of a college cafeteria found a pint of milk could be sold for 8 cents when a half pint was offered for 5 cents.

A restaurant manager reported a successful use of various luncheon combinations, giving patrons a selection of a salad and dessert. Suggestions from the public are accepted. This restaurant reported that they did not use soda in the cooking of vegetables, and that most vegetables were steamed or cooked in small quantities.

Seasonable fruits and vegetables are featured in a west coast cafeteria for about 3 or 4 cents. Low-cost meals for 5 cents are offered between rush hours to those who cannot afford more.

If the new dietary allowances are to be met through group food service, consideration must be given to methods of cooking. In a great many places where mass feeding is done the greatest objection is that the food is overcooked. This practice and allowing food to stand affect vitamin values.

For information on losses of vitamin values in storage, the group was referred to a pamphlet on the effect of different methods of processing on the vitamin content of foods. This pamphlet is being revised and brought up to date by Dr. C. R. Fellers of the Massachusetts Agricultural Experiment Station.

The need for education in a better use of fats in relation to cooking was stressed. Information should be available on how to cook properly, on why vegetables should be undercooked rather than overcooked, and on why soda should not be used. A practical, simple manual is needed to guide restaurants and institutions.

Better vegetable cookery was reported where the vegetable department was made a separate department with a head, and as important as the meat department and bakeshop.

The National Restaurant Association is trying to establish training schools for cooks. Schools can be set up through the United States Office of Education for the many men and women who want to cook. There are schools for Army cooks in which several thousand men are taught by persons who have been trained. A supervisor of school lunchrooms reported on a 20-week training course for prospective cooks. General principles of food preparation and the use of basic recipes are taught. Restaurants should make it possible for their cooks to attend schools and should encourage experimental cooking.

There was general agreement on the need for a popular type of education which would influence customers in public eating places and the residents of institutions. The services of persons trained and experienced in group food service should be made available to

local groups which are responsible for feeding but do not have trained people.

There are many institutions feeding on a money basis rather than a food basis. The level of feeding is not adequate because the primary consideration is cost. Yet such a condition is not necessary, even where money is a consideration, for with proper knowledge and planning, it should not cost more to feed adequately than inadequately. Often it doesn't cost as much. There is a degree of cost below which you cannot go. It varies for the group being fed. We have to teach the importance of the adequate diet to those institutions that care for children, the disabled, and the aged. In some institutions where purchasing is centralized, there is often resistance to new products which might have value.

The use of dried milk, dried and frozen eggs, soybeans, and peanut products was reported. The use of these products is important in low-cost feeding.

RECOMMENDATIONS

The members of the section believe that the following recommendations express principles fundamental to the success of group food services, in promoting the National Nutrition Program. It is recommended:

I. That established food allowances be translated into quantitative practical terms (such as the well-known food classes) for convenient use by those responsible for group food service.

II. That simple materials be made available on menu planning and on methods of handling, preparing, and serving food which will preserve nutritive values and develop palatability. Consideration should be given to the importance of simple directions for the proper preparation of ordinary foods with limited equipment. These should be adapted to a variety of local conditions and food habits.

III. That encouragement be given to plans for the training of cooks and other members of the food production staff in proper methods of preparation, and that local communities be brought to see the importance of this in the effectiveness of their group feeding services, since attainment of an adequate dietary involves proper cooking. It is further recommended that Federal, State, and local programs include such training as a genuine contribution to national defense.

IV. That those responsible for group feeding be urged to experiment with the use of such products as dried and evaporated milk, frozen and dried eggs, soybean and peanut products as a means of increasing food value without increasing cost, and improving the national utilization of these protective foods.

V. That surplus commodities, especially milk, be given the widest possible use in low-cost group feeding and that these be properly supplemented for maximum health.

VI. That food operators in institutions and public eating places of all kinds recognize and utilize their opportunities for helping clients, patrons, and personnel to understand the meaning of good nutrition. It is further recommended that materials be made available to aid them in their efforts.

VII. That institutions and schools use available, suitable land for the well-planned production of food materials as an economical means of improving the nutritive quality of their dietaries. This should also include arrangements for preservation, storage, and economical use of surplus.

VIII. That means be taken to bring home to the boards and directors of public and private institutions their responsibility for providing adequate, suitable, and pleasing food for the residents under their charge. It is further recommended that in the administration of such institutions the dietary be measured in terms of nutritional adequacy as well as cost, and that techniques to accomplish this be devised.

IX. That the public be urged to recognize the relationship between the school lunch and the establishment of good food habits. It is recommended also that this relation between the food served and good health habits be recognized by all schools, colleges, and universities that feed their students.

X. That, in view of the possible need for communal feeding, dietitians and food operators cooperate with other agencies concerned in developing the organization and operation of such services including food supplies, equipment, and personnel.

XI. That the persons responsible for group feeding programs in defense industries give consideration to the pertinent recommendations of this section.

XII. That those concerned with nutrition problems of group feeding be represented on local nutrition committees, in order that the general nutrition activities of the community be made effective in the defense program.

Members of the Drafting Committee:

Chairman: Mrs. Katharine Ansley, assistant professor, Department of Home Economics, University of Illinois.

Miss Helen W. Atwater, editor, *American Home Economics Journal.*

Miss Melva B. Bakkie, American Red Cross.

Miss Alberta MacFarlane, educational director, National Restaurant Association.

Miss Katharine W. Harris, head of Department of Institutional Management, College of Home Economics, Cornell University.

Colonel Paul E. Howe, Office of the Surgeon General, War Department.

REPORTS OF SECTION CHAIRMEN

MAY 28

In the final general sessions on May 28, the chairmen of the several sections presented reports on the special nutrition problems which had been discussed in the section meetings. Surgeon General Thomas Parran, who presided, called on various delegates to discuss the reports and the section recommendations. Free discussion from the floor was also invited.

The first report presented was that of section I on Research and National Nutrition Problems. Dr. Frederick F. Tisdall, of Toronto, opened the discussion by pointing out the need for further information in nutritional requirements during illness and convalescence. He stated that doctors frequently prescribe a special diet without taking account of the nutritional needs of the patient, despite the fact that there is evidence of greater need for certain nutrients during sickness and convalescence than during health. He spoke particularly of the remarkable results obtained in Toronto where the nutritional requirements of pregnant women are being studied.

Dr. E. L. Bishop, medical director of the Tennessee Valley Authority, commenting on Dr. McLester's report for section III, Public Health and Medical Aspects of Nutrition, pointed out that:

> Nutrition is not a matter of the doctor alone, nor of the farmer alone, nor of the editor, nor of any particular group, but is a matter for the whole people and for the agencies which they have set up to serve them, particularly the three agencies: agriculture, through which our food products must be produced; medicine, by the science of which and the art of which they may be applied to their ultimate purpose of human nutrition; and education, through which the methods of applying knowledge now available and that to be acquired may be developed in cooperation with public health and medical agencies.

Many delegates emphasized the importance of recognizing the economic limitations now militating against adequate nutrition for all. Dr. Martha Eliot, of the United States Children's Bureau, commenting on the report from section IIIb, Public Health and Medical Aspects of Nutrition With Special Reference to Mothers and Children, urged that steps be taken to make nutritious foods available to mothers and children. Nutrition education is of little avail, she pointed out, if parents lack the means to purchase the foods they need for themselves and for their children. Dr. John W. Amesse, one of the leading pediatricians of the West, spoke of the methods employed in Denver to make nutrition a reality for low-income families.

Miss Mary E. Sweeny, of the Merrill-Palmer School of Detroit, Mich., spoke of the opportunity teachers have in reaching parents through their children. It has been her experience that parents are eager to cooperate with teachers in all matters affecting the health and welfare of their children. She thought that teachers could bring nutrition knowledge into individual homes by convincing mothers that the food habits of their children were vital to health. Dr. Carl V. Reynolds, State health officer of North Carolina, on the other hand, had found that he could obtain better results in his State through food clinics where children were given information about food and diets which they could take back to their parents.

Two members of the faculty of the University of Michigan, Dr. L. H. Newburgh, professor of clinical investigation and internal medicine, and Dr. Russell Bunting, dean of the School of Dentistry, and Dr. Fred D. Miller of Altoona, Pa., stressed the importance of dentistry in the nutrition program. They pointed to the large number of selective service draftees who had been rejected because of dental defects and stated that dental caries can usually be controlled. Furthermore, the symptoms of deficiency diseases are frequently evident in the condition of the teeth before being manifested elsewhere.

Dentists are thus able to render great service as diagnosticians and to recommend improvements in diets.

Dr. Russell Wilder, of the Mayo Clinic, chairman of the Committee on Food and Nutrition of the National Research Council, urged all who had attended the meetings to take back to their local communities some of the enthusiasm and inspiration evident in the Conference sessions. He assured the delegates that scientific evidence and data on which to work are now so well established that there need be no further hesitancy in pushing this campaign vigorously.

In discussing the report of section VIII on Community Planning for Nutrition, Dr. Charles E. Hendry, National Director of Research for the Boy Scouts of America, called attention to the advisability of using all groups, lay as well as professional, in developing the nutrition program. He agreed with Dr. Lindman that the professional should "be kept on tap, not on top" of the program. The club method, he believed, was as important as the case-work and classroom method of carrying out the program. He advocated greater emphasis on the group ways and folk ways of American life, for people are greatly influenced by their group associations. Miss Maude E. Wallace, assistant director of extension in Virginia, reemphasized the interdependence of the rural nutrition problems with those of urban areas.

There was general agreement in the discussions that the nutrition program must be thought of as a long-range, permanent program rather than an emergency effort. Dr. Alice Keliher, of New York University, expressed the opinion that people throughout the country had faith in their Government because of the social programs that had been introduced during the past decade. These programs, she said, must be put on a permanent basis if morale is to be maintained, and everyone must be given an opportunity to share in developing the work. The youth of the country must be encouraged to direct their energies toward constructive work in the service of democracy. Students of nutrition and of home economics, for instance, must be shown how they may utilize their knowledge for the good of the community.

Dean Flora Rose, of Cornell University, in discussing section V on Methods of Education in Nutrition, particularly emphasized the necessity of developing a nutrition program on a thoroughly practical basis so that it would reach every homemaker and be intelligible to her. The point was made by Dean Rose and by many other discussants that the program will fail of its purpose if it is too academic. It must reach all the people and must be participated in by lay groups as well as by professionals. Miss Ida J. Kain, of King Features Syndicate, made a similar plea for nontechnical language in presenting the program to the public. Adding that a positive rather than a negative, approach would be more likely to obtain results, she advocated publicizing the great advantages resulting from good nutrition rather than the dire effects of poor nutrition.

Discussion of the report of section VI, Professional Education in Nutrition, indicated the urgent need for training of new workers in the various technical aspects of nutrition and of retraining workers who have been out of the field for several years. Dr. John H. Musser, professor of medicine at Tulane Medical School, New

Orleans, stated that the medical profession had lagged in teaching nutritional facts. "I am firmly convinced," he said, "that the chronic deficient states, the chronically diathetic conditions, are responsible for more ill health than any other one cause, and yet in the medical schools the amount of time that is allowed for study of nutritional disorders is extremely small."

The need for refresher courses for professional workers was stressed by Miss Edna Van Horn, executive secretary of the American Home Economics Association. It was pointed out that home economists and other professional workers who have not been actively engaged in their special fields for several years need to take short courses to acquaint themselves with recent rapid developments in nutrition. Physicians who received their training several decades ago may have had little or no training in nutrition and the same is true of many now being trained. Courses of a special type could well be developed for practicing physicians who wish to acquaint themselves with the latest advances in nutrition research and with the newer knowledge about diets.

The need for quick and effective action was pointed out by Homer Folks, secretary of the State Charities Aid Association in New York. In a national emergency it is important to see clearly what needs doing, to do it quickly, and to do it well, he said. Rapid adjustments to newly emerging situations are required not alone in industrial production but in the thoughts and activities of individuals. There must be speed and quick decisions; money to pay for things urgently needed must be forthcoming. Which agency is to receive credit for doing a particular job is less important than that the job shall be done expeditiously and competently. He recommended bringing the results of the Conference to the attention of the Governor of every State in the hope that State conferences of nutrition would be called. Colonel Paul E. Howe, Office of the Surgeon General of the War Department, amplified these proposals by suggesting that State governments direct their attention to helping local communities since they are the ones which must cope with nutrition problems.

Much interest was manifested in the report of section IV for Workers in Defense Industries. Dr. George R. Cowgill, of the Yale University School of Medicine, spoke of the mushroom growth of new industrial plants in areas where there are few facilities for the workers. He advocated a concerted appeal to management and labor to see to it that workers were properly fed. The wives of workers employed in defense industries must also be reached. Colonel Howe pointed out that fatigue in industry should be considered as well as the matter of an adequate diet. If management, in the effort to gain greater efficiency, wishes to invest in vitamin concentrates for employees, said Dr. Cowgill, it should proceed scientifically under professional direction.

In discussing nutrition for workers, reference was repeatedly made to the economic aspects of the problem. This same point was made in discussing other reports. The primary requisite for good diets for workers, for children, for pregnant women, and for other groups in the population is an income adequate to purchase nutritious foods in abundance. Representatives of labor contended that low

incomes were primarily responsible for the poor nutrition of workers. Miss Alice Kelavan, a member of the staff at Hull House and spokesman for 18 groups of workers representing 806 consumer and labor organizations, proposed that a consumer agency be established in the Federal Government with broad powers to carry out the recommendations of the Conference. She called for adequate price controls linked to controls of standards and quality. Finally, she urged that the one-third of the population which is now underpaid and undernourished be not further burdened with increasing taxes.

The report from section IX on Nutrition Problems in Group Food Service was discussed by Dr. Louise Stanley who emphasized the need and desirability for training for better food preparation so that practical use may be made of recent information on the subject. Food for home consumption, for groups in institutions, and for the transient public should be well prepared. Competent personnel should be hired for group feeding, said Mrs. Q. O. Dodge, of Simmons College and the Women's Educational and Industrial Union of Boston, and proper equipment should be installed.

The report from section VII on Nutrition Problems in Distribution and Processing of Foods brought forth a plea from Mr. James Rorty of New York that the Federal Government be empowered to exercise more positive control over advertising than it does at the present time through the Federal Trade Commission and the Food and Drug Administration. Pointing to the obligations which devolve upon food growers, manufacturers, and processors, who spend upwards of a billion dollars annually on advertising, he urged that trade associations, food processors, and food producers assume greater responsibility for the control of their advertising in view of the fact that such advertising is essentially a process of education. He further urged that the National Research Council have more authority in controlling and directing nutrition education.

