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LEAGUE OF NATIONS

**SURVEY OF NATIONAL
NUTRITION POLICIES**

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Page 60. Lines 19-20. For "under the Bureau of Home Economics",
read "at the State Agricultural Experiment
Stations".

Page 61. Line 4. After "Studies have been made", insert "by
the Bureau of Home Economics".

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PREFACE

This report has been prepared in accordance with a resolution adopted by the Assembly of the League of Nations in 1937. The Assembly on this occasion invited the Council to arrange for annual meetings of National Nutrition Committees and requested Governments "to furnish to the League of Nations annual reports on the action taken by them to study the state of national nutrition and to improve nutritional standards". At the same time, it decided that the Secretariat should publish "an annual summary, in a brief and convenient form, of these statements and of the proceedings of the meetings of the representatives of the National Committees".

A meeting of representatives of National Nutrition Committees was accordingly held in Geneva in October last, at which sixteen countries were represented.

In pursuance of its instructions, the Secretariat has based this first annual summary of events on the reports furnished by Governments and on the discussions which took place at the meeting just mentioned; but it has, when occasion demanded, had recourse to other readily available sources of information in order to fill up gaps or control facts. It has not, however, attempted to make a general survey of action taken by all Governments, including those from which no information was received. The facts assembled in the following pages therefore do not constitute an exhaustive survey of the whole field of Government action for the promotion of improved nutrition; they should be regarded rather as a summary of the information received concerning certain aspects of nutrition policy in a limited number of countries.

Geneva, November 30th, 1938.

A. LOVEDAY,

*Director of the Financial Section
and Economic Intelligence Service.*

Chapter I.

PROGRESS OF THE WORK OF THE LEAGUE IN REGARD TO NUTRITION PROBLEMS

The Final Report of the Mixed Committee on Nutrition was submitted to the Assembly in October 1937. While the issue of this document signified the completion of the specific task entrusted to that Committee, the work of the League on nutrition problems is still being actively continued and, during the twelve months which have elapsed since that time, the Technical Commission on Nutrition has held two further meetings, one in November 1937 and the other in August 1938. It is not proposed in this document to give any detailed account of the work of this Commission, regarding which full information will be found in the reports of its meetings.¹ It seems, however, desirable to preface this survey of nutrition policy with a very brief account of certain of the problems with which it has dealt.

THE WORK OF THE TECHNICAL COMMISSION ON NUTRITION

In its report on "The Physiological Bases of Nutrition",² published in 1936, the Technical Commission recommended the following problems for further study:

- The assessment of the nutritional state of children;
- Nutritive food requirements during the first year of life;
- Minimum vitamin and mineral requirements;
- Minimum fat requirements;
- The nutritive and "supplementary" values of the different protein-containing foods, to determine to what extent and

¹ *Bulletin of the Health Organisation*, VII, 3, pages 461-502, and document C.H.1355 (September 9th, 1938).

² Document A.12(a).1936.II.B (June 24th, 1936).

in what forms animal protein is necessary for growth and health;

The relative nutritive value of different cereals according to the degree of milling;

The extent to which the increasing consumption of sugar is detrimental to health;

Influence of climate on food requirements;

The extent to which diets in common use fall below the standards recommended by the Commission;

The optimum amounts of milk required at different ages.

The first two problems were considered to be of quite special importance. A group of experts studied the question of the assessment of the nutritional state of children, and in December 1936 prepared a report¹ on the merits of the different tests and types of clinical examination employed for the purpose.

Another group of experts discussed nutritive food requirements during the first year of life, and their report² indicated the quantities of milk and vitamin supplements required by infants up to one year of age. Emphasis was laid upon the importance of an adequate intake of protective foods by the mother during pregnancy and lactation.

The next three questions—relating respectively to vitamin and mineral requirements, fat requirements, and the values of the different protein-containing foods—were considered by the Technical Commission in November 1937. The Commission had asked certain of its members to examine these problems and, after considering their conclusions, it made a brief survey of the present state of knowledge concerning human requirements of inorganic substances, vitamins, proteins and fats.³

In connection with the problem of the optimum amounts of milk required at different ages, an enquiry was made into the health aspects of the production, transport and distribution of milk, culminating in the formulation of principles regarding the production and distribution of pure milk.⁴ The Technical

¹ *Bulletin of the Health Organisation*, VI, 2, page 129.

