# Public Health Reports

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## **THE NATIONAL NUTRITION CONFERENCE**<sup>1</sup>

The National Nutrition Conference for Defense, summoned by the President, convened in Washington, D. C., on May 26, 27, and 28, 1941. Nine hundred delegates from all parts of the country assembled to participate in this Conference. The fields of medicine and of nutrition were well represented by physicians, public health professionals, chemists, research workers in nutrition, and leaders in home economics and the work of home demonstration. Other delegates represented the social-service professions, agriculture, labor, industry, consumer groups, and governmental agencies.

It is altogether likely that a program of nutrition would in the natural course of events have been undertaken as essential to the national welfare. Scientists investigating the secrets of nutrition have been adding amazing facts in recent years to our knowledge of food. Data from a number of surveys have been steadily indicating that undernourishment is widespread among the people of this country and is serious enough to be an affliction among that one-third of the population living along or below the subsistence level. Many people with the means to eat well live on diets lacking in essential elements.

Events in 1940 served as a warning to those who are nutritionminded that eating to live and to be able to work and otherwise carry on life's activities is not enough, that America must eat to be adequate to hold her own in a warring world. As 1940 wore on, the idea gained ground that serious preparations for national defense must entail plans for a program of national nutrition. A planning and policy committee on nutrition, representing the different agencies of the United States Government, with M. L. Wilson, of the Extension Service, Department of Agriculture, as chairman, was organized. This was done at the request of the Division of Consumer Protection of the National Defense Advisory Commission. Late in November 1940 Mr. Paul V. McNutt was made Coordinator of Health, Welfare,

<sup>&</sup>lt;sup>1</sup> Complete proceedings of the National Nutrition Conference will be available later upon request through the Office of the Administrator, Federal Security Agency, Washington, D. C

and Related Defense Activities, and under his direction the program began to take shape.

The President set forth his expectations from the National Nutrition Conference to Mr. McNutt in the following letter:

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, showed 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,

### (Signed) FRANKLIN D. ROOSEVELT.

In this abstract of the proceedings it is possible to give only in a summary way the substance of these 3 days of discussion. Paul V. McNutt, Coordinator of Health, Welfare, and Related Defense Activities, opened the first general session with "The Challenge of Nutrition." "Nutrition in the First World War and Now" was the subject of John R. Murlin, professor of physiology, University of Rochester. Henry C. Sherman, professor of nutrition, Columbia University, discussed "Adequate Nutrition and Human Welfare." "Nutrition and National Defense" was presented by Henry A. Wallace, Vice President of the United States; "Agricultural Policies and National Nutrition," by Claude R. Wickard, Secretary of Agriculture; "Food and Foreign Policy," by Adolf A. Berle, Jr., Assistant Secretary of State; "Labor's Stake in a National Nutrition Program," by Frances Perkins, Secretary of Labor. Harriett Elliott, Consumer Advisor, Office for Emergency Management, discussed "Nutrition and Consumer Protection in Defense," while Lewis B. Hershey, Deputy Director, National Selective Service System, presented "National Nutrition in Relation to Selective Service." Mrs. Franklin

D. Roosevelt spoke to the closing session on "What This Conference Means to Every American."

The findings of the Committee on Foods and Nutrition of the National Research Council were discussed by Dr. Russell M. Wilder, of the Mayo Foundation, who is chairman of that committee. The following is the text of Dr. Wilder's remarks:

#### **Mobilizing for Better Nutrition**

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 one family in four secured food which would provide a diet rated as "good."

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 40 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, usually on a purely voluntary basis, to the campaigns which have been waged with such success against tuberculosis, syphilis, and maternal ill health. Also most of the legislation to which we owe that magnificent organization, long headed 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. 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 other than those which the average physician reads, and became embalmed, so far as he was concerned, in scientific literature.

As in the initial years of any new science, the early findings were 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 from mental or nervous Doctors long have recognized severe deficiency diseases. disorders. Pellagra. when it came full-blown with red, scaly skin on hands and neck, a red, sore tongue, and diarrhea, was diagnosed correctly. 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 and more recently the irradiation of evaporated and other milk have decreased immensely the incidence of rickets.

When it came to the recognition of the more subtle forms of malnutrition and their relationship with the vitamins, 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 later more convincing work 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 than the newer knowledge of vitamins applied to man. That evidence came in part from 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 crystallize 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 fifteen years ago. 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.

Scientific guidance is demanded from experts in nutrition. To provide this guidance, the Committee on Foods and Nutrition of the National Research Council has been organized. The broad policy of the Committee on Food and Nutrition of the National Research Council, as has been formalized by its resolutions, is to assist in securing adequate nutrition for the greatest number of people. In what it has done to date, consideration has been given and in the future such consideration will continue to be given both to the nutritional requirements and to the supply of essential nutrients in all foods. Every effort has been and will be made to supply this demand through natural foods, and the Committee is emphasizing educational and research projects and other forms of assistance designed to develop methods for the fuller and better utilization of natural foods. However, partly because of emergency conditions which now exist, specific enrichment procedures may need to be recommended. One has already been recommended, namely, enrichment of flour and bread. Others will be considered individually, each on its own merits.

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, 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 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 Experience has shown that money payments, as a rule, are ineffective. food. 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. Happily and to the eternal credit of the milling and bread industries they now have improved their products in accordance with the recommendations of the National Research Council's Committee on Foods and Nutrition. What has been done may 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 nutrients which the National Research Council's Committee on Foods and Nutrition has prescribed for flour and breads labeled "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, misleading, and grossly unfair. Modern methods of processing were developed before there was knowledge of vitamins and the methods contributed importantly to improving the sanitary quality of foods. The methods 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, demanded 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 instead 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 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, as I have said, 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 trainings that now are gathering for action.

We must come to recognize as a Nation that every one of us individually carries a responsibility for the welfare of our fellow citizens. May we always hold as an ideal that this Nation will some day be a Nation of buoyantly healthy people.

The nine sections of the Conference, made up of specialists in the various fields involved in this national planning, met in special sessions and on the last day of the Conference reported the results of their deliberations.

## **REPORTS OF SECTIONS**

Section I—Research and National Nutrition Problems

Chairman: E. V. McCollum

Secretary: J. Ernestine Becker

The discussion in meetings of this section turned upon all the principal lines of inquiry in the field of nutrition. It was agreed by the members that our knowledge, though still incomplete in all these lines, is sufficiently extensive to make possible several steps: The formulation of adequate dietaries at different cost levels; the recognition of a number of specific types of malnutrition; the conservation of nutrients in foods; and, in the case of several of the vitamins, the utilization of synthetic products to supplement deficient dietaries.

The specialists participating in this section agreed that further research is urgently needed and presented to the Conference the following outline of what should be sought:

(a) Improvement of presently known chemical and biological procedures for estimating the amounts of the essential nutrients in foods and their physiological availability.

(b) More refined techniques for the detection of nutritional deficiency states, especially in the subclinical degrees of intensity.

(c) 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.

(d) Study of problems relating to the nutritional needs of the individual as influenced by constitutional inefficiencies, by suboptimal nutrition, by disease and convalescence.

(e) Studies directed toward clear definition of the physical status of the individual.

(f) Study of all factors affecting the nutritive value of foods and their preservation during the interval between production and consumption.