Miss Asho Ingersoll, of the Milk Consumers Protective Committee of New York City, speaking for that group and for representatives of similar groups in nine other cities, pointed out that while it had been advocated at the Conference that 20 percent more milk should be consumed such an increase would be impossible if the current pressures throughout the country for higher fluid milk prices were to lead to a price rise. She asked the question, "Are we going to move toward better nutrition, or are we going to move toward higher prices of milk and lower consumption?"

The final report to be presented was that for section II, Economic Policy and Social Responsibility as Related to Nutrition. Mrs. Julia Katz, representing the National Coordinating Committee of the Women's Auxiliary of the Congress of Industrial Organizations, stated that unless good nutrition were made economically possible, many of the reports and suggestions made at the Conference would be meaningless, not for lack of willingness and not because of ignorance, but because the consumers will not have the means by which to improve their present nutrition. She pointed out that among sharecroppers' and miners' families "diseases resulting from childbirth, pregnancy, and malnutrition are so common that they are not even recognized as abnormal conditions."

Strong pleas were made for employment opportunities and better nutrition for the 13 million Negroes in the United States. Dr. Dorothy Ferebee, of the Association for the Advancement of Colored People whose work is with the plantation Negroes, and Dr. Mary Bethune, of the National Council of Negro Women, spoke on the plight of Negroes. Dr. Ferebee emphasized the importance of employment to nutrition and urged that Negroes be given an opportunity to work in all defense industries. She also urged that Negroes be included on all committees at both the State and local levels and that Negroes from land-grant colleges as well as Negro home economics teachers, dietitians in hospitals, physicians, and nurses be included in the nutrition programs.

Following the discussion of the last section report, Miss Craig McGeachy, member of the British Embassy staff and formerly in charge of nutrition education for the League of Nations at Geneva, spoke on some of the lessons that might be learned from what had happened in Great Britain. Looking back to her 10 years' experience with the League, she said that one of the real achievements of that organization had been "to make it clear to the world that nutrition matters, that there is a real relation between the kind of food that is provided for people and their efficiency, their state of health, and public health in their country." She recalled that experts from the Department of Agriculture had brought to Geneva the first survey of rural diets and that the League had endeavored to make it clear that problems of production, of transportation, and of all the other elements involved in price-making were not isolated elements in the national economy but were keyed to the quality of nutrition provided for the people of each country.

Miss McGeachy spoke of the failure of Great Britain to apply nutrition knowledge before the present war and she implied that possibly we in this country had sometimes failed to make the best use of the findings of our experts in nutrition. But the situation has changed. "You wouldn't have to be in England very long now," she said, "to realize that nutrition is an essential part of national defense. When you have to provide your pilots and your air gunners with enough vitamin A to assure that they will be able to fly during the night, you know nutrition matters from the point of view of national defense."

In England there are now 200 or 300 public feeding stations for persons whose homes have been bombed. Meals served in these stations are well balanced and consequently many people are now obtaining more nutritious meals than they would have had at home. Women's voluntary services have included not only public feeding activities but also work in nursery schools and evacuation homes where the giving of cod-liver oil to more babies and children is recognized as an essential part of national defense.

CONCLUDING ADDRESSES

MAY 28

The Surgeon General of the United States, Dr. Thomas Parran, summed up the results of the Conference in the following paper:

The Job Ahead

THOMAS PARRAN

Surgeon General, U. S. Public Health Service

In this grave hour, we have met here at the request of our President, to contribute our knowledge and our effort to an urgent defense task. We have been asked by our Commander in Chief to tell him what we can do to make America strong by making Americans stronger for whatever perilous task may lie ahead. An answer has been given in our approval of the reports of the nine sections, given here today. In summary, our answer is that, given the national will to do it, we have the power to build here in America a nation of people more fit, more vigorous, more competent; a nation with better morale, a more united purpose, more toughness of body, and greater strength of mind than the world has ever seen.

This total result can be accomplished only by putting to work all of the scientific knowledge we have for the nutrition of all our people. We have the capacity for agricultural production. We have the soil fertility—thanks to our soil conservation programs in recent years. We have the educational machinery. We have the food manufacturing and distribution facilities—with leaders keenly aware of their social responsibility. Throughout the Nation we have a great surge of desire to do something solid for defense. Each of us wants to build better and more strongly the human bulwarks of democracy, which is the one thing we defend. These great assets in food production, distribution, education, social awareness, and patriotism can be canalized, through science, toward our goal of nutrition to lift our level of achievement. If we attain this goal, what will be the results?

In the past two decades there have been breath-taking discoveries on many nutritional fronts. To find a parallel to this swift advance in knowledge we must go back to the epoch-making time of Pasteur, whose germ theory of disease made possible a half-century of progress against preventable infections. Without Pasteur and his coworkers and disciples, mankind still would be plague-ridden. He made our civilization vastly different. Tomorrow's civilization can be made vastly different, and far better than today's, if we put to work now, what we know now, about the nutrition of human beings.

In the past half-century we have added twenty years to the average span of human life, largely by saving the lives of babies and of young people. But life expectancy for those of us beyond the age of forty has not increased since Pasteur's time. On the contrary, many dis-

eases have increased because more of us grow old enough to acquire them. Deaths have increased from cancer, heart conditions, kidney diseases, mental illness—in fact, from all of the so-called degenerative causes. It is easy to say that this is the strain of modern life. Yet every disease, every malfunction of an organ, results from a derangement in the functioning of the individual body cell. The individual cell functions properly if it is properly fed; and if it is not killed by the invasion of bacterial, virus, or chemical poisons, or by endogenous toxins. The food available to each of the body cells probably determines to a large degree the health of that cell, its proper functioning, its reciprocal relations with other cells, which make up organs and systems of the body.

A machine wears out prematurely if not properly fueled and lubricated. It is a reasonable hypothesis that the human machine wears out prematurely if it is not properly nourished. Certain it is that normal human nutrition requires a total of at least forty different food substances—carbohydrates, fats, minerals, proteins (in the form of amino acids), and vitamins—of which many have been isolated and reproduced as synthetic crystals. Not only does the body require these diverse food elements, but we know that the elements are required by the body in a certain definite ratio of one to the other. Infectious disease, treatment with certain drugs, and perhaps other causes as yet undiscovered, upset the normal body demand for certain food elements.

The science of nutrition is about as young as the science of aviation. We do not know all the answers in either field. But as much, relatively, is known about what nourishes a human body as is known about what gets a heavy machine up in the air and to its destination safe. The difference is that far less of the nutritional knowledge is put to work.

This Conference has given us enough basic facts to stimulate national thinking and to speed united action. These facts have been considered by agricultural economists, by educators, by food processors and distributors, by community leaders, by family doctors. Blueprints for national action have been drawn. The facts make clear that while nutrition is an individual and family problem, it is also a community and a national problem.

For the first time, the top experts in the Nation have drawn the specifications for a diet adequate for good health—a "gold standard for nutrition." Here we have the blueprints. They represent no narrow list of foods, but a wide choice that can be purchased cheaply anywhere in the country, yet which will provide for men, women, and children the nutrition essentials for life and buoyant health. These blueprints will have meaning only if each one of the 130 million of us can and will translate the specifications into a wiser selection of what goes into our stomachs every day.

It may seem strange that we have not yet determined the full nature and extent of our nutritional problem. Facts presented here show that only a small proportion of the undernourished have acute symptoms of disease; perhaps only one in ten. Like an iceberg, nine-tenths of our malnutrition, and the most dangerous part, is under the surface. Yet experimental and clinical evidence piles up ahead of exact laboratory tests to show that much ill health—mental

and physical—can be relieved dramatically by the right food. Of even more importance is the evidence that by the supplementary feeding of groups, who were getting a diet to start with which once would have been considered adequate, growth, strength, resistance to disease and, above all, morale, are swiftly promoted.

Doctor Sherman has told us that if we replace an average diet with an adequate diet, we get a 10 percent increase in the active, virile life span. This would mean more in terms of human longevity than to wipe out cancer as a cause of death. We have been told that through nutritional science we can eliminate the "half-health, half-strength, half-happiness" which results from a diet not quite good enough.

Even though we do not know the full extent of the nutritional problem in the United States, as President Roosevelt has told us, "every survey of nutrition, by whatever method conducted, in whatever part of the country, shows malnutrition to be widespread and serious." Studies of family diets by the Department of Agriculture in all income groups of the Nation show that one-third of our people are getting food inadequate to maintain good health. Less than one-fourth of us are getting a "good diet," even when measured by the old standards which are lower than the "gold standard" presented to us by Dr. Wilder's Committee. Some people cannot afford to buy the food they need; others spend their limited food budget unwisely; still others have fixed and faulty food habits. We Americans want good health to be the heritage of all, on as democratic a basis as the suffrage itself. We want no property qualification for health.

Secretary Wickard and Secretary Berle have told us that in the world struggle, food is a basic weapon. Here, we happen to have plenty of fertile land to supply every element of a full and adequate diet to the present population and to any prospective increase. This is true in spite of past exploitation of agricultural resources. During the last war we tried to raise wheat on land fit only for grazing. It will require a generation of careful restoration to eliminate the dust bowls we created thereby. From the richest valley in the world, the Mississippi, we have exported the soil in the form of cotton, and created an economy of poverty, of tenancy, of pellagra, of anemia, and of hookworm. The rest of the country must help to restore and the job will take long years.

We have been unwise on other fronts. Nature puts into the foods we eat the vital elements necessary for balanced health. Many of them have been depleted through our zeal for over-refining and by modern cooking methods.

The Conference has been told that one-half of our fuel, the calories we eat, is in the form of bread and sugar. Add to this the refined fats, and two-thirds of our energy intake is in the form of "inert calories," which furnish fuel and nothing else. From the remaining third of our diet we must get the vitamin B complex and the minerals needed to burn up the inert calories. This has been hard to do during the past years. Bread, during long centuries, has been the "staff of life." Until recently we have made it a very frail and feeble reed by "scalping" out of the wheat berry most of the vitamins and minerals which the Good Lord put into it for our protection. Year by

year, too, our consumption of sugar has increased. White sugar is a source of fuel—nothing else. It does not carry the vital elements necessary for its use in the body.

To restore bread to its traditional virtue which made it the staff of life, the millers and bakers of the country have revolutionized their industries. In the new flour standards, announced at this Conference by Federal Security Administrator McNutt, the Nation is assured of a stronger staff in the new "enriched flour." This will be attained either by conserving the vital elements naturally present in wheat, through longer extraction—which means using more of the wheat berry—or, if the public continues to demand pallid bread, the most essential elements will be restored to highly milled white flour without changing its color. Whichever you choose, you get a more healthful food. Choose one of them.

Modern diets are deficient, too, in other respects. To give to all what all of us need nutritionally, we should increase by nearly 50 percent our national production of milk and milk products. One of the most valuable foods—dried skim milk—now is used largely for poultry and stock feed. In fact, we have given our livestock the best parts of many foods. This Conference has pointed out the ways we can let our children get more of their share.

During the past decade, the United States has produced what we have called a "surplus" of agricultural products. Very wisely we have built up an "ever-normal granary" of corn and wheat to fend against drouths and other emergencies which would cut down supply or increase consumption. Wisely, also, we have conserved the soil and helped farmers to stay on the soil. Some of the most hungry of our needy families have been able to get a better diet through the "Food Stamp Plan." It has helped them, and it has made good use of some of our surplus foods. About half of our needy school children get at least one good meal a day for five days a week in the free school lunches.

Actually, however, these important programs have been designed to take surplus foods off the market, not primarily to meet nutritional needs. The reports made to this Conference demonstrate that if full domestic food needs are met, we do not have any real surplus of agricultural production—except of wheat and cotton and tobacco. If we add the crying needs of Great Britain to our own requirements, if all of our own people are to have a thoroughly good diet, we are faced with a shortage of animal proteins, of milk and milk products, and of the legumes. To meet this shortage now and to take our proper place in the half-starved world after the war, we must give direction to our farm output. We cannot afford now to use as many acres as before in growing cotton, wheat, and tobacco—for which there is no market now or in prospect immediately after the war. This is obvious when both ourselves and the British need the concentrated protein foods which these acres can produce. We can take care of all of our own needs and the urgent food needs of the British too; but not on the basis of agricultural "business as usual." "Food will win the war" was the slogan in 1917–18. Food lost that war for Germany. We must make extraordinary efforts to see to it now that the tables are not turned.

In practical terms, we need every drop of milk, every egg, every legume, every pound of meat, and of fish we can produce for Anglo-American nutrition. Add to this substantial quantities of animal and vegetable fats, fish-liver oils, and certain vitamins. I believe that the program of the Department of Agriculture, explained so clearly by Secretary Wickard, which will convert most of our ever-normal-granary of feed into concentrated human protein foods will go far to get the results so urgently needed. We may be obliged to go even further during this period of emergency.

Those of us who have participated in the discussions of the past three days are confident that this is the "Action Conference," which our chairman demanded. The major directions have been charted. We go back to our accustomed tasks determined to realize the objectives.

I see in this Conference a "marriage of agriculture and public health in the interest of national nutrition," which was foretold by Stanley Bruce, now the Australian High Commissioner in London, at a nutrition meeting of the League of Nations in Geneva some years ago. Elaborating his figure of speech, perhaps one may say that industry is the best man at the ceremony; and our nutritional experts are the parents of the bride and groom.

There has been complete agreement with the objective of the Conference stated in different language by the president, the vice-president, and the chairman: To Build a Stronger Race Through Good Food.

Our recommendations state our determination to do this through the united efforts of agriculture, economics, public health, nutritional science, industry and education. First of all, we should continue our search for knowledge. Greater support must be given to scientific research in nutrition by Government, by the universities and foundations, and by the industries concerned.

Through soil conservation we can grow better food; more of it, and more rich in vital and mineral elements. Through the direction given by governmental aid to agriculture, we can encourage the production of more of the foods we need for defense, less of those not needed.

For our poorest people—all of those on relief—I urge an extension of the Food Stamp Plan. I suggest also that better nutrition of human beings rather than removal of surplus products should be the consideration that shapes the job.

I would have you consider also that if war should make it necessary for us to conserve certain foods more needed by our allies and ourselves, the administrative machinery of the Food Stamp Plan could be put into reverse overnight in order to insure the most equitable consumption of such foods in proportion to need; not in proportion to buying power.

If food stamps or a comparable plan were in operation all over the country, it could be extended to other nutritionally needy families, who now are without the foods essential to good health. Well-planned school lunches are another case in point. Now available only to one-half of our needy children, all such children should get them. Milk is such a strategic food that every family must be given an

opportunity to get what is necessary for growth and health. The same is true of the citrus fruits.

Then, too, we must remember the great strategic importance of food. Both Mr. Wilson and Mr. Berle have told us how food, because of its impact upon economic conditions and the morale of a people, has been used by aggressor nations as an instrument of war; an instrument for subjugating whole populations.