² *Ibid.*, page 293.

³ *Ibid.*, VII, 3, page 470.

⁴ *Ibid.*, VI, 3, page 371.

Commission also included in its third report a study on the nutritive value of milk.

The examination of the extent to which diets in common use fall below the standards recommended in the report on the physiological bases of nutrition led to a discussion of the need for making dietary surveys in all countries and the desirability of conducting them by a standard method, so that the results obtained would be fully comparable. In this connection, the different methods of carrying out nutrition surveys were dealt with in the Technical Commission's third report.

At a meeting of Directors of European Institutes and Schools of Hygiene, held in Geneva in November 1937, the principles laid down by the Commission for the conduct of nutrition studies in rural areas were discussed, and nine European countries intimated their intention of undertaking enquiries on the lines suggested. Czechoslovakia, Hungary and Yugoslavia have already taken steps to this end and, in January 1938, Dr. Hazel Stiebeling (Senior Food Economist of the United States Department of Agriculture) visited these countries on behalf of the Health Organisation to assist the authorities in the organisation of the enquiries.

Another chapter of the Technical Commission's report deals with nutrition studies in Chile. Professor E. Burnet (France) and Professor C. Dragoni (Italy) went to that country in 1935 in response to a request from the Chilian Government for help in studying the state of national nutrition. On the basis of the information supplied by these experts, the Commission made recommendations regarding the measures required for improving nutritional standards and pursuing enquiries in Chile.¹ The Chilian Minister of Health has since furnished particulars of the measures taken to remedy the nutritional deficiencies which had been revealed.

The question of the influence of climate on food requirements was left to a Sub-Committee which met in August 1938 and which decided to invite an expert or experts to analyse the existing literature on the subject.

After considering a progress report on an investigation which is being conducted into the composition of bread in European

¹ *Bulletin of the Health Organisation*, V, 3, page 424.

countries, the Sub-Committee examined the draft of a guide on methods of making nutrition surveys, prepared by Dr. E. J. Bigwood, of Brussels, at the request of the first meeting of representatives of National Nutrition Committees held in 1937. (This guide is discussed more fully in a later chapter.)

The principal task of the Sub-Committee in August was, however, to consider problems of nutrition in Far-Eastern and tropical countries. The need was noted for more information on the actual diets of groups of population, on the incidence of disease due to dietary deficiencies and on the nutritive value of local foodstuffs. Suggestions were made regarding the action required in tropical countries to improve the level of nutrition, such as planned developments in agriculture for the purpose of increasing the production of protective foodstuffs.

In November 1937, the Technical Commission had proposed that a centre should be established in the Far East in order that the Commission might be kept in touch with Far-Eastern activities, and it was reported to the Sub-Committee that an arrangement was being negotiated whereby the Coonoor Laboratories in India would act as a centre of liaison both between Far-Eastern countries and with the Commission.

The Sub-Committee in August also considered a request from the Society of Friends in Barcelona for advice in planning a minimum emergency diet for the feeding of refugees in Spain. The Sub-Committee prepared a minimum dietary plan, consisting of whole wheat, dried skim-milk powder, cod-liver oil, salt and dried brewers' yeast, but emphasised that such a diet could only be expected to maintain life and to prevent severe malnutrition for a limited period. It was an emergency diet, needing to be supplemented by fresh foodstuffs as soon as this became possible. Since August, further advice has been given on the merits of a diet-plan for feeding refugees proposed by the Spanish authorities.

THE SECOND ANNUAL MEETING OF REPRESENTATIVES OF NATIONAL NUTRITION COMMITTEES

The second annual meeting of representatives of National Nutrition Committees was held in Geneva from October 24th

to October 28th, 1938, sixteen countries being represented.¹

The object of the meeting was to provide an opportunity for an exchange of views and experience among the representatives of National Nutrition Committees on matters of common interest. The problems discussed were of both a technical and practical nature.