(g) Study of methods of preparation of foods for consumption so as to avoid losses of nutrients.

(h) Food habits and methods and effects of changing them.

The section moved to 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 program of research outlined in the report.

Section II—Economic Policy and Social Responsibility as Related to Nutrition

Chairman: Lucy Gillett Co-chairman: Hazel Kyrk Secretary: Hazel K. Stiebeling

The discussion in the meetings of this section stemmed from the recognition that among millions of Americans insufficient income is the root of their inadequate scheme of eating. The committee members opposed reduction in Federal nondefense expenditures for employment and relief in the coming fiscal year. They stressed the necessity for long-range planning to offset fluctuations in economic and defense activity and to anticipate the readjustments which must be made when the emergency is over.

The section recommended that the Federal Fair Labor Standards Act be extended to include those now excluded, and that the Social Security Act be extended to include domestic and agricultural workers, especially those employed on commercialized and factory-type farms.

This section expressed itself as favoring among other things the maintenance of free collective bargaining among all workers, the elimination of barriers against the employment of Negroes and other minority groups whose nutritional problems are acute by reason of very low incomes, the elimination of taxes on very low incomes, and provision for benefits to workers temporarily or permanently disabled on account of sickness or accident.

It was the consensus of this section that the Government should take the initiative in increasing the supply of protective foods and should encourage industry to bring on the market such low-cost, highly nutritious foods as soybeans, peanuts, and milk products, in forms acceptable to consumers. Surpluses on hand should be saved by suitable processing, if necessary by means of Government subsidies.

As the step beyond increasing the supply of protective foods, Section II recommended that essential foods be provided wholly or in part at public expense. This measure should include free school lunches, extension of the Food Stamp Plan to relief families and to other families whose incomes are inadequate for nutritious diets, and the extension also of Federal-local programs providing milk at low cost.

This section recommended in all a five-point program. The program included the services which education can perform, the need for reducing the costs of processing and distribution, and the necessity for further research, and this inclusion confirmed the recommendations of those sections which dealt particularly with these subjects.

Section III-Public Health and Medical Aspects of Nutrition

Chairman: James S. McLester Co-chairman: Richard Smith Secretaries: W. H. Sebrell and Katherine Bain

This section met in two groups. Members of the section recommended to the Conference that State and local public health authorities should be led to recognize that they have a large responsibility in the efforts of their communities toward better nutrition. They urged that the subject of nutrition be called to the attention of medical and public health groups everywhere and that a closer cooperation between these groups be sought. They recommended that as acceptable diagnostic methods are developed in the field of nutrition the service be made available by departments of health to the practicing physician. This section further recommended the wider distribution and utilization of inexpensive foods of high nutritive value, and endorsed the action of the Committee on Foods and Nutrition of the National Research Council in sponsoring the enrichment of flour and bread.

Section IIIb considered particularly the nutritive requirements of pregnant and lactating women. This section took as a basis for

its discussion the table (which is here included) of daily allowances of nutrients released by the Committee on Foods and Nutrition. It recommended that this committee consider the desirability of adding vitamin K as an essential nutrient for women during the late period of pregnancy or for newborn infants within the first 24 hours of life. The section further recommended that lists be prepared and distributed widely of the kinds and quantities of food needed for the adequate nourishment of pregnant and lactating women and of children in the different age groups.

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Chart of recommended daily allowances for specific nutrients 1 Committee on Foods and Mutuitian Matin . . . .

<sup>1</sup> These are tentative allowances toward which to aim in planning practical dietaries. These allowances can be met by a good diet of natural foods; this will also provide other minerals and vitamins, the requirements for which are less well known.

<sup>3</sup> One mg. thiamin equals 33 International Units; 1 mg. ascorbic acid equals 20 International Units (1 International Unit equals 1 U. S. P. unit). <sup>3</sup> Requirements may be less than these amounts if provided as vitamin A, greater if chiefly as the pro-

vitamin carotene.

vitamin carotene.
Needs of infants increase from month to month. The amounts given are for approximately 6-18 months. The amounts of protein and calcium needed are less if from breast milk.
Vitamin D is undoubtedly necessary for older children and adults. When not available from sunshine, it should be provided probably up to the minimal amounts recommended for infants.
Allowances are based on the middle age for each group (as 2, 5, 8, etc.), and for moderate activity.

Dietary "Pattern"

Diets meeting the following dietary pattern were calculated for each of the categories in the allowances.

Milk, adults 1 pint, children 1½ pints to 1 quart.

Egg, 1 daily.

Meat, 1 serving (20 gm. at 1 year to 100 gm. for adult). (Calculated as beef.) Vegetables, 2 servings. One green or yellow.

Fruit, 2 servings. One citrus or tomato and one other, as apple, prunes. Potato, one or more servings.

Butter or fortified oleo (100-500 calories). (1 to 5 large pats.)

Cereals and bread, 2 oz., infants to 10 oz., adults, half of these quantities to be in whole or enriched cereal and bread. Calculated as minimum enriched. Sugar, fat, etc., to complete calories.

Section IV—Nutrition for Workers in Defense Industries Chairman: Frank Boudreau Secretary: Carroll Palmer

The recommendations of this section were directed toward building up the nutrition of defense workers and those likely to become defense workers. It was recommended that supplemental feeding in factories be instituted wherever, in the light of our modern knowledge in nutrition, it was apparent that the diets of defense workers were not fully adequate. Where defense plants are constructed in areas lacking normal facilities, community feeding, with its advantages of economy and expert supervision, might be necessary. Approval of contracts for construction or expansion of defense plants should include consideration of the facilities for feeding the workers. Plans for distribution of protective surplus foods should take into account particularly families of low-income workers in defense industries.

This section was of the opinion that a proper definition of the problem necessitates studies in selected defense plants to determine the influence of diet on health, working capacity, incidence of accidents, absenteeism, and the psychological bases of industrial unrest.

The section recommended finally that the Governor of each State be asked to call a State conference on nutrition in defense. Such conferences were considered the necessary means of carrying on the work started in the National Nutrition Conference.

Section V-Methods of Education in Nutrition

Chairman: G. Dorothy Williams Co-chairman: Mildred W. Wood Secretaries: Miriam Birdseye and Edna P. Amidon

This section recommended that professional and lay readers be given pre-service and in-service education in nutrition.

It recommended further that all State, local, and national groups provide educational material and otherwise help to make the most effective use of every medium of presenting information. These include news reels, documentary films, the radio, the press, town meetings, posters, exhibits, food demonstrations, and every activity or presentation by which knowledge of nutrition may be carried from mind to mind.

Section VI-Professional Education in Nutrition

Chairman: Lydia J. Roberts Secretaries: Thelma Porter and Marjorie Heseltine

This section met in two groups, the first of which discussed generally professional education in nutrition. This group recommended that plans be made with the heads of various professional schools for (1) short refresher courses for workers now in the field, (2) special training courses for persons selected to act under supervision in emergencies as lay leaders, and (3) a stronger basic training to stimulate present and future students to specialize. More nutritionists thoroughly trained in the scientific background of nutrition and in its practical application are needed.

It was further recommended that in-service education and consultation with specialists in nutrition be made available to professional workers in that field and allied fields.