Consider, further, the possibilities which food offers as a foundation stone in an after-war world economy. Present Anglo-American cooperation in food for defense, involving, as it should, intimate cooperation between the United Kingdom, the British Commonwealths, the United States, and the other American Republics, may lay the basis for a world policy to meet most effectively this elemental human need. This is only a hope of the future. Toward the realization of that hope, our immediate, domestic tasks having to do with food and nutrition will point the way.

The doctors here will see to it that the whole medical profession keeps abreast of the newer knowledge of nutrition, and it takes its part in community leadership to put this knowledge to work.

The State nutrition councils will multiply this Conference by forty-eight times, through the organization of comparable State conferences, to bring your recommendations to each of the 3,000 counties in order to get action on every front.

The leaders in food manufacturing and distribution will lend their facilities and their great influence to get the maximum distribution of those foods now most deficient in our national dietary. Greater volume will make it possible to cut processing and distribution costs. Other food industries will follow the lead of the millers and bakers in improving the nutritional value of their products.

The farmers will divert acres now growing cotton, tobacco, and wheat into pasture for dairy herds, home gardens, peanuts and soy beans, green vegetables, fruits, tomatoes, cows, and sheep and pigs and chickens and eggs. To provide a good diet for all Americans will mean an added 35 to 40 million acres in production in food stuffs and a higher farm income.

The food and nutrition experts will continue and increase their efforts. Theirs must be the responsibility for teaching citizens what a better diet will mean to every American, in terms of a strong body, a more alert mind, greater resistance to disease, longer life, greater vigor, and a better chance for happiness. No longer will they be as a "voice crying in the wilderness." They will have strong reinforcements from many directions.

Substantial governmental aid to agriculture will be directed, I hope, toward adapting our productive capacity more directly to meet the nutritional needs of our people. The Nation can afford to be generous with its farmers.

If our farmers go to work to see that all of us are properly fed—themselves and their families included—the rest of us will return the investment to them many times over through greater production and greater prosperity.

These are great objectives. I believe the Conference is unanimously for them. But regardless of the desirability of a result, or the amount of good will involved, things do not get themselves done.

I hope that when he has received the report of this Conference, the President may see fit to make this task the sole responsibility of a competent body to act through the Coordinator of Health, Welfare, and Related Defense Activities as an operating agency for the immediate Nation-wide application of what we know in scientific nutrition to the human needs we have in this unlimited emergency. I would hope that science, education, industry, and all Government agencies directly concerned will share in the responsibility for the job ahead.

This whole job ahead could be done—and it will—it will constitute news of historic importance; of far more importance on the constructive side than the capitulation of France or the over-running of Greece have been destructive to our hopes for the democracies. The building up of our own people to a level of health and vigor never before attained or dreamed of—the working out with the British Empire, the American Republics and other democracies, of far-reaching cooperative plans for the pooling of the food resources of the democratic world—this may prove to be the one good thing to come out of the war when we have done our share to win it.

But let not the hopes of the future obscure the immediate task. Through the efforts of all of us, expressed through our servant, Government, and through our collective personal efforts, we shall begin now to see that everyone in the America of the future gets an equal opportunity to be born and reared in a healthful environment, and to secure a diet that makes for enduring strength. Only in this way can each bear his proper part in this country of free men.

Today we are preparing to defend, not so much the square miles of land that represent the 48 States, our territories and possessions, nor an island here, or the bulge of a continent there—but the men, women, and children who are the United States. We must be willing, yes eager, to sacrifice comforts, convenience, money, even life itself, in order to insure our freedom and the freedom of our children to choose our own and their own way of life.

This Conference has shown clearly the ways that we can put our food knowledge to work to build a new, a stronger, a more intelligent, a more competent race. Yes, food will build a new America.

All of us today are conscious of the grave task lying before us. The President has declared a state of Unlimited National Emergency. We shall need in the days to come rugged health and courage such as the world has never seen. The magnitude of our effort for this war is only the beginning of our historic task.

After this war, when cities and civilizations lie in ruins and the democratic impulse in men's hearts toward human brotherhood is smothered with hate, all the strength and courage that America can muster will be needed for the rebuilding of a shattered world. We Americans must be conscious of our destiny, for America is the last great hope on earth.

The final statement at the Conference was made by Mrs. Franklin D. Roosevelt. Speaking as a layman, she translated the recommendations into simple terms that would carry a message and a challenge to everyone in this country.

What This Conference Means to Every American

MRS. FRANKLIN D. ROOSEVELT

Ladies and gentlemen, I do not know that I belong here. I feel very much a layman and as though I had very little right to take up your time. I also feel a little guilty because I have not been able to be here through the various sessions, so I do not know exactly what you have discussed. I know that you are about to be given certain recommendations which have come out of your meetings and that you will discuss those recommendations. Therefore, I asked if I might read those to give me some idea of what conclusions you might be coming to in the course of these meetings.

I do not know that I have anything to contribute except the observations of an untrained layman who does have an opportunity to see a good deal of the country and a good many of the programs for which many of your are responsible.

I do not doubt for a minute that in Germany today not so much attention is being drawn to the fact that the Bismarck was sunk as that we here have acknowledged we have a great number of undernourished people. I am very glad we have the courage to acknowledge it, but I hope we are going to recognize the obligation, having acknowledged it, to understand the problem and to do something about it. We know a great deal more today about the importance of nutrition. We know a great deal more about what we can do to make certain necessary foods available to people at different income levels. We know that a great many people are hungry, not only because of poverty, but because of ignorance, and considering that we have this knowledge, I think there are things that in this emergency we should now do.

I remember very well the first time I visited TVA and heard Dr. Harcourt Morgan tell us about the difference it made in plant life when the soil had certain nutritive qualities and the difference that plant life, drawing strength from a certain kind of soil, made in animal life, and so on up. I never thought about that particular thing in nutrition before, and I doubt if a great many other people have thought of it, but it makes sense.

It is necessary for plant life to have a variety of things to make it valuable to animals; it is necessary for us to have the maximum strength in plant life that we eat and in the animal life which feeds us. Now we learn how to process many things, how to do things less expensively, and we are learning more every day. We know the problem that we have. I think one thing we can be very proud of is that because of the depression and because of the intensity of the problem that came before us, we have made a real beginning through Government programs in solving our problem.

I think the Food Stamp Plan is one of the ways, but that alone will not be the complete answer, because people must learn what to buy as well as have the ability to get it. I think one of the things that has impressed me most lately is the value of the school lunch program which has been made possible in large part by WPA pro-

grams, and also by the surplus foods program. I saw a little school for Negro children in Alabama not long ago, and I think probably the only really good meal those children got in a day was from surplus foods. They did not even have the wherewithal to cook it at school; it had to be cooked in various homes and brought to school and heated there, but those children looked as though they needed every bit of that food. The teacher told me how hard she was trying to educate the mothers through the food she tried to give to those children at the school, and in the way she told them how to cook and prepare it.

It makes a difference in so many ways if those children have adequate food. It is not only what nutrition means in a crisis like this in our draft results, but also as it affects many problems for us today. We had our nutrition needs pointed out to us over twenty years ago and now we are having a second chance to learn. It is not just that we find poor teeth, poor eyes, poor general condition. It is that the children are not as good scholars. They can't learn as much. We have children who don't progress in school because they are not properly fed, and we have children who suffer from emotional upsets for the same reason. It branches out into so many things this question of the programs which the Government has started and which the Government is carrying on with increasing success through the Social Security programs; through WPA and NYA and surplus commodity plans. In WPA I think probably the household aids have contributed greatly to education, have contributed greatly to better standards, better buying, better understanding of what children need in a family. All these things are just the beginning.

Now we come to the real stress and strain of defense, military defense. We know for the second time that a great many of our young people are undernourished; we know that we have more knowledge than we had twenty years ago and we will be stupid indeed if we do nothing about it this time. We know that it is necessary to carry on an educational program in our camps with our boys as well as in our communities, because even with those boys we can do something to educate them and increase their physical condition while they are in camp. I think there is a big job to be done in every community, and that is what we really have to do in home defense.

This job is not very spectacular. Perhaps it is much more exciting to learn how to drive an ambulance or help shoot down troops that may be dropped down upon us from the sky—we may have to learn to do that some day. In the meantime, however, there is one thing before us now that has to be done on the community level, and it can't be well done on any other level. It must be done community by community, and it must be done with the aid of nutrition experts who know where to get the information and how to impart it.

The educators can help in every community, for they reach the families through the children. The doctors in every community can get into the homes and their advice will be taken. Finally, we need the aid of individuals, men and women, who are willing to take the advice, for instance, of the Department of Agriculture, if they live in rural communities, and plant the things that we need, not only the things we need at home, but in order to be sure of having enough at home when we have to send certain things abroad. We must have

more of certain things not only for our rural communities, but for our neighboring cities. That is the job of men and women both.

There is canning to be done; growing to be done; there is information to be imparted and distributed from door to door. It is a big job. It is an important job. It means, perhaps, a tremendous amount for the future of our country and of our hemisphere, perhaps even of our world.

I was struck in reading William Shirer's article, his diary of his time of observation in a camp in Belgium and northern France. He mentioned that the German boys not only looked well but seemed to have energy, and that he had never seen such calm and such apparent ability to face whatever was going to come with a placid spirit. While that may be something that belongs to a particular race of people, I doubt if it is. I think it comes very largely from the health they have built up in young people; what they have given them as they grew up through the proper nutrition and proper surroundings. That is a community job. Mr. Shirer noticed the German boys and he commented on the difference between the German boys and the English boys and he added he thought many of our boys in this country would compare with the English boys rather than with the German boys.

There is no excuse for allowing it to be truthfully said of our boys. We have the knowledge and we can improve our general health if we have the will to do it. There was a time when we thought that there were things we could not do.

I want to remind you that during the depression many people said to us: "Oh, we can't do that; we can't afford to do it as a nation; we can't possibly find the money with which to do it," but the minute it became a question of military defense, have any of you heard any question about our not being able to afford to do it? We should remember that, because it ought to give us courage to do the things that need to be done in the future, and to do the things, the non-military things that need to be done now, because they are just as truly defense, and I don't minimize our need for military defense. I know a great deal of what we need from a military standpoint, but there are other things we need, too, and if we know that they are just as surely defense, we can afford them.

If Great Britain can afford what she is doing today, if Germany can afford what the German people are doing today, the United States can afford also to do all the things that are necessary for defense on every front.

I want you to remember that and never to say, it is not a possible thing to do this or that. We can have a people who have enough to eat, and having people who have enough to eat, I believe will mean that we have more opportunity for the people who are afraid of not having the butter as well as the bread. I think that having a basis of more people who have enough to eat will provide more butter, too.

That is all I think I have to contribute. It is purely a lay person's point of view to a group that knows a great deal more than I do, but I hope it may give you some courage to take the things that you want to take, into every community and see that this time we profit by the knowledge that we have acquired and are acquiring.

At the conclusion of Mrs. Roosevelt's address, it was moved that the proposed recommendations be approved by the Conference. Mrs. Charles Schuttler, secretary and editor of the Missouri Farm Bureau News, in seconding the motion, declared that the recommendations constituted a platform on which all Americans could stand. The president of the National Congress of Parents and Teachers, Mrs. Kletzer, endorsed the recommendations and stated that such a nutrition platform could be canalized through the organization which she represented. Dr. Robert H. Riley, State health officer for Maryland and member of the American Academy of Pediatrics, also spoke in favor of the recommendations which, he thought, would help in the battle to conserve the health of the children of the Nation. "Public health," he concluded, "is private health, and the nutrition of the people of the country is the nutrition of the individual, be he child or adult."

The recommendations were thereupon unanimously adopted.

A telegram was then read from Mrs. Harold Vincent Milligan, national chairman of the Women's National Emergency Committee, pledging the support of the women of America and announcing a weekly coast-to-coast radio series to be called "Listen America" in which facts concerning the health and nutrition of the Nation would be dramatized.

Mr. McNutt declared the Conference adjourned at 4:30 p. m., on Wednesday, May 28, 1941.

The recommendations adopted by the National Nutrition Conference for Defense were forwarded to the President by Mr. McNutt with the following letter:

FEDERAL SECURITY AGENCY,
Washington, D. C., June 10, 1941.

MY DEAR MR. PRESIDENT: I am transmitting herewith the recommendations unanimously adopted by the National Nutrition Conference for Defense, which met in Washington at your request on May 26, 27, and 28.

These recommendations were formulated by outstanding experts in the many fields related to foods and nutrition, as well as by representatives of the lay public, who gathered at the Conference. The recommendations are intended to lay the foundation for a broad national policy on nutrition that will apply both to the present emergency and in the future when this emergency is past.

The Conference has not suggested specific methods for putting the policy into effect on a national scale, feeling that this is the function of the legislative, executive, and administrative branches of the Government.

The recommendations speak for themselves, and I can add nothing to them except the observation that the National Nutrition Conference was outstanding for its enthusiasm and its whole-hearted devotion to the cause of building a stronger America. Everyone present at this Conference, I am sure, felt that he was participating in an event of great historic importance to the future of his country.

Faithfully yours,

[Signed] PAUL V. MCNUTT,
Administrator.

THE PRESIDENT,
The White House.

RECOMMENDATIONS OF THE CONFERENCE TO THE PRESIDENT OF THE UNITED STATES

As a result of its deliberations, the National Nutrition Conference makes the following recommendations to the President. During the sessions of the Conference, a state of Unlimited National Emergency was proclaimed by the President. The Conference feels that this gives added significance to its recommendations, and we pledge our full support to the President in mobilizing our national resources to meet this emergency.

I. The great and sometimes startling advances in our knowledge of nutrition in recent years have made it clear that the food an individual eats fundamentally affects his health, strength, stamina, nervous condition, morale, and mental functioning. It is of paramount importance to the normal growth, development, and health of children. In view of these proven facts, it is vital for the United States to make immediate and full use of the newer knowledge of nutrition in the present National Emergency. To neglect this aspect of defense would be as hazardous as to neglest military preparedness.

II. The newer knowledge of nutrition should be used not only for the benefit of our armed forces, who must of course be adequately fed, but for that of all workers in industries directly and indirectly related to defense, and also for the civilian population as a whole. Wars are won or lost according to the health, courage, and morale of whole populations and their ability to exert themselves to the utmost, and this is particularly true in modern total warfare. The food provided for women and children is as important to the future of the Nation as that provided for defense workers.

III. Recent dietary studies among large groups representative of the people of the United States, clinical studies among smaller groups, and the examination of men called up for military service show clearly that poor diets and malnourishment are widespread in this country. While the conditions revealed offer no ground for alarmist statements, they are serious enough to be a genuine cause of weakness in the present National Emergency and to warrant national attention and concerted action. A widespread disease epidemic would receive such attention immediately. Malnourishment is more insidious and less immediately obvious in its effects, but it is not less harmful when all the results are considered.