After a statement by Professor Mayer regarding the work of the Technical Commission on Nutrition of the Health Organisation, Dr. Bigwood explained the purpose and scope of the monograph entitled "Guiding Principles for Studies on the Nutrition of Populations",² which he had drawn up in accordance with a recommendation made by the first meeting of representatives of National Nutrition Committees in February 1937.

The meeting discussed Part I of this monograph, dealing with methods of conducting dietary surveys, and approved it generally. Further reference to Dr. Bigwood's document is made on pages 19 and 20.

Statements were made by all delegates regarding the progress of nutrition work in their respective countries. The facts brought to light by these statements, some of which gave rise to interesting discussions, have been incorporated in the relevant chapters of the present document.

¹ *Australia* : Dr. Frank McCALLUM; Mr. F. L. McDougall, C.M.G.

Belgium : Dr. E. J. Bigwood.

United Kingdom : Dr. H. E. Magre.

Canada : Dr. R. E. Wodehouse.

Egypt : Dr. Ali Hassan.

Finland : Professor Artturi J. Virtanen.

France : Professor André Mayer.

Hungary : Professor Aladar Beznak.

Iraq : Professor Walter P. Kennedy.

Latvia : M. Alfred Ceichners.

Netherlands : Dr. R. N. M. Eijkel.

Norway : Dr. Karl Evang; Dr. O. G. Hansen.

Poland : M. Stephan Mandrecki.

Sweden : Professor E. Abramson.

United States of America : Miss Sybil Smith.

Yugoslavia : M. Zorislav Dragoutinovitch; M. Milenko Militch (Observers).

Document C.H./Com.Exp.Alim.50(1).

The delegates also exchanged views on the following subjects:

- (1) Methods of improving the nutritional standards of infants and young children;¹
- (2) Methods of education and publicity to improve nutrition, particularly in countries with a large illiterate and rural population;
- (3) The future work of National Nutrition Committees.

League publicity in regard to nutrition was also discussed.

¹ This subject is dealt with in a League " Report on the Nutrition of the Infant and Young Child " (document R.C.N./Alim./1938/28).

Chapter II.

NATIONAL NUTRITION COMMITTEES

In its interim report, published in June 1936, the Mixed Committee of the League on Nutrition recommended that Governments should set up special bodies for the purpose of co-ordinating nutrition work.¹ National Nutrition Committees have now been organised in twenty-one countries,² including several non-European countries. The work of these Committees is still in its initial stage. A large number of enquiries has been undertaken but, in many cases, the conclusions reached are largely of a preliminary and tentative character.

The following pages contain not so much a complete summary of work accomplished and results achieved as an analysis of the type of activity in which the newly-constituted Committees are engaged and an indication of the lines along which certain of them are developing.

The Committees which have been set up vary considerably in the functions with which they have been entrusted and the powers granted to them.³ They are generally advisory in scope, with no executive powers.

There was some discussion on the question of the financial resources at their disposal in the course of the meeting of representatives of National Nutrition Committees. It appears

¹ Document A.12.1936.II.B (June 24th, 1936), page 98.

² Viz.: Australia, Belgium, United Kingdom, Canada, Chile, Denmark, Egypt, Finland, France, Hungary, India, Iraq, Latvia, Netherlands, Norway, Poland, Roumania, Sweden, Union of Soviet Socialist Republics, Uruguay, Yugoslavia. There is a Technical Committee on Food and Nutrition in the United States, which forms part of an Interdepartmental Committee to co-ordinate Health and Welfare Activities, set up in 1935. Only three Committees were in existence when the League enquiry started.

There are twenty-six Nutrition Committees in the British Colonial Empire, and a Committee in the Netherlands East Indies.

³ The information furnished to the League regarding the composition, procedure and terms of reference of the various Committees is reproduced as Annex II to this document.

that the situation in this respect varies considerably from country to country. In some cases, the Committees are granted no credits at all and may even be dependent on help from private organisations for the prosecution of their enquiries. In others, the Committees have been generously supported, either directly or indirectly, by their Governments. An outstanding example is that of Australia, where the Commonwealth Government granted £5,000 a year for three years to the Advisory Council on Nutrition. One delegate suggested that it should be realised that expenditure on nutrition was recoverable in the long run and that, for instance, the number of hospitals and other institutions might eventually be reduced as a result of a better nutrition policy.