Section VIb considered particularly the training of physicians, dentists, and public health officers. This section in reporting to the Conference stressed the dearth of such professionals qualified to take an authoritative position in the field of nutrition. It advocated better training in this field for students of medicine, dentistry, and public health and extensive postgraduate courses for physicians, dentists, and public health officers. It emphasized the need for physicians and dentists trained in nutrition and experienced in recognizing the nutritional diseases to serve as consultants to teachers, social workers, public health nurses, nutritionists, and any others concerned with solving the problem. This section favored the establishment of nutrition clinics in association with professional schools where facilities for research and advanced training might be available.

The section urged that the problem be called to the attention of the Association of the American Medical Colleges, the American Medical Association, the American Dental Association, and the American Public Health Association. Pending action by these groups at their regular meetings, it was suggested that the deans of medical and dental schools and of schools of public health be called into conference. Section VII—Nutrition Problems in Distribution and Processing of Foods

Chairman: Hector Lazo Co-chairman: L. V. Burton Secretaries: Frederick V. Waugh and R. S. Hollingshead

This section advocated that agricultural production 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 fallen off. It was specified that farmers must receive fair prices and fair incomes while these adjustments are being made.

Important to the budget of the low-income family is efficiency in the transportation, processing, and distribution of food products, and greater efforts along these lines were urged upon the food industry.

The section recommended that the Government continue its policy of vigorous enforcement of antitrust laws against those illegal practices which tend to raise food prices, whether they be in agriculture, industry, or labor.

In some instances, municipal, State, or Federal legislation include restrictions, not designed solely for the protection of the public welfare, which interfere with the ability to produce, process, and distribute foods. The section urged a judicious examination of all such laws.

The need for rapid methods for vitamin assay was stressed, and the recommendation made that the Federal Government designate tests now acceptable and develop further tests and methods from the viewpoint of the Association of Official Agricultural Chemists.

The section favored the addition of vitamins or minerals or both to those processed foods which, in the opinion of recognized nutritional authorities, are in need of enrichment.

The Processing Section recommended: (1) That the National Selective Service System be requested to recommend for deferment 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.

It was further recommended that agricultural and trade groups be asked to set up a body to work with the government and with appropriate local organizations in attaining a successful program of nutrition.

Section VIII—Community Planning for Nutrition

Chairman: Howard McClusky Co-chairman: H. C. Ramsower

Secretaries: Margery Vaughn and B. W. Allin

This subject was considered in its rural and urban aspects by the two groups of Section VIII. The members, in reporting to the Conference, defined the nutrition program as a long-range program and urged that the work of arousing public interest and enlisting the aid of organizations should be directed to giving it this long-range character.

The members agreed that the unit of organization should be the neighborhood or some other natural community subdivision and that the State nutrition committee should be responsible for assisting in the development of local programs. The Federal agency responsible for the national nutrition program should make available to State nutrition committees one or more consultants for assistance as desired. The same agency would serve as a clearing house for the preparation and distribution of educational materials.

Section VIIIb recommended that the State nutrition committee designate the individuals, groups, or agencies that should assume responsibility for getting the community programs under way. The undertaking would call for the correlated action of existing agencies and would involve these steps:

(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.

Section IX-Nutrition Problems in Group Food Service

Chairman: Katherine Ansley Co-chairman: Alberta MacFarlane Secretary: Melva Bakkie

This section had in mind those who "eat out," students at boarding schools, travellers, and all others for whom group food service is run. Its recommendations were directed toward assisting food operators in institutions and public eating places to know how to judge the nutritional adequacy of dietaries and how to increase food values without increasing costs.

The section recommended that established food allowances be translated into quantitative practical terms for convenient use. Further recommendations included such measures as the use of surplus commodities, especially milk, in low-cost group feeding, and experimentation with 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.

It also recommended that Federal, State, and local programs include training of cooks and other members of food-production staffs as part of the contribution to the national defense.

RECOMMENDATIONS TO THE PRESIDENT OF THE UNITED STATES

The National Nutrition Conference, pledging full support to the President in mobilizing national resources to meet the emergency, made the following recommendations, based upon the reports of its sections:

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. 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 neglect 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 calmness of whole populations and their ability to exert themselves to the utmost, and this is particularly true in modern total warfare. III. Recent dietary studies among large representative samples 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 undernourishment are widespread in this country. The conditions revealed corroborate the scientific findings of the newer knowledge of nutrition. While these conditions 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. Undernourishment is more insidious and less 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 undernourishment is particularly complex. It has not only medical but social, economic, and psychological aspects, and to attack it on a national scale will require peculiarly widespread and whole-hearted cooperation on the part of all elements in our population. This Conference urges the following lines of attack as particularly important:

(1) The use of the recommended allowances of calories, protein, and certain important minerals and vitamins, prepared by the Committee on Foods and Nutrition of the National Research Council, both as the general goal for good nutrition in the United States and as the 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.

(2) 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.

(3) 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 processing, storing, and cooking in their nutritive value.

(4) More widespread education of doctors, dentists, social-service workers, teachers, 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 field.

(5) The 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.

(6) 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. The State nutrition committees can perform an especially useful function in organizing this effort.

(7) Vigorous and continued attack on the fundamental problems of unemployment, insecure employment, and rates of pay inadequate to maintain an American standard of living. It has been abundantly proved in many cases that undernourishment and ignorance are 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.

(8) Full use of any practical devices, such as the so-called Stamp Plan, free school lunches, and low-cost milk distribution which will bring nourishing, ade-

quate 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.

(9) 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.

(10) Encouragement in all practical ways of greater production by agriculture of the foods needed in more abundance, according to the newer knowledge of nutrition, in the average American diet. These foods include milk and milk products, eggs, vegetables, fruits, and, in the case of many families, lean meats.

(11) Equally, encouragement in every practical way 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 on their own farms.

(12) The "enrichment" of certain staple food products, such as flour and bread, with nutritive elements that have been removed from them by 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 by 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 down to every community, and if possible every individual, in the land in the present emergency. But the Conference also wishes to put on record its belief that such a policy and program have implications that go beyond the present emergency.

At the closing session of the Conference, Surgeon General Thomas Parran addressed the members. The text of the Surgeon General's remarks follows:

### The Job Ahead

This is a grave hour in our Nation's history. 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 ten 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 co-workers 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 20 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 diseases 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 40 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 nourisbes a human body as is known about what gets a heavy machine up in the air and to its destination safely. 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 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, morals, are swiftly promoted.

Doctor Sherman has told us that if we replace an average diet with an adequate diet, we get a 10-year 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 "halfhealth, 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 Doctor Wilder's committee. Some people can't 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 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 hookworm disease. 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 "evernormal granary" of corn and wheat to fend against droughts 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 5 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, cotton, and tobacco. If we add the crying needs of Great Britain to our own requirements, if all of our 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 We can take care of all of our own needs and the urgent these acres can produce. 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 evernormal 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 the Government, by the universities and foundations, and by the industries concerned.

Through soil conservation we can grow better food, more of it, and richer 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 that 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 foodstuffs 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 Nutrition as an operating agency to apply 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 can be done, and it will be done. 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 in which 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.