IV. Few problems in the field of public health are simple and that of malnourishment is particularly complex. It has not only medical but social, economic, and psychological aspects. To attack it on a national scale will require peculiarly widespread and wholehearted cooperation on the part of all elements in our population. This Conference urges the following lines of attack as particularly important:

A. The use of the allowances of calories, protein, and certain important minerals and vitamins, recommended by the

Committee on Food and Nutrition of the National Research Council, both as the general goal for good nutrition in the United States and as a yardstick by which to measure progress toward that goal. It should be clearly recognized that these recommended allowances represent the best knowledge now available, and that they will undoubtedly be modified as more knowledge accumulates.

B. Translation of these allowances, and other similar technical material, into terms of everyday foods and appetizing meals suitable for families and individuals at different economic levels, in such a way that the newer knowledge of nutrition can be applied simply and practically in every home and in accordance with the food preferences of the family.

C. Vigorous and continuous research to add to our present knowledge of the nutritional needs of individuals, the nutritional status of groups in the population, the nutritive content of everyday foods, and the effects of various methods of production, processing, storing, and cooking on their nutritive value.

D. More widespread education of doctors, dentists, teachers, social service workers, public health nurses, and other professional workers in the newer knowledge of nutrition. At present this knowledge, especially in its practical applications, is familiar to far too small a group even in the professional fields.

E. Mobilization of every educational method to spread the newer knowledge of nutrition among laymen by means of the schools, motion pictures, the radio, the public press, home and community demonstrations, and all other suitable means.

F. Mobilization of all neighborhood, community, State and national organizations and services that can contribute in any way to raising the nutritional level of the people of the United States. Many existing organizations are available for this purpose. How they can be mobilized to cooperate most effectively will depend on local situations. State nutrition committees can give especially useful assistance in organizing this effort.

G. Vigorous and continued attack on the fundamental problems of unemployment, insecure employment, and incomes inadequate to maintain an American standard of living. It is common knowledge that malnourishment and ignorance are frequently twins born of the same mother—poverty. The newer knowledge of nutrition should be a powerful stimulus to greater effort to alleviate and eventually eliminate poverty.

H. Full use of any practical devices, such as the Food Stamp Plan, school lunches, and low-cost milk distribution, which will bring nourishing, adequate meals to those who could

not otherwise afford them, and at the same time help to distribute food surpluses at a fair return to the farmer.

I. Efforts to improve food distribution, including processing, marketing, packaging, and labeling, to bring about greater real economies for the consumer. These efforts would include vigorous prosecution of illegal practices under the antitrust laws and the laws relating to unfair trade practices wherever such practices result in unjustifiable increases in food prices.

J. Encouragement in all practical ways of greater production of the foods needed in more abundance in the average American diet. These foods include milk and milk products, eggs, vegetables, fruits, and, in the case of many families, lean meats, and sea food. Much can be accomplished also by making more use of low-cost foods of high nutritive value such as soy-bean flour, peanut flour, and dried skim milk.

K. Encouragement in all practical ways of more production for home use by rural people, especially those at low-income levels. Large numbers of farm families can greatly improve their nutritional status by making more complete use of the resources of their own farms.

L. Improving the nutritive value of certain low-cost staple food products, such as flour and bread, by enrichment with nutritive elements that have been removed from them in modern milling and refining processes. Pending further developments in the milling of grains so as to retain their full, natural, nutritive values, enrichment is an economical way to improve American dietaries almost universally, without interfering with deeply ingrained food habits. The method, however, should be used with discretion and only on the basis of findings of medical and nutritional experts.

V. These broad recommendations are made as the basis for a national nutrition policy and an action program that can reach every community, and if possible every individual, in the present emergency. The Conference also wishes to record its belief that such a policy and program have implications that go beyond the present emergency.

There seems no reason to doubt, on the basis of present evidence, that just as, by the use of modern medical science, we have conquered diseases that took an enormous toll of life in the past, so by the use of the modern knowledge of nutrition we can build a better and a stronger race, with greater average resistance to disease, greater average length of life, and greater average mental powers.

This can be done by the conquest of hunger—not only the obvious hunger man has always known, but the hidden hunger revealed by the modern knowledge of nutrition.

The United States is probably the best fed Nation in the world today, but we cannot afford to judge ourselves by external standards.

We should judge ourselves by the standard of our own potentialities—our resources in food, in technical developments, in scientific knowledge. By that standard, we fall far short of our goal.

No nation, certainly no large nation, has ever truly conquered hunger, the oldest enemy of man. Such an aim is not too high, such a goal is not too difficult, for the people of the United States. It is in line with our tradition of pioneering on new frontiers. It is a particularly fitting task for us in this day when democracy should point the way to a new and better civilization for oppressed peoples all over the earth.

APPENDIX A

Delegates to National Nutrition Conference for Defense

Name	*City*	*State*
Aaron, Dr. Harold	New York	New York.
Abbott, J. S	Washington	District of Columbia.
Abell, Dr. Irvin	Louisville	Kentucky.
Abercrombie, Dr. T. F	Atlanta	Georgia.
Abt, Dr. Arthur F	Chicago	Illinois.
Adams, Mrs. Frances McS	Washington	District of Columbia.
Adams, Dr. Georgian	Washington	District of Columbia.
Adelson, Sadye F	Washington	District of Columbia.
Agnes, Sister James	St. Paul	Minnesota.
Ahart, Mrs. H. W	Lincoln	California.
Aisenberg, Mr. M. S	Baltimore	Maryland.
Alinsky, Saul D	Chicago	Illinois.
Allen, Gertrude E	Manhattan	Kansas.
Allin, Dr. B. W	Washington	District of Columbia.
Almonrode, Mrs. L. G	McRae	Georgia.
Altschuler, Lydia	Washington	District of Columbia.
Ambrose, Margaret A	Knoxville	Tennessee.
Amery, Elisabeth	Baltimore	Maryland.
Amesse, Dr. John W	Denver	Colorado.
Amidon, Edna P	Washington	District of Columbia.
Anderson, Cornelia M	Akron	Ohio.
Anderson, Elin L	Lincoln	Nebraska.
Anderson, H. F	Minneapolis	Minnesota.
Anderson, Dr. John F	New Brunswick	New Jersey.
Anderson, Lillian	New York	New York.
Anderson, Mary	Washington	District of Columbia.
Andrews, Arthur	New York	New York.
Andrus, Dr. Ruth	Albany	New York.
Ansley, Mrs. Katharine McF	Urbana	Illinois.
Armstrong, Dr. Donald B	New York	New York.
Armstrong, Dr. Florence A	Washington	District of Columbia.
Armstrong, Grace B	Urbana	Illinois.
Arnim, Dr. S. S	Richmond	Virginia.
Ashenfelter, Mabel	Washington	District of Columbia.
Atherton, R. N	Orono	Maine.
Atkinson, Mary Irene	Washington	District of Columbia.
Atwater, Helen W	Washington	District of Columbia.
Atwood, Harrison	New York	New York.
Ayers, Dr. Thomas L	Washington	District of Columbia.
Baer, H. K	Charleston	West Virginia.
Baggs, Dr. Albert N	Washington	District of Columbia.
Bailey, Clara L	Washington	District of Columbia.
Bailey, Herbert S	Ontario	California.
Bailey, L. H	Washington	District of Columbia.
Baillie, Lloyd W	New York	New York.
Bain, Dr. Katherine	Washington	District of Columbia.
Baker, Edith M	Washington	District of Columbia.
Baker, Dr. Herman	Evansville	Indiana.
Baker, William R., Jr	New York	New York.
Bakkie, Melva B	Washington	District of Columbia.
Balfour, Dr. A. C	Englewood	New Jersey.
Bamford, Frank S	New York	New York.
Bane, Leta	Urbana	Illinois.
Banks, Eva Selden	New York	New York.

Name	City	State
Baptist, Dr. St. John	Minneapolis	Minnesota.
Barber, Edith M	New York	New York.
Barber, Lorna	Ithaca	New York.
Barber, Mary	Washington	District of Columbia.
Barber, Mary I	Battle Creek	Michigan.
Barborka, Dr. Clifford J	Chicago	Illinois.
Barnard, Mrs. Eunice F	New York	New York.
Barnes, Mrs. Mary D	Minneapolis	Minnesota.
Barnes, Mary Emma	Atlanta	Georgia.
Baruch, Arnold	Washington	District of Columbia.
Batchelder, Dr. Esther L	Kingston	Rhode Island.
Bates, A. W	Chicago	Illinois.
Batjer, Margaret	Washington	District of Columbia.
Baum, Harvey	New York	New York.
Bean, Dr. Louis H	Washington	District of Columbia.
Beard, William H	Washington	District of Columbia.
Beaven, J. C	Chicago	Illinois.
Becker, J. Ernestine	Washington	District of Columbia.
Beeman, Mary	Muncie	Indiana.
Belisle, Eugene L	Boston	Massachusetts.
Bellanca, Mrs. Dorothy J	New York	New York.
Benjamin, R. N	Harrisburg	Pennsylvania.
Bennett, Homer C	New York	New York.
Bennett, James V	Washington	District of Columbia.
Benton, Alva H	Washington	District of Columbia.
Bessey, Dr. Otto A	Boston	Massachusetts.
Bethune, Mrs. Mary	Washington	District of Columbia.
Bevan, L. A	New Brunswick	New Jersey.
Biester, Alice	St. Paul	Minnesota.
Bigge, Dr. George E	Washington	District of Columbia.
Bills, Dr. Chas. E	Evansville	Indiana.
Bing, Dr. Franklin C	Chicago	Illinois.
Birdseye, Miriam	Washington	District of Columbia.
Bisbey, Bertha	Columbia	Missouri.
Bishop, Dr. E. L	Knoxville	Tennessee.
Bishop, Randolph G	Washington	District of Columbia.
Black, Dr. John D	Boston	Massachusetts.
Blair, Mrs. Emily Newell	Alexandria	Virginia.
Blanck, F. C	Pittsburgh	Pennsylvania.
Blinn, Alice	Philadelphia	Pennsylvania.
Blodgett, Mary	Hartford	Connecticut.
Bloomfield, J. J	Bethesda	Maryland.
Bly, Robert T	Rochester	New York.
Boatman, J. L	Washington	District of Columbia.
Bohn, Ray T	New York	New York.
Boller, Anna E	Chicago	Illinois.
Bond, Dr. Helen Judy	New York	New York.
Bonslagel, Connie J	Little Rock	Arkansas.
Booher, Dr. Lela E	Washington	District of Columbia.
Booth, Florence	Washington	District of Columbia.
Borras, Peter	Washington	District of Columbia.
Borsook, Henry	Pasadena	California.
Boudreau, Frank G	New York	New York.
Bovee, Dorothy	Washington	District of Columbia.
Bowes, Mrs. Anna dePlanter	Harrisburg	Pennsylvania.
Boyd, Dr. Julian	Iowa City	Iowa.
Boyd, Norma E	Washington	District of Columbia.
Bradley, Clara	Washington	District of Columbia.
Brady, Mary A	Madison	Wisconsin.
Brady, Mildred E	Washington	District of Columbia.
Brand, Charles J	Washington	District of Columbia.
Branegan, Dr. Gladys	Bozeman	Montana.
Bratley, Hazel	University	Louisiana.
Breithut, Dr. Frederick E	Washington	District of Columbia.
Brigham, Reuben	Washington	District of Columbia.
Brightman, H. W	Newark	New Jersey.

Name	City	State
Brockway, Louis N	New York	New York.
Bromley, O. M., Jr	New York	New York.
Brouha, Dr. Lucien	Boston	Massachusetts.
Brown, Mrs. Linda Spence	Sweet Briar	Virginia.
Brown, Dr. Muriel W	Washington	District of Columbia.
Brown, R. Eugene	Raleigh	North Carolina.
Brucher, Olga P	Ithaca	New York.
Brundage, A. J	Storrs	Connecticut.
Bryan, Dr. Mary DeGarmo	New York	New York.
Buchanan, Dr. R. E	Ames	Iowa.
Bulman, Grace	Washington	District of Columbia.
Bundesen, Dr. Herman N	Chicago	Illinois.
Bunting, Dr. Russell W	Ann Arbor	Michigan.
Buol, Mrs. Mary Stillwell	Reno	Nevada.
Burke, Mrs. Bertha S	Boston	Massachusetts.
Burns, Mrs. Ruth	Wichita	Kansas.
Burson, Susan M	Washington	District of Columbia.
Burton, Dr. Henrietta K	Washington	District of Columbia.
Burton, Lawrence V	New York	New York.
Butler, Dr. Allan M	Boston	Massachusetts.
Buttrill, Martha W	Rock Hill	South Carolina.
Calderone, Dr. Frank A	New York	New York.
Cameron, Dr. E. J	Washington	District of Columbia.
Cameron, Dr. Edwin	Dover	Delaware.
Cameron, Janet L	Blacksburg	Virginia.
Camp, Jennie	College Station	Texas.
Campana, Catherine F	Hartford	Connecticut.
Campbell, Dr. Persia	New York	New York.
Campbell, T. M	Tuskegee	Alabama.
Campbell, W. G	Washington	District of Columbia.
Canning, Dr. John B	Stanford University	California.
Carley, Verna A	Stanford University	California.
Carlisle, Dr. J. M	Westfield	New Jersey.
Carlson, Dr. Anton J	Chicago	Illinois.
Carpenter, Mrs. Rowena Schmidt	Washington	District of Columbia.
Carr, W. G	Washington	District of Columbia.
Carson, John	Washington	District of Columbia.
Cary, Dr. Charles A	Washington	District of Columbia.
Case, Mrs. Florence H	Providence	Rhode Island.
Casparis, Dr. Horton	Nashville	Tennessee.
Casteen, Marie L	New York	New York.
Caster, L. E	Rockford	Illinois.
Catalano, Bessie	Cleveland	Ohio.
Cauble, Mrs. Laura A	New York	New York.
Chalmers, Ruth	Washington	District of Columbia.
Chamberlin, Mrs. Mildred C	Pittsfield	Massachusetts.
Chaney, Dr. Margaret	New London	Connecticut.
Chatfield, Mrs. Charlotte	Washington	District of Columbia.
Christman, Elisabeth	Washington	District of Columbia.
Churchill, Vernon R	Minneapolis	Minnesota.
Clark, Dr. Berton S	San Francisco	California.
Clark, Dr. Ernest D	Seattle	Washington.
Clark, Dr. Paul D	Burlington	Vermont.
Clarke, A. A	New York	New York.
Clayton, Mrs. Christine B	Logan	Utah.
Clinton, Clifford E	Los Angeles	California.
Clowes, Mrs. Philip	Pittsburgh	Pennsylvania.
Cohn, Fannia M	New York	New York.
Colcord, Joanna C	New York	New York.
Cole, Mrs. Charles Tidd	Washington	District of Columbia.
Cole, Jessie G	Albany	New York.
Cole, Mrs. Joseph T	Kennebunk	Maine.
Coles, Mrs. Frances M	New Haven	Connecticut.
Collier, Lurline	Athens	Georgia.
Collinson, Dr. John	Washington	District of Columbia.
Coleman, Dr. J. M	Austin	Texas.