The work of the National Nutrition Committees falls roughly into two parts. In the first place, their function is to collect information regarding nutrition problems, to classify it and to determine its limitations and defects. Having obtained in this way a general picture of the existing state of knowledge on the subject, they are in a position to devise and initiate plans for filling in the gaps and to promote further investigations, both theoretical and practical, into the problems about which information has been found to be inadequate.

In the second place, the Committees have the function of examining the results of nutrition research with a view to their practical application. It is their task to indicate the directions in which changes in the nation's diet are desirable. This aim may be achieved either through the publication of the facts brought to light by research and investigation or through the making of definite recommendations to the competent authorities.

“The first question (to which we are asked to furnish a reply) is one of fact, what foods and what amounts of each are consumed by the nation, and how the total consumption of these foods is distributed among the individual men, women, adolescents and children of all sorts and conditions who make up the nation.

“The second question—as to any changes which appear desirable—calls, on the other hand, not for the laborious collection and competent handling of statistical material, but for a considered opinion, in the light of this material, on the

application of the lessons of recent nutritional science to the feeding of the nation." ¹

It will be convenient to examine the work of the Nutrition Committees and similar bodies under the two principal heads indicated above, beginning with studies and surveys undertaken for the purpose of ascertaining and sifting the facts about nutrition in each country and of so providing a sound basis for future policy.

¹ Advisory Committee on Nutrition, United Kingdom. First Report, 1937, page 5.

Chapter III.

NUTRITION SURVEYS

As is stated in the joint report of the Second and Seventh Committees to the last Assembly: "It is remarkable how little is known of the real nature of the people's diet, even in the most advanced countries".

The first step in an approach to the problem of nutrition must therefore be to determine the actual position regarding food consumption and the state of nutrition in each country. A large number of enquiries have been undertaken for this purpose. These enquiries are sometimes undertaken by the Nutrition Committees themselves, but more frequently—on their advice and with their support—by the public authorities or private investigators.

There are several methods by which the quality of diets may be assessed, no one of which will give in itself a complete picture. Such a picture can best be obtained by a combination of all the various methods referred to below.

(1) *Family budget or Family living Enquiries.* — Further progress is needed in almost all countries in the collection of data on family expenditures which provide information regarding the quantities of the various kinds of food obtained by the families investigated.

Family budgets supply data for estimating the average ratio of food expenditure to total expenditure at different income-levels and indicate whether other items in a family budget absorb an unduly high proportion of income in relation to food. They also indicate the way in which total expenditure on food is likely to be allocated between particular foods and the level of income necessary for adequate nutrition.

The collection of family budgets, however, furnishes only a rough outline of the position in regard to dietary. Including as

they do expenditure on items other than food, they do not usually provide sufficient details to enable a quantitative estimate of the diet to be made.

It is difficult to obtain from family budget enquiries particulars of food consumed away from home, and family budgets do not cover food consumed by residents in hotels and institutions. It is also particularly desirable to know what is the proportion of domestic wastage for each kind of food.

It is therefore necessary to arrange for exact scientific quantitative studies of diets.

(2) *Dietary Surveys.* — Dietary surveys by trained investigators enable estimates to be made of the adequacy or otherwise of the diets of different sections of the population.

The different types of dietary survey are referred to later in this chapter.

(3) *Determination of the State of Nutrition.* — The essential counterpart of family budget enquiries and dietary surveys is the investigation of the state of national nutrition by clinical estimations, functional and other tests for the purpose of assessing the extent to which deficiencies of diet are in fact responsible for disease and ill-health.

The League's Technical Commission on Nutrition has emphasised the value of making parallel studies of food consumption and of the nutritional state upon the same human subjects. It points out in its report of November 1937 that, heretofore, these two lines of investigation have often been conducted independently and states that, useful as each is by itself, the value of both types of study is greatly enhanced when they form the two parts of a single enquiry.