## CIRRHOSIS OF THE LIVER IN RATS ON A DEFICIENT DIET AND THE EFFECT OF ALCOHOL<sup>1</sup>

By R. D. LILLIE, Senior Surgeon, F. S. DAFT, Senior Biochemist, and W. H. SEBRELL, Jr., Surgeon, United States Public Health Service

Cirrhosis of the liver in rats on a diet containing selenium has been reported from several laboratories (1). Connor and Chaikoff (2) described portal cirrhosis in the livers of 4 of 16 dogs that received a high fat diet and large doses of alcohol. György and Goldblatt (3) mentioned localized cirrhosis in 2 rats of a large number kept on a deficient diet. Since the present experiments were begun, several more reports of hepatic cirrhosis have appeared in the literature. Rich and Hamilton (4) have described liver cirrhosis in rabbits produced by a dietary deficiency and prevented by yeast; Chaikoff and Connor (5) have described the production of liver cirrhosis in dogs on a high fat diet without alcohol; and Webster (6) has mentioned hepatic cirrhosis in rats which could be prevented by the administration of large amounts of yeast or molasses. Recently, Earle and Victor (7) have described cirrhosis of the liver of rats caused by excess dietary cystine.

The present investigation was undertaken to test the effect of the ingestion of alcohol on rats receiving a diet known to have certain deficiencies.

## EXPERIMENTAL

Sixteen young albino rats (22 days old) and 16 old albino rats (17 to 18 months old) were divided into four groups of 8 rats each. The rats of one group were given water ad lib. and stock diet No. 516, the composition of which is given in table 1. The rats of the second group were given diet No. 516 and alcohol, approximately 20 percent by volume, ad lib. in place of drinking water. Those of the third group were given water ad lib. and diet No. 349, the composition of which is given in table 2. The rats of the fourth group were given diet No. 349 and approximately 20 percent alcohol ad lib. in place of drinking water.

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<sup>&</sup>lt;sup>1</sup> From the Divisions of Pathology and Chemotherapy, National Institute of Health. Presented at the meeting of the Federation of American Societies for Experimental Biology, Chicago, Ill., April 19, 1941.

Whole ground soft wheat	28
Whole ground yellow coth	28
Ground green lead alial's	10 25
Dried pork liver	6
Cod liver oil	1
Bonemeal, ground	0.5
	100.0
	100.0

#### TABLE 1.—Composition of stock diet No. 516

## TABLE 2.—Composition of diet No. 349

Leached casein	4
Cod liver oil	2
Brewers' yeast	5
Starcn	82
	100.0

Of the 16 young rats, 2 died during the experiment, 1 in group 2 after  $5\frac{1}{2}$  months and 1 in group 4 after 10 months on experiment. The remaining 14 were sacrificed after 1 year. Only 7 of the 16 old rats survived the 1-year experimental period and, of these, 5 received the stock diet (2 in group 1 and 3 in group 2). The other 3 old rats on diet No. 516 died within 2 months of the beginning of the experiment. Of the 4 old rats in group 3, 1 died after 10 months and 1 after 11 months, the remaining 2 being sacrificed at the end of 1 year. Three old rats in group 4 died within 4 months and 1 after 11 months on experiment. No liver pathology was found in the rats which died early and only those surviving 10 months or longer will be considered. They are distributed as follows:

	Group 1—	Group 2—	Group 3—	Group 4—
	diet 516	diet 516 and	diet 349	diet 349 and
	and water	alcohol	and water	alcohol
Young rats Old rats	4 2	<b>3</b> 3	4	4

#### RESULTS

None of the rats on stock diet No. 516 showed pathologic change of the liver.

Three of the 5 older rats on diet No. 349 showed precirrhotic liver changes. One of these 3 was the rat receiving alcohol (group 4).

Of the 4 younger rats on diet No. 349 receiving water, 2 showed moderate hepatic cirrhosis, 1 showed precirrhotic hepatic pigmentation, and 1 showed no significant lesions. One of the 4 receiving alcohol showed rather marked hepatic cirrhosis, 1 moderate, and 1 moderate to slight cirrhosis, and 1 a precirrhotic state. Three selected individual protocols, showing rather marked cirrhosis, moderate cirrhosis, and precirrhotic pigmentation, follow.

Liver shows quite marked coarse trabeculation by broad bands with delicate blue fibrils staining with picro aniline blue, little material staining red with Van



FIGURE 1 (above) and FIGURE 2 (below).—Gross and microscopic appearance of liver from rat on diet No. 349 and alcohol.

Gieson. Numerous pigment phagocytes which contain coarsely granular pigment which stains blue-green to green with Giemsa, orange with Sudan IV, is largely iron free, does not stain with picro aniline blue. There is moderate capsular retraction at the attachment of the trabeculae, and the trabeculae segregate small and large nodules of liver cells which are laden with coarse fat droplets.

Liver shows large, clear, granular liver cells with quite marked irregular deposition of coarse fat droplets in liver cells and midzones of periportal areas. There is moderate periportal and focal interstitial infiltration with macrophages laden with coarsely granular pigment staining green to yellowish green with Giemsa, pale yellowish orange with Sudan IV, and containing but little iron. One lobe shows irregular trabeculation by delicately fibrous connective tissue containing pigment phagocytes and presenting slight capsular retraction.

Liver shows much irregular coarse and medium fat droplet accumulation in liver cells, moderate periportal and focal interstitial accumulation of pigment phagocytes laden with coarsely granular pigment staining blue-green to yellowish green with Giemsa, pale orange with Sudan IV, unstained with Van Gieson, and the cells containing only traces of hemosiderin.

#### DISCUSSION

Diet No. 349 is low in protein and very low in the sulfur-containing It has previously been demonstrated (8) that the addiamino-acids. tion of 0.5 percent cystine to this diet causes an increase in the rate of growth of albino rats and that increasing the casein to 9 percent permits an increased rate of growth. Whether or not there are other deficiencies is still an open question.

Further experimentation is needed to determine the role of alcohol in the production of hepatic cirrhosis. In these particular experiments, it would appear that alcohol gives an additional insult to liver tissue injured by a dietary deficiency.

#### CONCLUSIONS

1. Some of the rats on diet No. 349 developed cirrhosis of the liver in the course of a year.

2. The pathologic changes, on the average, seem more severe when approximately 20 percent alcohol is substituted for the drinking water.

3. No statement can be made at the present time as to the nature of the deficiency or deficiencies in this diet which permit or cause the development of hepatic cirrhosis.

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## **COURT DECISION ON PUBLIC HEALTH**

City ordinance prohibiting keeping of animals within restricted area upheld.-(New Mexico Supreme Court; Mitchell et al. v. City of Roswell. 111 P.2d 41; decided February 18, 1941.) The city of Roswell passed an ordinance which made it unlawful "to keep, cause, or permit to be kept, or to confine one or more horses, mules, burros, cows. goats, sheep, swine or other livestock at any place within the boundaries" of a specified restricted area of the city. This area comprised practically all of the business section and most of the residential section of the city. For 3 years before the passage of the ordinance the plaintiffs had been engaged in the business of importing highgrade bulls and livestock for sale in the city. In the regular course of business and pending their sale the animals were kept, for the purpose of sale only, on premises located within the restricted area. Upon order from the city and under protest the plaintiffs removed their livestock from the said premises when the ordinance went into effect but later brought action under the declaratory judgment act, contending that the ordinance was unreasonable, contrary to the general public policy of the State, and discriminatory. The trial court sustained a demurrer to the complaint and, from a judgment dismissing the case, the plaintiffs appealed. The supreme court said that the question was whether the complaint stated a cause of action.