Name	City	State
Cologne, Rose	Wichita	Kansas.
Conquest, Victor	Chicago	Illinois.
Conrad, Margaret E	New York	New York.
Coombs, Dr. George H	Waldoboro	Maine.
Cooper, Dr. John M	Washington	District of Columbia.
Cooper, Lenna F	Bronx	New York.
Cornell, Paul L	Washington	Connecticut.
Costigan, Mrs. Edward P	Washington	District of Columbia.
Coughlin, Francis J	Cincinnati	Ohio.
Cox, Mrs. Elizabeth H	Boston	Massachusetts.
Cox, Dr. George W	Austin	Texas.
Cowen, Mrs. Grace	Newark	New Jersey
Cowgill, Dr. George R	New Haven	Connecticut.
Cowles, Gardner, Jr	New York	New York.
Crabtree, Dr. James A	Washington	District of Columbia.
Craig, Dr. David R	Washington	District of Columbia.
Crane, Dr. Marian M	Washington	District of Columbia.
Crawford, A. B	Lexington	Kentucky.
Creel, Cecil W	Washington	District of Columbia.
Creighton, Martha	Richmond	Virginia.
Cromer, Dr. S. P	Little Rock	Arkansas.
Crouse, Cecil I	New York	New York.
Crowl, J. A	Washington	District of Columbia.
Cummings, Dr. Hugh S	Washington	District of Columbia.
Cummings, Dr. Richard O	Appleton	Wisconsin.
Cunningham, Mrs. Minnie F	Washington	District of Columbia.
Cunningham, Dr. Thomas D	Denver	Colorado.
Daily, Dr. Edwin F	Washington	District of Columbia.
Dann, Dr. W. J	Durham	North Carolina.
Daum, Dr. Kate	Iowa City	Iowa.
Davidson, Roy L	Indianapolis	Indiana.
Davied, Camille	New York	New York.
Davis, A. M	New York	New York.
Davis, Eleanor B	Philadelphia	Pennsylvania.
Davis, Jackson	New York	New York.
Davis, Dr. Joseph S	Stanford University	California.
Davis, Loda Mae	Washington	District of Columbia.
Davis, Michael W	New York	New York.
Davis, Watson	Washington	District of Columbia.
Davison, Eloise	New York	New York.
Day, Dr. Harry G	Bloomington	Indiana.
Day, Leonard	Winter Park	Florida.
Deitrick, Dr. Sarah S	Washington	District of Columbia.
DeKleine, Dr. William	Washington	District of Columbia.
DeLong, Grace E	Fargo	North Dakota.
Dent, Alberta	New Brunswick	New Jersey.
Dent, Diana S	Durham	North Carolina.
Dewhurst, J. Frederick	New York	New York.
Dickins, Dr. Dorothy	Starkville	Mississippi.
Deitrich, Louis	Pittsburgh	Pennsylvania.
Dietz, David	Cleveland	Ohio.
Diggins, Dr. Glenville	Atlanta	Georgia.
Dilworth, Lula P	Trenton	New Jersey.
Dimond, Blanche F	Boston	Massachusetts.
Disher, Mrs. Whitlock F	Louisville	Kentucky.
Dodge, Mrs. Quindara Oliver	Boston	Massachusetts.
Doerman, Mrs. Marie C	New Brunswick	New Jersey.
Doisy, Dr. Edward A	St. Louis	Missouri.
Doremus, Mabel	Lincoln	Nebraska.
Dorward, Florence G	Springfield	Massachusetts.
Douglass, Mrs. Helen C	Washington	District of Columbia.
Downes, Jean	New York	New York.
Downey, Walter F	Boston	Massachusetts.
Doyle, Mrs. Henry Grattan	Washington	District of Columbia.
Drain, James A	Washington	District of Columbia.
Drollinger, Pauline H	Washington	District of Columbia.

Name	City	State
Drummond, Laura W	State College	Pennsylvania.
Duckles, Dorothy	Boston	Massachusetts.
Dudley, Pendleton	New York	New York.
Dunn, Mary J	Washington	District of Columbia.
Durrett, Dr. James J	Washington	District of Columbia.
Dutcher, Dr. R. Adams	State College	Pennsylvania.
Dye, Marie	East Lansing	Michigan.
Ebbs, Dr. J. Harry	Toronto	Canada.
Eby, Kermit	Chicago	Illinois.
Eddy, Mrs. Martha H	Ithaca	New York.
Edwards, Alice L	Washington	District of Columbia.
Edwards, Mrs. Caroline W	Honolulu	Territory of Hawaii.
Edwards, Corwin D	Washington	District of Columbia.
Edwards, Margaret M	Greensboro	North Carolina.
Edwards, Reba	Bloomington	Indiana.
Egger, Rowland	Richmond	Virginia.
Eichelberger, Dr. Marietta	Chicago	Illinois.
Eliot, Charles W	Washington	District of Columbia.
Eliot, Dr. Martha M	Washington	District of Columbia.
Elliott, F. F	Washington	District of Columbia.
Ellis, Elizabeth E	Durham	New Hampshire.
Ellis, N. R	Washington	District of Columbia.
Ellis, Mrs. Sara Porter	Ames	Iowa.
Ellis, Sherman K	Chicago	Illinois.
Elvehjem, Dr. C. A	Madison	Wisconsin.
Emerson, Dorothy	College Park	Maryland.
Eppright, Dr. Ercel S	Denton	Texas.
Erickson, Statie	Lexington	Kentucky.
Erkel, Mrs. Agnes M	St. Paul	Minnesota.
Evans, G. Taggart	Wilmington	Delaware.
Evans, Herbert E	New York	New York.
Exton, Bess	Washington	District of Columbia.
Ezekiel, Dr. Mordecai	Washington	District of Columbia.
Ezekiel, Mrs. Mordecai	Bethesda	Maryland.
Fairbanks, Alida	Burlington	Vermont.
Fairchild, Mildred	Bryn Mawr	Pennsylvania.
Fakler, Herman	Washington	District of Columbia.
Falk, I. S	Washington	District of Columbia.
Faulkner, Mary	Baltimore	Maryland.
Faust, H	Berkeley	California.
Fawcett, Laura C	East Orange	New Jersey.
Fellers, Carl R	Amherst	Massachusetts.
Ferebee, Dr. Dorothy B	Washington	District of Columbia.
Ferree, Dr. John W	Indianapolis	Indiana.
Ferrell, Dr. John A	New York	New York.
Fishbein, Dr. Morris	Chicago	Illinois.
Fisher, Katharine	New York	New York.
Fistere, C. M	Washington	District of Columbia.
Fitzgerald, Mrs. Chas	Winooski	Vermont.
Fitzgerald, Dr. F. F	New York	New York.
Fitzpatrick, F. Stuart	Washington	District of Columbia.
Fleck, Henrietta	Newark	Delaware.
Fletcher, Mrs. Allen M	Ludlow	Vermont.
Flynn, Molly	Washington	District of Columbia.
Foley, May E	Amherst	Massachusetts.
Folks, Homer	New York	New York.
Foote, Conie C	Lincoln	Nebraska.
Forman, Dr. Jonathan	Columbus	Ohio.
Fosdick, Dr. Leonard S	Chicago	Illinois.
Fowler, George S	New York	New York.
Fralin, Mrs	Philadelphia	Pennsylvania.
Frank, Lois I	State College	Pennsylvania.
Franklin, Dr. Esther C	Washington	District of Columbia.
Freegard, Ruth	Lansing	Michigan.
Freihofer, Stanley H	Philadelphia	Pennsylvania.
French, Earl R	New York	New York.

Name	City	State
Frey, Dr. Charles N	New York	New York.
Frisbie, W. S	Washington	District of Columbia.
Frojen, Boletha	Tallahassee	Florida.
Frysinger, Grace E	Washington	District of Columbia.
Fuller, Justin K	Washington	District of Columbia.
Gabler, Werner K	Washington	District of Columbia.
Gaither, Mary R	Washington	District of Columbia.
Galarzo, M. Ernesto	Washington	District of Columbia.
Gallahue, Edward E	Washington	District of Columbia.
Gallup, Gladys G	Washington	District of Columbia.
Gannon, Mrs. Frances Foley	New York	New York.
Gardiner, Dr. Elizabeth M	Albany	New York.
Gardner, Ella	Washington	District of Columbia.
Garfitt, W	Chicago	Illinois.
Gates, Edith M	New York	New York
Gauss, Christian	Princeton	New Jersey.
Gee, Mrs. Nathaniel Gist	Greenwood	South Carolina.
Geiger, Dr. Beatrice J	Bloomington	Indiana.
Giddings, Dr. Glenville	Atlanta	Georgia.
Gillett, Lucy H	New York	New York.
Gillis, Dr. Fred J	Boston	Massachusetts.
Glassford, Dr. John	Baltimore	Maryland.
Godfrey, Dr. Edward S	Albany	New York.
Godfrey, Grace	Philadelphia	Pennsylvania.
Goeppinger, K		Iowa.
Gold, Norman L	Washington	District of Columbia.
Goldberger, Dr. I. H	New York	New York.
Goodspeed, Helen C	Philadelphia	Pennsylvania.
Goodykoontz, Bess	Washington	District of Columbia.
Gordon, Dr. Leland J	Granville	Ohio.
Gordon, Mary A	Greenville	Ohio.
Gorrell, Frank E	Washington	District of Columbia.
Gowen, P. L	Camden	New Jersey.
Grant, Mrs. E. O	Washington	District of Columbia.
Grayson, Dr. W. B	Little Rock	Arkansas.
Greene, Amy W	Baltimore	Maryland.
Greulich, Dr. William W	Cleveland	Ohio.
Griggs, Robert F	Washington	District of Columbia.
Grigsby, Mrs. Ernestine B	Washington	District of Columbia.
Grimes, Helen	Pittsburgh	Pennsylvania.
Grove, Mrs. Rhobie M	York	Pennsylvania
Grulee, Dr. Clifford G	Evanston	Illinois.
Gubin, Sidney N	Washington	District of Columbia.
Gudakunst, Dr. Don W	New York	New York.
Guilford, Elizabeth	New York	New York.
Guinane, Joseph E	New York	New York.
Gunderson, Dr. Frank L	Chicago	Illinois.
Guthrie, Maude	Knoxville	Tennessee.
Haas, Dr. L. W	Chicago	Illinois.
Haddon, May E	State College	Mississippi.
Haden, Dr. Russell L	Cleveland	Ohio.
Hadley, Laura B	Montevallo	Alabama.
Haines, Earl S	Atlanta	Georgia.
Hall, Florence L	Washington	District of Columbia.
Hall, Helen	New York	New York.
Hambidge, Gove	Washington	District of Columbia.
Hamilton, Allen T	Washington	District of Columbia.
Hammer, B. W	Ames	Iowa.
Hanna, Dr. Paul R	Washington	District of Columbia.
Hansl, Mrs. Eva	New York	New York.
Harrington, Mrs. Marie	St. Louis	Missouri.
Harris, Dr. Jessie W	Knoxville	Tennessee.
Harris, Katharine W	Ithaca	New York.
Harris, Mrs. Lewis E	Fresno	California.
Harris, Dr. Robert S	Cambridge	Massachusetts.
Harrison, Dr. Ross G	Washington	District of Columbia.

Name	*City*	*State*
Harry, G. E	Norfolk	Virginia.
Hart, Constance C	Rochester	New York.
Harville, Mrs. R. C	Mabelvale	Arkansas.
Hawley, Dr. Estelle E	Rochester	New York.
Hayhurst, Dr. Emery R	Columbus	Ohio.
Heaton, Dr. Kenneth L	Evanston	Illinois.
Heber, Henry	Washington	District of Columbia.
Hedderick, G. W	Washington	District of Columbia.
Heller, Christine A	Santa Fe	New Mexico.
Henderson, Mrs. H. Ruth	Richmond	Virginia.
Hendricks, Thomas A	Indianapolis	Indiana.
Hendry, Charles E	New York	New York.
Hennerich, George W	Washington	District of Columbia.
Henry, Heber	Washington	District of Columbia.
Hepburn, Dr. W. W	Chicago	Illinois.
Hepworth, Marion N	Moscow	Idaho.
Hermann, Mrs. Elmer	Stockton	Illinois.
Herr, Mrs. Edna H	Trenton	New Jersey.
Herr, Horace H	Washington	District of Columbia.
Hershey, Roberta	East Lansing	Michigan.
Heseltine, Marjorie M	Washington	District of Columbia.
Hetler, Mrs. R. Arnold	Oberlin	Ohio.
Hibben, R. C	Washington	District of Columbia.
Higbee, Violet B	Kingston	Rhode Island.
Hill, Sallie F	Birmingham	Alabama.
Hill, Dr. Thomas J	Cleveland	Ohio.
Hinman, Helen E	Concord	New Hampshire.
Hirsh, Dr. Joseph	Washington	District of Columbia.
Hoag, Frances L	Philadelphia	Pennsylvania.
Hobart, Inez M	St. Paul	Minnesota.
Hochbaum, H. W	Washington	District of Columbia.
Hoehler, Fred K	Chicago	Illinois.
Hoffman, A. C	Washington	District of Columbia.
Hoffman, Charles	New York	New York.
Hoffman, Lillian C	Columbia	South Carolina.
Hollingshead, R. S	Washington	District of Columbia.
Hollis, L. P	Greenville	South Carolina.
Hoobler, Dr. Icie Macy	Detroit	Michigan.
Hopper, Bernice	Nashville	Tennessee.
Horton, H. O	Richmond	Virginia.
Horton, Mildred	College Station	Texas.
Hott, Nora M	Brookings	South Dakota.
Hotzel, Harold	Worcester	Massachusetts.
Howe, Eleanor	Chicago	Illinois.
Howe, Mrs. Harriet R	Washington	District of Columbia.
Howe, Col. Paul E	Washington	District of Columbia.
Hucker, Dr. G. J	Geneva	New York.
Huddleson, Mrs. Mary Pascoe	New Canaan	Connecticut.
Hudson, Mrs. Brunette	Jackson	Mississippi.
Huey, Ruth	Austin	Texas.
Hughes, Hallie L	Blacksburg	Virginia.
Hughes, Dr. Josiah S	Manhattan	Kansas.
Hume, Mrs. Robert	Millinocket	Maine.
Hummel, B. L	Blacksburg	Virginia.
Hunscher, Dr. Helen A	Cleveland	Ohio.
Hunt, Dr. Eleanor P	Washington	District of Columbia.
Hunter, Dr. Amy Louise	Madison	Wisconsin.
Hurley, Mrs. Charlotte Spencer	Dover	Delaware.
Hutson, Dr. J. B	Washington	District of Columbia.
Imlay, Florence	Lexington	Kentucky.
Ingersoll, Asho	New York	New York.
Jackson, Mrs. Dennis	Cincinnati	Ohio.
Jackson, Dr. Stanley M	Long Island	New York.
James, Delos L	Washington	District of Columbia.
James, Laurence H	College Park	Maryland.
James, Leonidas S	Bowie	Maryland.