(4) *Feeding Experiments.* — Useful data can also be obtained by adding supplements of high nutritive value, such as milk and vitamin concentrates to the ordinary diet of children and determining the effect of these supplements on growth and health.

(5) Another type of enquiry which is capable of furnishing valuable contributions to the study of nutrition problems consists of *surveys of national food supplies* and the examination of production and consumption data, with a view to obtaining a general

picture of the national food supply. For this purpose, estimates need to be made of the total quantity of each food consumed by the population and the proportions derived from home and imported sources respectively.

On the basis of these estimates, it is possible to make a rough comparison between the nutritive value of the food available for consumption and nutritional requirements.

If combined with estimates of the average level of consumption of foods per head at different income levels, such studies furnish indications as to the changes which are desirable in the national diet.

They permit an examination to be made of the question whether sufficient food is being produced in, or imported into, the country concerned to ensure an adequate diet for the whole population.

Such surveys can, however, give only a very rough indication of the adequacy of food supplies within a given country, since they do not take into account the distribution of the available supplies amongst the different classes of the population.¹

Estimates of this kind are also unfortunately liable to a wide margin of error, owing to the fact that statistics of the production and trade in foodstuffs are not sufficiently accurate in most countries. Several delegates at the meeting of representatives of National Nutrition Committees referred to this fact and indicated that, in their view, efforts should be made to improve statistics relating to foodstuffs.

THE TECHNIQUE OF DIETARY AND NUTRITION SURVEYS.

Food consumption enquiries, to be of general comparative value, presuppose some general agreement as to methods. Without a certain degree of standardisation of the methods employed, comparison of the results obtained in different countries is extremely difficult and sufficiently accurate conclusions cannot be drawn.

For this reason, the first meeting of representatives of National Nutrition Committees, held in Geneva in February 1937, recom-

¹ Cf. *Bulletin of the Health Organisation*, VII, 3, page 487.

mended that the Secretariat of the League of Nations should arrange for the preparation of a textbook setting forth guiding principles for the efficient conduct of nutrition surveys. Dr. Bigwood has accordingly drawn up a monograph entitled "Guiding Principles for Studies on the Nutrition of Populations",¹ Part I of which indicates the various procedures for conducting dietary surveys and the form in which the results should be presented. Part II deals with methods of investigating the state of nutrition, and is based on a report by a group of experts appointed to study methods of assessing the state of nutrition in infants and adolescents, which was separately published in April 1937.²

The first four chapters of Part I define the various types of dietary survey approved in November 1937 by the Technical Commission. The first of these is the nation-wide survey based on data obtained from statistics of production, imports and exports and reflecting the food resources available, but not necessarily the food actually consumed. It represents the purely documentary type of investigation as distinct from the other three types, which consist of direct enquiries covering respectively particular social groups, family groups and individuals. The technique of these field surveys varies, but certain features are common to the several methods.

Chapter V of the monograph deals with methods of making surveys: the weighing method, the method of records of purchases in special household books and the questionnaire method. The weighing method produces a detailed record of the weight of the foodstuffs consumed by the unit under examination and of the amounts available at the beginning and end of the enquiry. Fairly accurate estimates can be attained of the total consumption of the group, but an assessment of individual consumption is not possible. The household-book method—applicable to surveys of the family, the army or institutions—is less accurate than the weighing method, but it is also less complicated and not so likely to lead to the unconscious modification of food habits. The questionnaire method offers two possibilities: the questionnaire may be relatively simple in type, particulars being filled in by the household concerned,

¹ Document C.H./Com.Exp.Alim.50(1).

² *Bulletin of the Health Organisation*, 1937, VI, 2, pages 129-204.

It should be noted that the International Labour Office is meanwhile bringing up to date its study on methods of conducting family-living enquiries.

or particulars may be filled in by the investigating staff in greater detail and with greater accuracy.

Succeeding chapters deal with the scope of surveys, their duration, the qualifications of the investigating staff and the number of investigators, and the classification of foodstuffs.