The appellate court stated that the plaintiffs had to overcome the findings of the city governing board, set forth in the preamble to the ordinance, that the keeping of the animals mentioned within the restricted district was a nuisance and endangered the public health. These findings and the enactment of the ordinance, said the court. established prima facie that the ordinance was reasonable and burdened the plaintiffs with the necessity of disproving it. "We would be reluctant to disagree with Roswell's local authority (primarily the judge of the matter) regarding the reasonableness of its public health regulations, and will not do so unless it is plain and palpable that there is no real or substantial relation between the ordinance and its object." The court said that, in the absence of facts showing otherwise, it would assume that conditions in Roswell were such that the ordinance was not an unreasonable exercise of the police power and said further that there was no discrimination against the plaintiffs and that it was advised of no public policy of the State that would justify its interference.

Another claim by the plaintiffs was that the general welfare statutes, under which the city had necessarily acted in passing the ordinance, had been impliedly repealed, insofar as they had application to the public health, by a comprehensive 1937 law granting certain powers to the State board of public health. But the supreme court said that it did not find any such repeal by implication or any reason for holding that the police powers under consideration could not exist concurrently with the powers granted to the State board of public health.

The judgment of the lower court was affirmed.

## DEATHS DURING WEEK ENDED MAY 31, 1941

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended May 31, 1941	Correspond- ing week, 1940
Data from 87 large cities of the United States: Total deaths. A verage for 3 prior years. Total deaths, first 22 weeks of year Deaths per 1,000 population, first 22 weeks of year, annual rate. Deaths under 1 year of age. A verage for 3 prior years. Deaths under 1 year of age, first 22 weeks of year. Data from industrial insurance companies: Policies in force. Number of death claims. Death claims per 1,000 policies in force, annual rate. Death claims per 1,000 policies, first 22 weeks of year, annual rate.	7, 732 7, 752 197, 043 12. 6 463 474 11, 515 64, 478, 825 9, 717 7. 9 10. 3	7, 625 198, 007 12, 7 457 11, 095 65, 415, 160 9, 899 7, 9 10, 4

## **PREVALENCE OF DISEASE**

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

## UNITED STATES

## **REPORTS FROM STATES FOR WEEK ENDED JUNE 7, 1941**

## Summary

The incidence of measles, which has declined each week since April 19, increased during the current week, with a total of 28,588 reported cases as compared with 26,221 for the preceding week. Some of these cases may be delayed reports, but increased incidence was reported currently in all geographic divisions except the South Atlantic and the two South Central areas. The largest increase and the highest case rate were reported in the Middle Atlantic area, where all three States comprising that geographical division reported increases.

Of the 9 communicable diseases included in the following weekly table, only influenza, measles, and whooping cough were above the 5-year (1936-40) median expectancy, while the cumulative totals of these three diseases and of poliomyelitis were above the 5-year cumulative median.

A total of 32 cases of poliomyelitis was reported for the current week as compared with 20 for the preceding week. California reported 5 cases, and New York, Illinois, Florida, and Texas reported 3 cases each, Wisconsin and Oklahoma, 2 cases. No other State reported more than 1 case.

Of a total of 21 cases of Rocky Mountain spotted fever, 8 cases occurred in Wyoming and 6 in Montana. In the South Atlantic area, Delaware and North Carolina reported 1 case each. Of 35 cases of endemic typhus fever, Georgia reported 17 and Florida and Texas 5 each. One case of undulant fever was reported in Connecticut, 1 case of anthrax in Delaware, 1 case of encephalitis in North Dakota, 4 cases of tularemia in Utah, and 3 cases in Mississippi.

The death rate for the current week for 88 major cities in the United States was 11.2 per 1,000 population, as compared with 10.9 for the preceding week. The 3-year (1938-40) average for the corresponding week is also 11.2. The cumulative rate to date is 12.6, the same as for the corresponding period in 1940.

## 1261

## Telegraphic morbidity reports from State health officers for the week ended June 7, 1941, and comparison with corresponding week of 1940 and 5-year median

In these tables a zero indicates a definite report, while leaders imply that, although none were reported, cases may have occurred.

	D	iphthe	ria		Influen	28		Measle	s	Meningitis, meningococcus			
Division and State	w end	eek ed—	Me	W end	eek led—	Me-	Wen	eek ded—	Me-	Wend	Week ended		
	June 7, 1941	June 8, 1940	1936- 40	June 7, 1941	June 8, 1940	1936- 40	June 7, 1941	June 8, 1940	- dian 1936- 40	June 7, 1941	June 8, 1940	1936- 40	
NEW ENG.													
Maine. New Hampshire Vermont. Massachusetts. Rhode Island. Connecticut.	0 0 1 0 1 0	0 0 5 1 0	0 0 3 1 2			2	34 10 85 1,078 460	5 307 5 19 5 1, 341 8 255 9 35	7 147 3 30 9 96 1 1, 120 5 69 5 130	0 0 3 0	1 0 1 0 0	0 0 2 0 0	
MID. ATL. New York New Jersey Pennsylvania E. NO. CEN.	24 6 14	17 10 8	27 13 25	17 3	1 g 4	18	3, 185 2, 295 4, 983	953 1, 256 455	1, 856 605 919	3 1 3	5 0 6	5 1 7	
Ohio Indiana Illinois Michigan <sup>1</sup> Wisconsin	14 4 20 1 4	13 4 28 4 3	13 6 28 10 3	- 7 5 20	24 11 11 2 16	7 11 18 18 1	2, 414 537 1, 260 1, 434 1, 865	29 13 188 832 5 1, 219	610 13 188 283 686	1 1 1 1 0	2 2 0 2 0	3 2 4 2 0	
w. NO. CEN. Minnesota Iowa <sup>3</sup> Missouri North Dakota South Dakota Nebraska Kansas	2 1 1 1 1 4	1 3 3 0 3 1 2	2 2 9 0 1 2 2	2 1 1	2  14 1 2	2 3 11 2	17 24 587 97 14 9 372	88 177 6 22 3 16 357	166 167 21 7 3 19 57	0 0 0 0 0 0	0 1 0 0 0 0 0	0 1 0 0 0 1	
SO. ATL. Delaware <sup>3</sup> Maryland <sup>2</sup> Dist. of Col Virginia. West Virginia <sup>3</sup> North Carolina <sup>3</sup> South Carolina <sup>4</sup> Georgia <sup>4</sup> Florida <sup>4</sup>	0 1 0 6 3 5 3 4 6	0 1 3 6 9 2 3 0	04568241	5 91 80 20 14	2 1 47 6 1 166 8	2 38 7 1 85 2	69 462 199 973 526 1, 182 332 440 198	2 18 26 336 26 111 8 187 62	20 195 93 336 39 196 30 21 62	0 4 0 1 0 0 0 0 0 0	0 1 0 1 2 0 1 0 0	0 1 0 1 3 1 1 0 2	
E. SO.CEN. Kentucky Tennessee Alabama <sup>4</sup> Mississippi <sup>2</sup> <sup>4</sup>	6 1 3 3	2 2 8 6	6 6 8 6	2 29 14	29 10 9	8 16 15	593 365 179	154 116 52	144 94 52	0 0 2 0	0 1 0 0	4 1 3 0	
W. SO. CEN. Arkansas. Louisiana 4 Oklahoma. Texas 4	4 1 1 16	5 3 4 20	3 11 4 25	5 1 3 419	15 14 10 153	9 12 18 1 <del>4</del> 3	181 18 117 562	45 5 8 946	· 11 7 33 366	0 3 0 3	0 1 1 3	0 1 1 3	
MOUNTAIN Montana <sup>3</sup> Idaho <sup>3</sup> Wyoming <sup>3</sup> New Mexico Arizona Utah <sup>3</sup> Nevada	1 0 8 0 10 0	0 2 5 1 3 0	1 1 5 1 2 0	1 18 1 60 5	1 2 45		40 31 14 282 212 104 30 13	86 16 8 37 38 39 363	86 16 19 37 47 39 105	000000000000000000000000000000000000000	000000000000000000000000000000000000000	0 0 0 0 0 0 0	
PACIFIC Washington Oregon <sup>3</sup> California <sup>4</sup>	1 1 16	1 10 12	2 1 31	15 7 3 495	3 110	10	30 72 600	263 236 491	263 69 871	1 3 2	0000	003	
23 weeks	199	7.254	327	1, 339	731	731	28, 588 750, 811	11, 209	229, 681	34 1.093		59 1, 749	