Name	City	State
Janssen, Charles H	Columbus	Ohio.
Jean, Sally Lucas	New York	New York.
Jeans, Dr. Phillip C	Iowa City	Iowa.
Jeffrees, Sallie	Washington	District of Columbia.
Jennings, Evangeline	Laramie	Wyoming.
Jennings, Mrs. M. M	Macon	Georgia.
Jenss, Dr. Rachol M	Washington	District of Columbia.
Johnson, Eleanor M	Columbus	Ohio.
Johnson, Elizabeth	Washington	District of Columbia.
Johnson, Helen L	Hartford	Connecticut.
Johnstin, Ruth	Wellesley	Massachusetts.
Jolleffe, Dr. Norman	New York	New York.
Jones, Cecil Lester	Washington	District of Columbia.
Jones, Mrs. Marion H	Washington	District of Columbia.
Jones, Olga A	Washington	District of Columbia.
Jordan, C. L	Philadelphia	Pennsylvania.
Jungewaelter, Frank G	Chicago	Illinois.
Jordan, Dr. Stroud	New York	New York.
Kahn, Ruth M	St. Louis	Missouri.
Kain, Ida Jean	New York	New York.
Katz, Mrs. Julia	Washington	District of Columbia.
Katz, Sidney R	Washington	District of Columbia.
Kelavan, Alice	Chicago	Illinois.
Keliher, Dr. Alice V	New York	New York.
Kellar, Venia M	College Park	Maryland.
Keller, F. Louise	Washington	District of Columbia.
Kellogg, Dr. Minerva	Brookings	South Dakota.
Kellogg, Paul U	New York	New York.
Kelly, Amy	Columbia	Missouri.
Kelly, Dr. Herbert T	Philadelphia	Pennsylvania.
Kennedy, Norman F	New York	New York.
Kenyon, Otis	New York	New York.
Keys, Alma	Little Rock	Arkansas.
Kifer, R. S	Washington	District of Columbia.
King, Caroline B	Philadelphia	Pennsylvania.
King, Dr. Charles Glenn	Pittsburgh	Pennsylvania.
King, Florence B	Burlington	Vermont.
Kingsley, Margaret	New York	New York.
Kinsman, Dr. Gladys M	Stillwater	Oklahoma.
Kirk, Dorothy	New York	New York.
Kirk, Gerard P	Washington	District of Columbia.
Kirkpatrick, Frances	Washington	District of Columbia.
Kishlar, Lamar	St. Louis	Missouri.
Kittrell, Flemmie P	Hampton	Virginia.
Kleinschmidt, Dr. Earl E	Washington	District of Columbia.
Kletzer, Mrs. William	Portland	Oregon.
Knapp, J. O	Morgantown	West Virginia.
Knight, Frances	Washington	District of Columbia.
Knight, Gladys E	University	Alabama.
Koehne, Dr. Martha	Columbus	Ohio.
Kraft, J. H	Chicago	Illinois.
Kruse, Dr. H. D	New York	New York.
Kuhn, Alice	Los Angeles	California.
Kurka, Mrs. Sally Ann	Roanoke	Virginia.
Kyrk, Dr. Hazel	Chicago	Illinois.
Labuzan, Mrs. G. Marshall	Miami	Florida.
Ladd, Culver S	Takoma Park	Maryland.
Lamb, Ruth	Washington	District of Columbia.
Langdon, Dr. Grace	Washington	District of Columbia.
Larson, Agnes A	St. Paul	Minnesota.
Lavigne, N. F	Lakeland	Florida.
Law, Mildred T	Washington	District of Columbia.
Lawrence, W. Henry	Cambridge	Massachusetts.
Lazo, Hector	Washington	District of Columbia.
Leamy, Catherine	Baltimore	Maryland.
Leavell, Dr. Hugh	Louisville	Kentucky.

Name	*City*	*State*
LeClerc, J. A	Washington	District of Columbia.
Leeper, Mary E	Washington	District of Columbia.
Leikind, Morris C	Washington	District of Columbia.
LeNoir, Ellen	University	Louisiana.
Lenroot, Katharine F	Washington	District of Columbia.
Leonard, Mrs. Paul H	Columbia	South Carolina.
Lepler, Mrs. Ruby	Watertown	South Dakota.
Leverton, Dr. Ruth	Washington	District of Columbia.
Levine, Dr. Samuel Z	New York	New York.
Lewis, Mrs. Dora S	New York	New York.
Lewis, Mrs. George E	Lincoln	Nebraska.
Likert, Rensis	Washington	District of Columbia.
Lindman, Ina S	New York	New York.
Lipman, Dr. W. H	Chicago	Illinois.
Livingston, Julian M	Chicago	Illinois.
Lockard, Gertha E	Washington	District of Columbia.
Logan, John A	Washington	District of Columbia.
Logan, Lt. Col. Paul P	Washington	District of Columbia.
Long, Avary	New York	New York.
Long, Mrs. Cedric	New York	New York.
Long, Joelle	New York	New York.
Long, Dr. Perrin H	Baltimore	Maryland.
Lorenz, Dr. Anthony J	Los Angeles	California.
Lorenz, Mrs. M. O	Washington	District of Columbia.
Lothe, Ada B	Wauwatoso	Wisconsin.
Lotz, Dr. Edwin H	New Britain	Connecticut.
Lotz, Dr. Walter H	New Britain	Connecticut.
Loveday, Alexander	Princeton	New Jersey.
Luce, Marjorie E	Burlington	Vermont.
Lunn, Enid W	Columbus	Ohio.
Lyle, S. P	Washington	District of Columbia.
Lynde, Mrs. Lydia A	Washington	District of Columbia.
Lynn, William C	Trenton	New Jersey.
Lyons, Leo M	Chicago	Illinois.
MacDonald, Pearl	Newark	Delaware.
MacFarlane, Alberta	Chicago	Illionis.
Mack, Frank J	Bangor	Maine.
Mack, Mrs. Mabel C	Corvallis	Oregon.
Mack, Dr. Pauline Berry	State College	Pennsylvania.
Mackie, Dr. T. T	New York	New York.
Mackintosh, Dr. Helen K	Washington	District of Columbia.
MacLeod, Dr. Grace	New York	New York.
MacNair, Vera	Rock Hill	North Carolina.
Maddox, Gaynor	New York	New York.
Main, Hanford	New York	New York.
Malcolm, Mrs. Ola Powell	Washington	District of Columbia.
Mallory, Berenice	Washington	District of Columbia.
Manchester, A. W	Washington	District of Columbia.
Manley, Mrs. Beula F	Williamsport	Pennsylvania.
Mann, Dr. A. R	New York	New York.
Manning, Dr. Paul D. V	San Francisco	California.
Manville, Dr. Ira A	Portland	Oregon.
Marble, Mrs. Beula B	Chestnut Hill	Massachusetts.
Markwith, Dr. R. H	Columbus	Ohio.
Marsh, M. Elizabeth	New York	New York.
Marshall, M. Lee	New York	New York.
Martin, Mrs. Ethel Austin	Chicago	Illinois.
Martin, Robert F	Washington	District of Columbia.
Marvin, L. W	Lakeland	Florida.
Mason, Frank E	New York	New York.
Mason, Dr. H. L	Rochester	Minnesota.
Masters, Dexter	New York	New York.
Mathews, Susan J	Athens	Georgia.
Matthews, Anne	Ithaca	New York.
Matthews, Mary L	Lafayette	Indiana.
Mavecty, Dr. D. J	New York	New York.

Name	City	State
Mayes, Elizabeth	Atlanta	Georgia.
Mayes, Herbert R	New York	New York.
Maynard, Dr. L. A	Ithaca	New York.
Mazur, Belle D	New York	New York.
McCann, Roud	Chicago	Illinois.
McClusky, Howard Y	Washington	District of Columbia.
McCollum, Dr. E. V	Baltimore	Maryland.
McConkie, J. E	San Francisco	California.
McDermott, Irene E	Pittsburgh	Pennsylvania.
McDonald, May C	Albany	New York.
McDonnall, Mrs. Z. H	Wichita	Kansas.
McDougall, Jean	New York	New York.
McGeachy, Miss Craig	Washington	District of Columbia.
McGee, Mrs. Robert A	Washington	District of Columbia.
McGibony, Dr. J. R	Washington	District of Columbia.
McGuckin, Mrs. Mary Love	Columbus	Ohio.
McGuire, Veronica	Montclair	New Jersey.
McIntire, Rear Admiral Ross T	Washington	District of Columbia.
McIntosh, Dr. William A	New York	New York.
McLaughlin, Mrs. Alice E	Cincinnati	Ohio.
McLeod, J. H	Knoxville	Tennessee.
McLester, Dr. James S	Birmingham	Alabama.
McNaughton, Edna B	College Park	Maryland.
McNeal, Wylie B	St. Paul	Minnesota.
McNutt, Paul V	Washington	District of Columbia.
McPheeters, Margaret	College Park	Maryland.
McPheters, Martha M	Stillwater	Oklahoma.
McQueen, Jessie	New York	New York.
Meece, Dr. Leonard E	Lexington	Kentucky.
Meegan, Joseph B	Chicago	Illinois.
Meehan, Col. John W	Washington	District of Columbia.
Meek, Howard	Ithaca	New York.
Meier, Oscar	Washington	District of Columbia.
Merck, George W	Rahway	New Jersey.
Middleton, Mrs. Iola Scott	Hillsboro	Texas.
Migliario, Mrs. Ida	Topeka	Kansas.
Milam, Dean Ava B	Corvallis	Oregon.
Milam, Dr. D. F	Durham	North Carolina.
Miller, C. L	New York	New York.
Miller, Mrs. Dorothy	Washington	District of Columbia.
Miller, Dr. Fred D	Altoona	Pennsylvania.
Miller, Watson B	Washington	District of Columbia.
Milligan, Mrs. Harold V	New York	New York.
Mitchell, Dr. Helen S	Washington	District of Columbia.
Mobley, Clyde	Baton Rouge	Louisiana.
Moen, Iva	East Orange	New Jersey.
Moffett, Dr. H. C	Berkeley	California.
Monsch, Dr. Helen	Ithaca	New York.
Montgomery, D. E	Washington	District of Columbia.
Moodie, Mrs. Helen	Washington	District of Columbia.
Moore, Dr. I. H	Sparta	Georgia.
Moore, Louise	Washington	District of Columbia.
Moore, Margaret C	New Orleans	Louisiana.
Morehouse, P. B	Washington	District of Columbia.
Morf, F. Wm., Jr	Chicago	Illinois.
Morgan, Dr. Lucy D	Hartford	Connecticut.
Morris, Margaret Marco	Washington	District of Columbia.
Mortimer, C. G., Jr	New York	New York.
Moser, Ada M	Rock Hill	South Carolina.
Moulton, Dr. F. Raymond	Washington	District of Columbia.
Mount, Marie	College Park	Maryland.
Mountin, Dr. J. W	Washington	District of Columbia.
Munsell, Dr. Hazel E	New York	New York.
Murlin, Dr. Jno. R	Rochester	New York.
Musser, Dr. Jno. H	New Orleans	Louisiana.
Nale, Clara	Washington	District of Columbia.

Name	*City*	*State*
Nale, Dr. Thomas W	Charlestown	West Virginia.
Nelson, Dr. E. M	Washington	District of Columbia.
Nelson, P. Mabel	Ames	Iowa.
Netz, Irene	Minneapolis	Minnesota.
Newburgh, Dr. L. H	Ann Arbor	Michigan.
Newland, Milla	Burlington	Vermont.
Newman, Mrs. Simon	Takoma Park	Maryland.
Newton, Dr. R. C	Chicago	Illinois.
Nicholson, Dr. Margaret	Washington	District of Columbia.
Nickerson, Elizabeth	Hartford	Connecticut.
Nielsen, Carl	Washington	District of Columbia.
Nilson, Dr. Hugo W	Washington	District of Columbia.
Nizzardini, Genoeffa	New York	New York.
Noble, Guy L	Chicago	Illinois.
Noble, Dr. Ransom E	Long Island City	New York.
Noer, Ruth D	Morgantown	West Virginia.
Nold, Truman	Columbus	Ohio.
Nourse, Dr. E. G	Washington	District of Columbia.
Nutting, Mrs. Leone Dakin	Orono	Maine.
Oberhelman, Lois	Lafayette	Indiana.
O'Connor, Basil	New York	New York.
Ogg, W. R	Washington	District of Columbia.
Ogle, Lelia C	Washington	District of Columbia.
O'Keefe, Grace R	New York	New York.
Okey, Dr. Ruth	Berkeley	California.
Oliver, Dr. Douglas L	Cambridge	Massachusetts.
Olzendam, Therese	New York	New York.
Oppenheimer, Dr. Ella	Washington	District of Columbia.
Osborn, Stanley H	Hartford	Connecticut.
Osincup, Dr. C. S	Orlando	Florida.
Ottenberg, Mrs. Louis	Washington	District of Columbia.
Outhouse, Dr. Julia P	Urbana	Illinois.
Ozbirn, Mrs. E. Lee	Sentinel	Oklahoma.
Painter, Mrs. H. K	Minneapolis	Minnesota.
Palmer, Dr. Carroll E	Bethesda	Maryland.
Pancoast, Elinor	Baltimore	Maryland.
Park, Dr. Edward A	Baltimore	Maryland.
Parker, G. R	Washington	District of Columbia.
Parker, Dr. Harry F	Jefferson City	Missouri.
Parodneck, Meyer	New York	New York.
Parran, Dr. Thomas	Washington	District of Columbia.
Parsons, F. Earl	Winchester	Virginia.
Parsons, Patricia H	Washington	District of Columbia.
Patton, Dr. E. White	Nashville	Tennessee.
Paullin, Dr. James	Atlanta	Georgia.
Paulus, Robert C	Salem	Oregon.
Pederson, Carl S	Geneva	New York.
Pendergast, Winning S	Detroit	Michigan.
Pennell, Ellen	New York	New York.
Pensinger, Ella L	New York	New York.
Perkins, Grafton B	Cambridge	Massachusetts.
Perkins, Milo	Washington	District of Columbia.
Peters, Florence	Harrisburg	Pennsylvania.
Peterson, Dr. C. S	Geneva	New York.
Phipard, Dr. Esther F	Washington	District of Columbia.
Piedalue, Laura M	New York	New York.
Pilat, Wanda	New York	New York.
Pillsbury, Philip W	Minneapolis	Minnesota.
Pilot, Wanda	Fulton	New York.
Pinkston, Eva G	Washington	District of Columbia.
Pollack, Dr. Herbert	New York	New York.
Pollard, Dr. J. W	Washington	District of Columbia.
Pollock, R. C	Chicago	Illinois.
Pope, John B	Washington	District of Columbia.
Porter, Mame Tanner	Albany	New York.
Porter, Mrs. Thelma	Washington	District of Columbia.