See footnotes at end of table.

## 1262

Telegraphic morbidity reports from State health officers for the week ended June 7, 1941, and comparison with corresponding week of 1940 and 5-year median—Con.

	Poliomyelitis			s	<b>carl</b> et fo	ver		Smallp	0X	Typhoid and paratyphoid fever		
Division and State	wend	eek ed—	Me-	W en	/eek ded—	Me-	Wend	'eek led—	Me-	Wend	Week ended—	
	June 7, 1941	June 8, 1940	1936- 40	June 7, 1941	June 8, 1940	1936- 40	June 7, 1941	June 8, 1940	1936- 40	June 7, 1941	June 8, 1940	1936- 40
NEW ENG. Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	0 1 0 1 0	0 0 1 0 0	0 0 1 0 0	3 0 5 166 9 35	2 1 3 130 6 39	13 1 3 164 8 42			0 0 0 0 0			
MID. ATL. New York New Jersey Pennsylvania	3 0 1	3 1 0	2 0 1	411 173 297	579 264 267	574 102 267	0	000000000000000000000000000000000000000	00000	7 2 6		7 1 7
E. NO. CEN. Ohio Indiana. Illinois Michigan <sup>4</sup> Wisconsin	0 0 3 0 2	0 0 2 0 0	0 0 2 0 0	229 42 180 125 79	235 30 590 255 91	186 62 392 276 99	1 1 12 5 1	0 2 4 2 11	1 7 15 2 2	6 0 5 1 1	5 9 3 3 0	7 6 5 3 0
W. NO. CEN. Minnesota Iowa 3 Missouri North Dakota South Dakota Nebraska Kansas.	0 0 0 1 0 0	0 1 0 0 0 2	0 0 0 0 0 1	40 7 55 0 1 6 27	49 37 18 4 16 13 29	49 56 67 13 15 19 54	0 0 0 2 1 0	8 0 6 0 5 1	8 15 8 6 8 1 15	3 0 2 1 0 0	0 0 2 1 0 1 3	0 0 2 1 0 1 1
SO. ATL. Delaware <sup>3</sup> Maryland <sup>2</sup> Dist. of Col Virginia West Virginia <sup>2</sup> North Carolina <sup>3</sup> 4 South Carolina Georgia <sup>4</sup> Florida <sup>4</sup>	0 1 0 0 0 1 1 3	0 0 0 1 1 0 0 1	0 0 0 0 1 0 0 1	17 36 8 19 20 24 3 9 1	3 30 21 39 21 14 4 5 3	3 30 6 16 24 16 3 5 3	0 0 0 0 1 0	0 0 0 0 0 0 1	00 00 00 00 00 00	1 0 7 6 3 4 9 12	0 1 5 3 0 2 6 1	0 2 0 6 3 5 6 11 4
E. SO. CEN. Kentucky Tennessee Alabama <sup>4</sup> Mississippi <sup>3</sup> <sup>4</sup>	1 0 1 0	0 3 0 0	0 0 0 2	41 40 12 3	37 32 8 2	20 17 6 2	3 2 1 2	0 2 3 0	1 0 1 0	4 4 2 2	9 0 3 3	9 6 4 5
W. SO. CEN. Arkansas. Louisiana <sup>4</sup> Oklahoma. Texas <sup>4</sup>	0 0 2 3	0 1 0 0	0 1 0 3	1 4 7 16	2 10 5 19	2 6 5 31	1 1 5 0	2 0 3 3	1 0 3 3	5 3 3 11	9 6 3 13	7 11 9 16
MOUNTAIN Montana 3 Idaho 4 Colorado 3 New Mexico. Arizona. Utah 3 Nevada	0 0 1 0 0 0 0	0 0 0 1 0 0	0 0 0 0 0 0	11 7 2 21 0 6 6 0	10 0 2 13 9 0 7	11 5 3 22 10 4 14	0 1 0 0 0 0 0 0	0 0 4 0 4 0 4	3 1 3 4 0 0 0	0 1 0 2 1 1 0	0 2 2 2 1 0	0 0 1 2 2 2 0
PACIFIC Washington Oregon <sup>3</sup> California <sup>4</sup>	005	25 0 15	0 0 4	19 9 103	23 11 111	25 19 145	200	0 0 1	1 4 8	0 2 3	2 2 10	2 1 10
23 weeks	32 543	604	38 506 8	2, 335 1, 561 1	3, 099 07, 264 1	3, 099 23, 877	42 1, 040	62 1, 607	171 6, 898	128 1, 940	130 2, 088	209 2, 815

See footnotes at end of table.

Telegraphic	morbidity	reports	from	State	health	officers	for the	week ended	June	7
194	1, and com	parison	with e	corresp	onding	week of	1940	-Continued	L	

	Whoop	ing cough		Whoopi	ng cough
Division and State	Week	ended	Division and State	Week e	ended-
	June 7, 1941	June 8, 1940		June 7, 1941	June 8, 1940
NEW ENG. Maine New Hampshire Vermont Massachusetts Rhode Island Connecticut	14 6 7 286 27 58	12 38 47 162 10 49	80. ATL.—continued Georgia 4 Florida 4 E. SO. CEN.	27 7	11 4
MID. ATL. New York	359 122 330	279 71 302	Kentucky Tennessee Alabama 4 Mississippi ? 4 W. SO. CEN.	52 51 55	87 50 14
E. NO. CEN. Ohio Indiana. Illinois. Michigan <sup>1</sup> . Wisconsin.	325 35 102 318 125	145 50 91 197 62	Arkansas. Louisiana <sup>4</sup> Oklahoma Texas <sup>4</sup> MOUNTAIN	60 4 24 294	20 5 12 407
W. NO. CEN. Minnesota Iowa <sup>3</sup> Missouri North Dakota South Dakota Nebraska Kansas	87 33 53 28 5 5 11 157	29 19 15 3 22 54	Montana 3 Idaho 4 Wyoming 4 Colorado 3 New Mexico Arizona Utah 4 Nevada PACIFIC	6 17 12 185 55 40 62 15	0 8 6 21 45 29 174
SO. ATL. Delaware <sup>3</sup>	0 108 11 65 91 347 92	4 122 5 59 73 86 10	Washington Oregon <sup>3</sup> California <sup>4</sup> Total 23 weeks	123 24 894 5, 209 106, 310	65 44 431 3, 464 73, 248

New York City only.
 Period ended earlier than Saturday.