Name	*City*	*State*
Price, Minnie	Columbus	Ohio.
Pringle, Mrs. Jane Barber	Lounsberry	New York.
Pritchard, Mrs. Elizabeth G	Washington	District of Columbia.
Proctor, Erna E	Montgomery	Alabama.
Prudent, Mrs. Inez	Morgantown	West Virginia.
Quinlan, Wm. A	Chicago	Illinois.
Rajchman, Dr. Ludwik	Bethesda	Maryland.
Ramsower, H. C	Columbus	Ohio.
Rapoport, Dr. Milton	Philadelphia	Pennsylvania.
Raskin, Dr. Morris	Detroit	Michigan.
Ratcliffe, Lt. R. S	Washington	District of Columbia.
Raushenbush, Joan	Washington	District of Columbia.
Rawls, F. H	Washington	District of Columbia.
Reagan, Myra	Columbia	South Carolina.
Rebbe, Mrs. Henry L	Spearfish	South Dakota.
Reed, O. E	Washington	District of Columbia.
Reeves, Mary	St. Joseph	Missouri.
Reeves, Dr. Rufus S	Philadelphia	Pennsylvania.
Reid, Margaret G	Ames	Iowa.
Reynolds, Dr. Carl V	Raleigh	North Carolina.
Reynolds, Lucile W	Washington	District of Columbia.
Rice, Dr. C. E	Washington	District of Columbia.
Rice, Dr. John L	New York	New York.
Rice, Dr. Whitman	New York	New York.
Richter, Curt P	Baltimore	Maryland.
Riggin, Dr. I. C	Richmond	Virginia.
Riggs, Dr. Lloyd K	Chicago	Illinois.
Riley, Dr. Robert H	Baltimore	Maryland.
Rindlaub, Mrs. J. Wade	New York	New York.
Rivers, Elizabeth A	Madison	Wisconsin.
Robb, Dr. Elda	Philadelphia	Pennsylvania.
Roberts, Dr. Lydia J	Chicago	Illinois.
Robinson, D. E	New York	New York.
Robinson, Guy C	New York	New York.
Robinson, Una	Washington	District of Columbia.
Rogers, W. P	San Francisco	California.
Rokahr, Mary	Washington	District of Columbia.
Roland, A. K	New York	New York.
Rorty, James	New York	New York.
Rose, Flora	Ithaca	New York.
Ross, Harry A	New York	New York.
Rowe, Roland H	Washington	District of Columbia.
Rowntree, Col. Leonard G	Washington	District of Columbia.
Rubinow, Leonora B	Chicago	Illinois.
Ruffin, Dr. Julian W	Durham	North Carolina.
Rumsey, Dr. L. A	Chicago	Illinois.
Rush, Mrs. Ola Day	Washington	District of Columbia.
Russell, Rae	Pullman	Washington.
Russell, Dr. Viola	Bismarck	North Dakota.
Ruthman, Mrs. Ellen C	Cincinnati	Ohio.
Rynbergen, Henderika J	New York	New York.
Sadow, Sue E	New York	New York.
Salmon, W. D	Auburn	Alabama.
Salthe, Ole	New York	New York.
Sampson, Dr. Wm. L	Rahway	New Jersey.
Sandels, Dr. Margaret R	Tallahassee	Florida.
Sanford, Frances	Elmira	New York.
Sasman, Louis H	Madison	Wisconsin.
Sasuly, Mrs. Elizabeth	Washington	District of Columbia.
Sayre, F. Morris	New York	New York.
Sayre, Mrs. Raymond	Ackworth	Iowa.
Schlup, Lester A	Washington	District of Columbia.
Schmitt, R. P	Williamsport	Pennsylvania.
Schour, Dr. Isaac	Chicago	Illinois.
Schumaker, Dr. L. J	Philadelphia	Pennsylvania.
Schuman, Clyde B	New York	New York.

Name	*City*	*State*
Schuttler, Mrs. Chas	Jefferson City	Missouri.
Scott, Dr. James R	Santa Fe	New Mexico.
Searcy, Maude L	Lillington	North Carolina.
Seay, Dr. Maurice F	Lexington	Kentucky.
Sebrell, Dr. W. H	Washington	District of Columbia.
Sedgwick, Jane	San Francisco	California.
Sell, Henry B	Washington	District of Columbia.
Sellers, Marie	New York	New York.
Settle, Mary B	Blacksburg	Virginia.
Sewall, Mrs. Sumer	Augusta	Maine.
Sewell, Mrs. Chas. W	Chicago	Illinois.
Seymour, Marion B	Washington	District of Columbia.
Sharp, Dr. Paul F	Ithaca	New York.
Sharpe, G. W	New York	New York.
Shaw, Dr. John J	New York	New York.
Sherman, Dr. Henry C	New York	New York.
Shipp, Thomas R	Washington	District of Columbia.
Shulman, Marshall D	New York	New York.
Siemers, G. F	Nutley	New Jersey.
Simon, Mildred R	Auburn	Alabama.
Simpson, Mrs. Elizabeth P	Albuquerque	New Mexico.
Slesinger, Donald	New York	New York.
Sloat, Ora M	De Sinet	South Dakota.
Slocum, Dr. Flora L	Washington	District of Columbia.
Smith, Mrs. Alice H	Cleveland	Ohio.
Smith, Dr. Arthur H	Detroit	Michigan.
Smith, Hilda W	Washington	District of Columbia.
Smith, Dr. Richard	Boston	Massachusetts.
Smith, Richard M	New York	New York.
Smith, Thomas L	New York	New York.
Smith, Tom	Washington	District of Columbia.
Smith, Y. K	New York	New York.
Snyder, Mrs. Clara Gebbard	Chicago	Illinois.
Snyder, Dean	Washington	District of Columbia.
Sogoff, Mrs. Maurice	Boston	Massachusetts.
Somers, Alice	Norman	Oklahoma.
Spalding, Mary	Boston	Massachusetts.
Spalt, Frances	Washington	District of Columbia.
Spidle, Mrs. Marion W	Auburn	Alabama.
Spies, Dr. Tom D	Cincinnati	Ohio.
Spivey, Mrs. Willis	Philadelphia	Pennsylvania.
Split, Sarah Field	New York City	New York.
Spohn, Adelaide	Chicago	Illinois.
Stacey, Helen	New York	New York.
Stanley, Dr. Louise	Washington	District of Columbia.
Stark, Elsie	New York	New York.
Steen, Herman	Chicago	Illinois.
Steinbarger, Mrs. Helen T	Washington	District of Columbia.
Steininger, Dr. Grace	Athens	Ohio.
Stephenson, Capt. C. S	Washington	District of Columbia.
Stephenson, Mrs. Faye	Cleveland	Ohio.
Stern, Dr. Boris	Washington	District of Columbia.
Stern, Frances	Boston	Massachusetts.
Stetler, Donovan B	New York	New York .
Stiebeling, Dr. Hazel K	Washington	District of Columbia.
Stimpson, Mabel	Chicago	Illinois.
Stimson, Dr. Philip M	New York	New York.
Stine, Dr. Oscar C	Washington	District of Columbia.
Stiver, Michael	New York	New York.
Stone, Harriet	Newark	New Jersey.
Strassman, Lt. Col. Ralph K	Washington	District of Columbia.
Strowd, W. H	Nashville	Tennessee.
Stuart, R. Douglas	Chicago	Illinois.
Stude, Henry	Chicago	Illinois.
Studebaker, Dr. J. W	Washington	District of Columbia.
Supplee, Dr. G. C	Bainbridge	New York.

Name	*City*	*State*
Swain, Frances L	Chicago	Illinois.
Swanton, Milo K	Madison	Wisconsin.
Sweeny, Mary E	Detroit	Michigan.
Sweet, Mrs. Wm. M	Washington	District of Columbia.
Sweetman, Mrs. Marion D	Orono	Maine.
Switzer, Mary E	Washington	District of Columbia.
Sydenstricker, Dr. V. P	Augusta	Georgia.
Talbert, Prof. T. J	Columbia	Missouri.
Tarrant, Lydia	Burlington	Vermont.
Tate, Dr. Mildred T	Blacksburg	Virginia.
Taubken, H. Richard	Washington	District of Columbia.
Taylor, Eleanor	New York	New York.
Taylor, H. C	Chicago	Illinois.
Taylor, Dr. Harden F	New York	New York.
Taylor, Mary	Washington	District of Columbia.
Taylor, Tyre	Washington	District of Columbia.
Teare, D. W	Washington	District of Columbia.
Teper, Lazare	New York	New York.
Thacker, Althea	Washington	District of Columbia.
Thatcher, Mrs. Minnie F	Martinsburg	West Virginia.
Thomas, Cullen	Minneapolis	Minnesota.
Thomas, Mary E	Raleigh	North Carolina.
Thomas, T. K	New York	New York.
Thompson, Dr. L. R	Washington	District of Columbia.
Thorne, G. B	Chicago	Illinois
Thrift, Pinkie E	Pine Bluff	Arkansas.
Tisdall, Dr. F. F	Toronto, Ontario	Canada.
Tobey, Dr. James A	New York	New York.
Tolley, H. R	Washington	District of Columbia.
Tolman, Dr. L. M	Chicago	Illinois.
Tolman, Mrs. Ruth	Washington	District of Columbia.
Tomlinson, Roy E	New York	New York.
Toulme, M. L	New York	New York.
Townsend. Dr. James G	Washington	District of Columbia.
Treleavan, Mrs. Alice E	Chicago	Illinois.
Trescher, Mrs. Eloise R	Baltimore	Maryland.
Troutt, Lute	Indianapolis	Indiana.
Truitt, Paul T	Washington	District of Columbia.
Tryon, Mrs. Fred G	Washington	District of Columbia.
Turner, Dr. C. E	Boston	Massachusetts.
Turner, Maxine	Oklahoma City	Oklahoma.
Tyler, Mrs. Ernest	Crooks	South Dakota.
Uhl, Dr. George M	San Francisco	California.
Underwood, Dr. Felix J	Jackson	Mississippi.
Urmston, Dr. Paul R	Bay City	Michigan.
Vahlteich, H. W	Bayonne	New Jersey.
Vander Hooning, Gerrit	Grand Rapids	Michigan.
Van Horn, Edna	Washington	District of Columbia.
Van Horn, Rua	Washington	District of Columbia.
Van Spanje, I. Gene	Portland	Maine.
Varney, Russell W	New York	New York.
Vaughn, L. M	Washington	District of Columbia.
Vaughn, Margery	Washington	District of Columbia.
Wagenet, Mrs. Elizabeth M	Washington	District of Columbia.
Wall, Dr. Joseph	Washington	District of Columbia.
Wallace, Mrs. Jean E	Cincinnati	Ohio.
Wallace, Maude E	Blacksburg	Virginia.
Ware, Caroline F	Washington	District of Columbia.
Warner, W. Lloyd	Chicago	Illinois.
Warnick, Angelyn	Logan	Utah.
Warren, Gertrude L	Washington	District of Columbia.
Washburn, Abbott	Minneapolis	Minnesota.
Washburn, Dr. Alfred H	Denver	Colorado.
Waters, Elizabeth M	Augusta	Maine.
Waters, Dr. L. W	New York	New York.

Name	*City*	*State*
Watson, Dr. E. R	Atlanta	Georgia.
Waugh, Dr. Frederick V	Washington	District of Columbia.
Weagley, Mrs. Roy C. F	Hagerstown	Maryland.
Webb-Peploe, Robert	Cambridge	Massachusetts.
Weech, Dr. A. Ashley	New York	New York.
Weed, Dr. Lewis H	Washington	District of Columbia.
Weir, Mrs. Marion	St. Louis	Missouri.
Weiss, Dr. F. J	Washington	District of Columbia.
Wells, Oris V	Washington	District of Columbia.
Wenger, Mrs. Sarah Ellen	Madison	Wisconsin.
Wentworth, W. A	New York	New York.
West, Dr. John B	New York	New York.
Weston, Dr. William	Columbia	South Carolina.
Weybright, Victor	New York	New York.
Whipple, Dr. Dorothy V	Washington	District of Columbia.
Whipple, Elisabeth	Lansing	Michigan.
Whipple, Dr. George	Rochester	New York.
White, Edna N	Detroit	Michigan.
White, Marie	Washington	District of Columbia.
Wiehl, Dorothy G	New York	New York.
Wilbur, Dr. Dwight L	San Francisco	California.
Wilder, Dr. Russell M	Washington	District of Columbia.
Wilkins, Dr. Walter	Raleigh	North Carolina.
Williams, Dr. Faith M	Washington	District of Columbia.
Williams, G. Dorothy	Ithaca	New York.
Williams, Gerard R	Scranton	Pennsylvania.
Williams, Mrs. J. L	Ninety Six	South Carolina.
Williams, Mrs. Jane S	Washington	District of Columbia.
Williams, Miriam J	Philadelphia	Pennsylvania.
Williams, Paul M	Washington	District of Columbia.
Williams, Dr. Philip F	Philadelphia	Pennsylvania.
Williams, Dr. R. C	Washington	District of Columbia.
Williams, Dr. R. R	New York	New York.
Williams, Dr. W. C	Nashville	Tennessee.
Williamson, Mary Lois	Frankfort	Kentucky.
Williamson, Mrs. W. H	Yanceyville	North Carolina.
Willis, Paul S	New York	New York.
Willison, T. Blair	Cleveland	Ohio.
Wilshire, W Murray	New York	New York.
Wilson, Dr. Isabella C	Fayetteville	Arkansas.
Wilson, Dr. Milburn L	Washington	District of Columbia.
Wilson, Robert J	Washington	District of Columbia.
Wisan, Dr. J. M	Trenton	New Jersey.
Wolcott, Roger	New York	New York.
Wood, Mrs. Mildred Weigley	Phoenix	Arizona.
Woodbury, Chas. G	Washington	District of Columbia.
Woodward, Sally	Minneapolis	Minnesota.
Woody, Elizabeth	New York	New York.
Wright, W. J	Ithaca	New York.
Wyckoff, Gladys	Washington	District of Columbia.
Yerushalmy, Dr. Jacob	Washington	District of Columbia.
Young, Annette	Chicago	Illinois.
Zapoleon, Mrs. Marguerite W	Washington	District of Columbia.
Zemp, Mrs. Gertrude M	Camden	South Carolina.
Zimmerman, Leonora H	Washington	District of Columbia.
Zuill, Frances	Madison	Wisconsin.