- renou enneu carner inan Saturday. \* Rocky Mountain spotted fever, week ended June 7, 1941, 21 cases, as follows: Iowa, 1; Delaware, 1; North Carolina, 1; Montana, 6; Idaho, 2; Wyoming, 8; Colorado, 1; Oregon, 1. \* Typhus fever, week ended June 7, 1941, 35 cases, as follows: North Carolina, 1; Georgia, 17; Florida, 5; Alabama, 1; Missispipi, 2; Louisiana, 3; Texas, 5; California, 1. \* Mostly delayed reports.

## PLAGUE INFECTION IN FLEAS FROM GROUND SQUIRRELS IN KERN COUNTY, CALIF.

Under date of May 29, 1941, Dr. N. E. Wayson, Medical Officer in Charge, Plague Suppressive Measures, San Francisco, Calif., reported plague infection proved, by animal inoculation and cultures, in a pool of 356 fleas from 32 ground squirrels, C. beecheyi, submitted to the laboratory on May 16 from a ranch 12 miles west and 3 miles south of Wheeler Ridge, Kern County, Calif.

## .1264

## WEEKLY REPORTS FROM CITIES

City reports for week ended May 24, 1941

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and aity	Diph	Inf	luenza	Mea-	Pneu-	Scar- let	Small-	Tuber-	Ty- phoid	Whoop-	Deaths,
State and city	cases	Cases	Deaths	cases	deaths	fever cases	cases	deaths	fever cases	cough cases	causes
Data for 90 cities: 5-year average Current week <sup>1</sup> .	114 50	60 54	<b>28</b> 15	4, 569 8, 896	449 283	1, 664 1, 424	17 0	376 362	27 30	1, 201 1, 562	
Maine: Portland	0		0	1	4	3	0	0	0	4	25
Concord Manchester Nashua Vermont:	0 0 0		0 0 0	1 0 0	0 0 0	0 0 0	0 0 0	0 1 0	0 0 0	0 0 7	4 17 5
Barre Burlington Rutland Massachusetts:	0 0		0 0	3 0	0 0	0 0	0 0	0 0	0 0	0 0	11 6
Boston Fall River Springfield Worcester	1 1 0 0		1 0 0 0	247 2 71 22	5 0 0 3	76 9 13 19	0 0 0 0	8 0 2 0	0 0 0 0	58 4 22 12	211 31 32 49
Rhode Island: Pawtucket Providence Connecticut:	0 0		0 0	0 2	1 1	1 3	0 0	0 0	0 0	0 20	13 62
Bridgeport Hartford New Haven	0 0 0	 	0 0 0	18 5 3	3 6 1	1 1 19	0 0 0	0 0 0	0 0 0	1 3 0	27 27 35
New York: Buffalo New York Rochester Syracuse New Jersey:	0 15 0 0	<u>3</u> 	0 0 0 0	77 1, 508 285 1	6 46 4 1	48 297 4 3	0 0 0 0	3 72 3 2	0 7 4 0	8 90 21 16	109 1, 429 77 64
Camden Newark Trenton	2 0 0	i 	0 0 0	7 67 69	0 1 0	14 34 24	0 0 0	2 7 2	0 0 0	3 17 0	34 94 24
Philadelphia Pittsburgh Reading Scranton	3 2 1 0	4	3 0 0	441 1, 189 76 88	12 4 2	161 23 5 0	0 0 0	25 6 2	0 0 0 0	100 40 2 1	474 135 31
Ohio: Cincinnati Cleveland Columbus Toledo	0 1 0 0	5 1	0 1 1 0	54 54 153 422	1 5 3 1	13 68 19 2	0 0 0 0	7 12 2 7	1 0 0 1	4 59 21 31	137 189 82 65
Anderson Fort Wayne Indianapolis Muncie South Bend Terre Hauta	0 0 3 0 0		0 0 0 0	16 14 805 32 13 3	1 1 8 2 3	0 0 14 7 0	000000000000000000000000000000000000000	1 0 3 0 1	0 0 0 0 0	0 2 12 0 3	11 32 111 11 14 21
Illinois: Chicago Flgin Moline Springfield	5 0 0 0	1	0 0 0 1	235 4 6 37	25 0 0 1	129 0 1 5	0 0 0 0	46 0 0 0	2 0 0 0	48 1 0 0	683 12 8 15
Michigan: Detroit Flint Grand Rapids	2 0 0	4	0 0 0	549 50 186	10 5 0	148 3 8	0 0 0	13 0 0	0 0 0	118 18 9	262 25 40
Madison Madison Milwaukee Racine Superior	0 0 0 0		0 0 0 0 0	102 22 547 33 1	0 0 3 0 0	4 4 24 2 2	0 0 0 0	0 0 9 0 1	0 0 0 0 0	0 2 46 5 7	4 8 104 15 11
Minnesota: Duluth Minneapolis St. Paul	0 1 0	 1	0 0 1	0 8 1	1 3 4	0 15 8	0 0 0	0 2 4	0 1 0	23 18 33	21 97 <b>63</b>

<sup>1</sup> Figures for Barre estimated; report not received.