APPENDIX B

Regional Coordinators and State Nutrition Committee Chairmen

REGION I

Coordinator, Mr. John F. Hardy, Social Security Board, 120 Boylston Street, Boston, Mass.

CHAIRMEN

Maine.—Dr. Marion D. Sweetman, Department of Home Economics, University of Maine, Orono, Maine.
New Hampshire.—Miss Elizabeth E. Ellis, Nutrition Specialist, Extension Service, Durham, N. H.
Massachusetts.—Miss May E. Foley, Extension Nutritionist, Massachusetts State College, Amherst, Mass.
Vermont.—Dr. Florence B. King, Department of Home Economics, University of Vermont, Burlington, Vt.
Rhode Island.—Dr. Esther Batchelder, Home Economics Department, Rhode Island State College, Kingston, R. I.
Connecticut.—Mrs. Marion Evans Dakin, Extension Nutrition Specialist, University of Connecticut, Storrs, Conn.

REGION II

Coordinator, Mrs. Anna M. Rosenberg, Social Security Board, 11 West Forty-second Street, New York, N. Y.

CHAIRMEN

New York State.—Dr. Elizabeth Gardiner, State Board of Health, Albany, N. Y.
New York City.—Dr. Grace MacLeod, Teachers College, Columbia University New York, N. Y.

REGION III

Coordinator, Mr. William L. Dill, Social Security Board, Juniper and Chestnut Streets, Philadelphia. Pa.

CHAIRMEN

Pennsylvania.—Dr. Laura Drummond, Home Economics Department, Pennsylvania State College, State College, Pa.
Delaware.—Miss Pearl MacDonald, Extension Nutritionist, University of Delaware, Newark, Del.
New Jersey.—Miss Marie Doermann, Nutrition Specialist, University of New Jersey, New Brunswick, N. J.

REGION IV

Coordinator, Mr. G. R. Parker, Social Security Board, Arlington Building, Washington, D. C.

CHAIRMEN

Maryland.—Marie Mount, Dean of Home Economics Department, University of Maryland, College Park, Md.
Virginia.—Dr. Mildred Tate, Head of Home Economics Department, Virginia Polytechnic Institute, Blacksburg, Va.
North Carolina.—Dr. Carl V. Reynolds, State Board of Health, Raleigh, N. C.
District of Columbia.—Mrs. Elizabeth Grant, District Health Department, District Building, Washington, D. C.

REGION V

Coordinator, Mr. Robert C. Goodwin, Social Security Board, Euclid Avenue and East Ninth Street, Cleveland, Ohio.

CHAIRMEN

Ohio.—Miss Minnie Price, Extension Division, Ohio State University, Columbus, Ohio.
Michigan.—Dr. Marie Dye, Dean of Home Economics Department, Michigan State College, East Lansing, Mich.
Kentucky.—Dr. Statie Erickson, Head, Home Economics Department, University of Kentucky, Lexington, Ky.

REGION VI

Coordinator, Mr. Henry L. McCarthy, Social Security Board, U. S. Court House Building, Chicago, Ill.

CHAIRMEN

Indiana.—Dr. John W. Ferree, Director, Indiana State Board of Health, Department of Commerce and Industries, 1098 West Michigan Avenue, Indianapolis, Ind.
Wisconsin.—Miss Frances Zuill, Home Economics Department, University of Wisconsin, Madison, Wis.
Illinois.—Dr. Julia P. Outhouse, Professor of Nutrition, University of Illinois, Urbana, Ill.

REGION VII

Coordinator, Mr. Richard N. Lyle, Social Security Board, First Avenue and Nineteenth Street, Birmingham, Ala.

CHAIRMEN

South Carolina.—Mr. D. W. Watkins, Director of Extension Service, Clemson Agricultural College, Rock Hill, S. C.
Florida.—Miss Margaret R. Sandels, Florida State College for Women, Tallahassee, Fla.
Georgia.—Miss Lurline Collier, State Home Demonstration Leader, Athens, Ga.
Mississippi.—Miss Dorothy Dickens, Head of Department of Home Economics, Mississippi State College, State College, Miss.
Alabama.—Mrs. Marion W. Spidle, Dean of School of Home Economics, Alabama Polytechnic Institute, Auburn, Ala.
Tennessee.—Miss Jessie Harris, Head of Department of Home Economics, University of Tennessee, Knoxville, Tenn.

REGION VIII

Coordinator, Mr. Fred M. Wilcox, Social Security Board, Federal Office Building, Minneapolis, Minn.

CHAIRMEN

Minnesota.—Miss Inez Hobart, State Extension Nutritionist, University of Minnesota, University Farm, St. Paul, Minn.
Iowa.—Dr. P. Mabel Nelson, Head of Department of Foods and Nutrition, Iowa State College, Ames, Iowa.
Nebraska.—Miss Margaret Fedde, Department of Home Economics, University of Nebraska, Lincoln, Nebr.
North Dakota.—Miss Grace DeLong, State Home Demonstration Leader, North Dakota State College, Fargo, N. Dak.
South Dakota.—Miss Susan Wilder, Extension Nutritionist, South Dakota State College, Brookings, S. Dak.

REGION IX

Coordinator, Mr. Ed McDonald, Social Security Board, 1006 Grand Avenue Kansas City, Mo.

CHAIRMEN

Kansas.—Dr. Margaret M. Justin, Dean, Department of Home Economics, Kansas State College, Manhattan, Kans.
Missouri.—Dr. Bertha Bisbey, Department of Home Economics, University of Missouri, Columbia, Mo.
Oklahoma.—Dr. Daisy Purdy, Head, Household Science Department, Oklahoma A. and M. College, Stillwater, Okla.
Arkansas.—Dr. Isabella C. Wilson, Head of Department of Home Economics, University of Arkansas, Fayetteville, Ark.

REGION X

Coordinator, Mr. James B. Marley, Social Security Board, North Presa and East Houston Streets, San Antonio, Tex.

CHAIRMEN

Texas.—Miss Mildred Horton, State Home Demonstration Agent, College Station, Tex.
New Mexico.—Miss Edith M. Lantz, Research Specialist in Home Economics, New Mexico State College, State College, N. Mex.
Louisiana.—Miss Ellen LeNoir, State Home Demonstration Agent, Extension Service, Louisiana State Univ., University, La.

REGION XI

Coordinator, Mr. Heber R. Harper, Social Security Board, 1706 Welton Street, Denver, Colo.

CHAIRMEN

Wyoming.—Miss Elizabeth J. McKittrick, Head, Division of Home Economics, University of Wyoming, Laramie, Wyo.
Montana.—Miss Gladys Branegan, Dean of Home Economics, State Agricultural College, Bozeman, Mont.
Idaho.—Miss Marion Hepworth, State Home Demonstration Leader, University of Idaho, Moscow, Idaho.
Utah.—Dr. Ethelyn O. Greaves, Farm Security Administrator, Utah State Agricultural College, Logan, Utah.
Colorado.—Miss Inga K. Allison, Dean, Division of Home Economics, State Agricultural College, Fort Collins, Colo.
Arizona.—Dr. Margaret Cammack Smith, Nutrition Chemist, Agricultural Experiment Station, University of Arizona, Tucson, Ariz.

REGION XII

Coordinator, Mr. Richard M. Neustadt, Social Security Board, 785 Market Street, San Francisco, Calif.

CHAIRMEN

Washington.—Dr. Velma Phillips, Dean, College of Home Economics, Washington State College, Pullman, Wash.
Oregon.—Miss Ava B. Milam, Dean of Home Economics, Oregon State College, Corvallis, Ore.
Nevada.—Mrs. Mary S. Buol, Assistant Director, Agricultural Extension Service, University of Nevada, Reno, Nev.
California.—Dr. Agnes Fay Morgan, Head, Dept. of Home Economics, University of California, Berkeley, Calif.
Puerto Rico.—Miss Maria Orcasitas, Assistant Director of Extension Service in Charge of Home Demonstration Work, University of Puerto Rico, Rio Piedros, P. R.
Hawaii.—Dr. Nils P. Larsen, The Queen's Hospital, Punchbowl and Miller Streets, Honolulu, T. H.

APPENDIX C

National Research Council, Division of Biology and Agriculture Committee on Food and Nutrition

Russell M. Wilder, Chairman, Member of Staff, Mayo Clinic, Professor of Medicine and Chief of Department of Medicine, Mayo Foundation for Medical Educational Research, University of Minnesota, Rochester, Minn.

Franklin C. Bing, Secretary of Council on Foods and Nutrition, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

John D. Black, Professor of Agricultural Economics, Harvard University, Cambridge, Mass.

Henry Borsook, Professor of Biochemistry, California Institute of Technology, Pasadena, Calif.

F. G. Boudreau, Executive Director, Milbank Memorial Fund, 40 Wall Street, New York, N. Y.

George R. Cowgill, Associate Professor of Physiological Chemistry, Yale University School of Medicine, New Haven, Conn.

Joseph S. Davis, Professor of Economic Research and Director of the Food Research Institute, Stanford University, Stanford University, Calif.

C. A. Elvehjem, Professor of Agricultural Chemistry, University of Wisconsin, Madison, Wis.

Icie Macy Hoobler, Director of Research Laboratory, Children's Fund of Michigan, Detroit, Mich.

Phillip C. Jeans, Professor of Pediatrics, State University of Iowa, Iowa City, Iowa.

Norman Jolleffe, Associate Professor of Medicine, School of Medicine, New York University, New York, N. Y.

Charles Glen King, Professor of Chemistry, University of Pittsburgh, Pittsburgh, Pa.

L. A. Maynard, Professor of Animal Nutrition and Director, United States Plant, Soil and Nutrition Laboratory, Cornell University, Ithaca, N. Y.

E. V. McCollum, Professor of Biochemistry and Head of the Department, School of Public Health and Hygiene, Johns Hopkins University, Baltimore, Md.

James S. McLester, Professor of Medicine, University of Alabama, Birmingham, Ala.

Helen S. Mitchell, Research Professor of Nutrition, Massachusetts State College, Amherst, Mass.

John R. Murlin, Professor of Physiology and Director, Department of Vital Economics, University of Rochester, Rochester, N. Y.

S. C. Prescott, Dean of Science, Massachusetts Institute of Technology, Cambridge, Mass.

Lydia J. Roberts, Professor of Home Economics and Chairman of the Department of Home Economics, University of Chicago, Chicago, Ill.

W. C. Rose, Professor of Biochemistry, University of Illinois, Urbana, Ill.

H. C. Sherman, Professor of Chemistry and Executive Officer, Department of Chemistry, Columbia University, New York, N. Y.

G. Cullen Thomas, Executive, Food Industry.

R. R. Williams, Chemical Director, Bell Telephone Laboratories, Incorporated, 463 West Street, New York, N. Y.

John B. Youmans, Associate Professor of Medicine and Director of Postgraduate Instruction, Vanderbilt University, Nashville, Tenn.

Robert F. Griggs, Chairman, Division of Biology and Agriculture, National Research Council, member of the Committee, ex officio; Executive Officer, Department of Botany, George Washington University, Washington, D. C.

Lewis H. Weed, Chairman, Division of Medical Sciences, National Research Council, member of the Committee, ex officio; Professor of Anatomy and Director of the School of Medicine, Johns Hopkins University, Baltimore, Md.

Carl E. Guthe, Chairman, Division of Anthropology and Psychology, National Research Council, member of the Committee ex officio; Director of University Museums and Director of the Museum of Anthropology, University of Michigan, Ann Arbor, Mich.

M. L. Wilson, member of the Committee, ex officio; Director of Extension Service, United States Department of Agriculture, and Chairman of the Advisory Committee on Nutrition to the Coordinator of Health, Welfare, and Related Defense Activities, Federal Security Agency, Washington, D. C.

Liaison Representatives From Government Bureaus

Grace Bulman, Superintendent of Dietitians, Veterans' Administration.
William DeKleine, Medical Director, American Red Cross.
Martha M. Eliot, Assistant Chief, Children's Bureau, Department of Labor.
J. K. Fuller, Bureau of Prisons, Department of Justice.
Paul E. Howe, Subdivision of Food and Nutrition, Professional Service Division, Office of the Surgeon General, United States Army.
E. M. Nelson, Chief of Vitamin Division, Food and Drug Administration, Federal Security Agency.
W. H. Sebrell, Office of the Surgeon General, United States Public Health Service.
Louise Stanley, Chief, Bureau of Home Economics, Department of Agriculture.
Charles S. Stephenson, Office of the Surgeon General, United States Navy.

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APPENDIX D

National Research Council, Division of Anthropology and Psychology, Committee on Food Habits

Guthe, Carl E., Chairman, University of Michigan Museums, Ann Arbor, Mich.
Cooper, John M., Department of Anthropology, Catholic University of America, Washington, D. C.
Likert, Rensis, Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D. C.
Benedict, Ruth, Department of Anthropology, Columbia University, New York, N. Y.
Cornell, Paul, Washington, Conn.
Davis, Allison, Institute of Human Relations, Yale University, New Haven, Conn.
Mitchell, Helen S., Social Security Board, Washington, D. C.
Richter, Curt P., Associate Professor of Psychobiology, Johns Hopkins Medical School, Baltimore, Md.
Stoddard, George D., Professor of Psychology, University of Iowa, Iowa City, Iowa.
Sweeny, Mary E., Merrill-Palmer School, Detroit, Mich.
Warner, W. Lloyd, Department of Anthropology, University of Chicago, Chicago, Ill.

Liaison Members From the Federal Government

Eliot, Martha M., Children's Bureau, United States Department of Labor, Washington, D. C.
Howe, Colonel Paul E., Office of the Surgeon General, War Department, Washington, D. C.
Palmer, Carroll, United States Public Health Service, National Institute of Health, Bethesda, Md.
Provinse, John S., Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D. C.
Sebrell, W. H., United States Public Health Service, National Institute of Health, Bethesda, Md.
Stiebeling, Hazel K., Bureau of Home Economics, United States Department of Agriculture, Washington, D. C.

Appointed in the Division of Anthropology and Psychology as an interdivisional committee of this division and of the Divisions of Biology and Agriculture and of Medical Sciences.