## City reports for week ended May 24, 1941-Continued

	Diph-	Inf	uenza	Mea-	Pneu-	Scar-	Small-	Tuber-	Ty-	Whoop-	Deaths,
State and city	cases	Cases	Deaths	sles cases	monia deaths	fever cases	pox cases	culosis deaths	fever cases	cough cases	all causes
Iowa:											
Cedar Rapids.	l 0			5		0	0		0	0	
Des Moines	ŏ			8		3	Ĭ		ŏ	2	
Siour City	Ŏ			ĩ		Ŏ	Ŏ		Ŏ	10	
Waterloo	0			32		0	0		0	0	
Missouri: Kansas City	0		0	119	4	4	0	8	1	19	99
St. Joseph	Ŏ		Ŏ	17	2	i	Ŏ	ŏ	ō	ĩ	21
St. Louis	1		0	267	8	68	0	3	0	47	209
North Dakota:	0		0	0	0	0	0	0	0	14	5
Grand Forks	Ó			Ö		Õ	Ŏ		Ŏ	0	
Minot	0			11		0	0		0	2	4
A herdeen	0			0		0	o		0	0	
Sioux Falls	Ó			Ő		4	Ó		Ó	Ő	10
Nebraska:	,					ĸ	<u>م</u>			1	
Omaha	Ô		0	16	4	3	ŏ	1	ŏ	i	53
Kansas:											
Lawrence	0		0	4	9	0			U N	23	23
Wichita	ŏ		ŏ	6	ō	ĭ	ŏ	ĭ	ŏ	17	23
- 1											
Delaware: Wilmington	0		0	10	1	9	0	0	0	0	27
Maryland:	•										
Baltimore	0	1	0	218	13	16		10		85	230
Frederick	ŏ		ŏ	1	i	ŏ	ŏ	ŏ	ŏ	Ĭ	4
Dist. of Col.:										l	
Washington	0	1	1	218	10	14	0	11	0	10	130
Virginia:	0		0	15	1	1	0	0	0	4	12
Norfolk	i	1	Ö	113	1	0	0	0	1		21
Richmond	0			57				ő	l ö	2	17
West Virginia:	v		Ŭ	••	Ĭ	Ŭ					
Charleston	0		0	3	1	0	0	1			18
Huntington	0		ō	49 57	ō	1	ŏ	1	ŏ	1	18
North Carolina:											1
Gastonia	0			18	;-	0	Ň		l ő	85	17
- Kaleign	ŏ		ŏ	15	ō i	ŏ	ŏ	ŏ	ŏ	18	9
Winston-Salem.	Ŏ		Ó	7	2	2	0	1	1	0	18
South Carolina:		Ι.			9	0	0	1	6	1	19
Florence	ŏ	· · ·	ŏ	ō	õ	ŏ	ŏ	ō	Ŏ	Ō	i ii
Greenville	1		0	8	2	0	0	1	0	4	10
Georgia:			0	81		0	0	7	lo	0	91
Brunswick	ŏ		ŏ	7	Ó	ŏ	Ŏ	Ó	ļŎ	2	
Savannah	Ō	3	0	6	0	11	0	3	0	0	29
Florida: Miami	0	1	0	2	1	0	0	1	0	9	84
St. Petersburg.	ŏ		Ŏ	81	1	0	0	1	0	9	20
Tampa	1		0	0		U	U		v	-	~
Kentucky:						_					
Ashland	1		0	4	0	2	0		0	0	15
Covington	0			2	6	ő	ŏ	2	ŏ	4	12
Louisville	ŏ		Ŏ	631	3	81	0	4	0	8	62
Tennessee:				19	,	5	0	2	0	1	27
Knoxville	1		ŏ	121	2	3	ŏ	10	2	28	89
Nashville	ō		Ŏ	40	5	0	0	5	1	8	42
Alabama:	•	'	1	28	6	7	0	2	0	1	74
Mobile	ŏ	2	ō	2	ĭ	Ò	Ō	0	0	0	25
Montgomery	Ó	1		19		0	0		U	*	
Arkanses											
Fort Smith	0			1		0	0		0	4	25
Little Rock	0,		0	7	. 9.			<b>•</b> •		•	
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	Diph-	Influenza		Mea	Pneu-	Scar- let	Small-	Tuber	Ty-	Whoop-	Deaths,
State and city	cases	Cases	Deaths	8165 C8.S65	deaths	fever cases	cases	deaths	fever cases	cough cases	all causes
Louisiana: Lake Charles New Orleans Shreveport	0 0 0	1	0 1 0	0 6 2	0 4 2	0 2 1	0 0 0	0 9 5	0 0 2	1 0 0	5 134 34
Oklahoma City. Tulsa	1 0	3	0	8 71	4 1	<b>2</b> 1	0 0	0	0	0 11	35 10
Dallas Fort Worth Galveston Houston San Antonio	2 0 2 0	1  3	1 0 0 0 0	43 9 0 1 3	0 1 1 2 6	2 0 3 4 0	0 0 0 0	3 2 1 3 3	1 1 0 2 1	4 3 0 2 3	65 35 17 64 53
Montana: Billings Great Falls Helena Missoula	0 0 0		0 0 0 0	0 3 3 0	1 1 0 0	0 0 0 0	0 0 0 0	0 1 0 0	0 0 0 0	0 1 0 1	6 15 2 6
Boise Colorado: Denver	0 3	4	0 1	0 412	0 1	0	0 0	0 2	0	1 125	9 84
Pueblo New Mexico: Albuquerque	0	· • • • • • • •	0	7 23	0 0	0 0	0 0	0	Ö O	26 0	9 10
Arizona: Phoenix Utah:	0	27		0		0	0		0	6	
Salt Lake City.	8		0	9	0	7	0	0	0	5	40
Seattle Spokane Tacoma	0 0 0		0 0 0	0 9 2	1 0 1	7 1 2	0 0 0	6 0 0	0 0 0	32 1 11	110 28 32
Portland Salem California:	2 0		1	2 0	2	1 1	0 0	3	0 0	8 0	82
Los Angeles Sacramento San Francisco	0 0 0	9 1 6	1 0 0	61 5 14	3 2 5	25 2 8	0 0 0	11 2 15	0 0 0	58 17 89	313 37 164
State and city		Menin ening	gitis, peoceus	Polio- mye- litis		State ar	nd city		Menin mening	ngitis, ococcus	Polio- mye- litie
		ases	Deaths	cases	-				Cases	Deaths	Cases
Massachusetts: Fall River Connecticut: New Haven		1	0	0	South Flori	h Caroli Charlest da: diami	ina: on		1	0	. 0
New York: Buffalo New York		25	12	0	Alaba N Louis	ama: Iobile. siana:			0	0	• 1
lllinois: Chicago Michigan:		8	0	0	Calif	lew Orl ornia: .os Ang	leans eles		2 1	1	0
Detroit Maryland: Baltimore		1 2	0 1	0 0						-	•
								<u></u>		<u> </u>	

## City reports for week ended May 24, 1941-Continued

Encephalitis, epidemic or lethargic.—Cases: New York, 3; Norfolk, 1. Pellagra.—Cases: Charleston, S. C., 2; Atlanta, 1; Savannah, 2; Birmingham, 1. Typhus fever.—Cases: New York, 1; Charleston, S. C., 2; Los Angeles, 1. Deaths: Houston, 1.

## **TERRITORIES AND POSSESSIONS**

## **HAWAII TERRITORY**

Plague (rodent).-Rats proved positive for plague infection have been reported from the vicinity of Kalopa Camp, Hamakua District, Island of Hawaii, T. H., as follows: 2 rats, May 2; 1 rat, May 5; 3 rats, May 6; 1 rat, May 7; 1 rat, May 9; and 1 rat, May 15.

## **FOREIGN REPORTS**

## CANADA

Provinces—Communicable diseases—Week ended May 10, 1941.— During the week ended May 10, 1941, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Bruns- wick	Que- bec	On- tario	Mani- toba	Sas- katch- ewan	Alber- ta	British Colum- bia	Total
Cerebrospinal meningitis. Chickenpox Diphtheria Dysentery	4	8 18 24	1	10 101 15 2	11 120 3 1	1 43 2	1 36 16	25 1	5 41 1	40 384 63 3
Influenza Lethargic encephalitis		32		1	4	1			9	45
Measles Mumps		60	17	408 210	1,418	24	21	17	350	<b>2</b> , 522 542
Pneumonia Poliom velitis	1	8			9	·i	1		5	24 1
Scarlet fever		26	5	102	176	3	89	10	15	345 9
Trachoma									3	3
Typhoid and paratyphoid	5	1	, °	13	10	2	21			102
fever Whooping cough				17 53	1 212	1	10	3 6	53	21 335
								1		

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