Chapter X is devoted to the question of the analysis of data compiled from dietary surveys and the factors to be considered in the study of the physiological value of the diet. The figures obtained from dietary surveys show the quantities of foodstuffs consumed; the physiological analysis of the dietary consists in converting those results into terms of the corresponding quantities of nutritive principles. Food composition tables are discussed in some detail and a list of them is given. There is a section on the energy-bearing principles: proteins, fats and carbohydrates. Under the heading of protective principles, the monograph discusses the biological value of proteins, inorganic chemical elements and vitamins, and consideration is given to the problems of scales of family consumption coefficients. There are two final chapters in Part I dealing with certain economic and statistical aspects of the problem.

It should be noted that this comprehensive guide to dietary surveys is not intended primarily for the use of individual field workers, but rather of National Nutrition Committees or other bodies which organise and direct research. It is hoped that they will find in the document a useful basis on which to plan future surveys in their respective countries. It will, of course, also be to the advantage of field workers to study it, in order that they may be familiar with the purpose of their work.

In Part II, which deals with methods of assessing the state of nutrition, three types of enquiries applicable to different requirements are recommended. The first of these is for use in extensive demographic surveys or in the first rough classification of a very large number of subjects. Information is secured for each individual as to age, sex, physical appearance, height and weight. In addition, each child is given a simple elementary clinical examination.

All children whose nutrition appears to be defective should also receive a medical examination, and should be subject to a medico-social enquiry, dealing especially with diet.

Type 2 is designed for more thorough and more scientific investigations, and includes, on a smaller number of subjects than considered in studies of Type 1, all the tests of the first type, together with enquiry into the child's food intake, an enquiry into the economic and social status of his family, a thorough medical examination of the child and as many of the following tests as facilities permit: additional somatometric data; photography; and special tests, particularly those presumed to be related to latent or unapparent "pre-deficiencies" of nutrition.

Type 3, which is of a bio-typological nature, includes all the tests of Type 1, supplemented by a comprehensive examination of morphological characteristics and biological functions. Such enquiries should include somatometric measurements, physiological measurements, psychological tests, complete medical and psychiatric examinations, dietary studies and studies of the child's progress in school-work.

Chapter IV.

SURVEYS AND THEIR RESULTS IN CERTAIN COUNTRIES

The information in this chapter regarding food consumption surveys which have actually been conducted is based mainly on reports furnished to the League Secretariat by Governments and on statements made by delegates at the meeting of representatives of National Nutrition Committees held in Geneva in October 1938.

An account is given, not only of recent surveys, the results of which are already available, but also of others which have not yet been concluded. It must be emphasised, however, that the account is far from being a complete summary, even in respect of the countries for which particulars are given.

As regards other countries, it is known that surveys of various kinds are being conducted in many of them, but details are not available in the Secretariat.

Generally, National Nutrition Committees co-ordinate and promote nutrition research and investigations, and do not undertake the enquiries themselves—though, in certain cases, they have done so with good results. They exercise a general supervisory function in regard to nutrition research, collating and examining material, improving and standardising methods of collecting data and devising the technique and machinery to be used in investigations.

UNION OF SOUTH AFRICA

There is no National Nutrition Committee in South Africa, but the Union Government is carrying out a nutrition survey of school-children. Information from various sources indicates that investigations are in progress on the diet and health of native mineworkers.¹

¹ A summary of nutritional research on natives in South Africa was included as an appendix to "Nutrition Research in the British Colonial Empire", published in 1937 by the Imperial Bureau of Animal Nutrition in Aberdeen.

AUSTRALIA

In Australia, the Commonwealth Advisory Council on Nutrition has completed its enquiry directed towards ascertaining:

- (1) The present state of nutrition of the Australian people;
- (2) The nature of any evidence that the Australian people are in any degree under-nourished, or that their diet is improperly balanced or improperly prepared.

The Council initiated and supervised a twelve-months' survey of household dietaries in five capital cities: Sydney, Melbourne, Brisbane, Adelaide and Perth; 1,789 families and 8,957 individuals were investigated. The system adopted was that of domestic record booklets kept by the housewife and covering in each case a period of one month.

Nutritional surveys of groups of children in remote inland areas and in the metropolitan area of Sydney were also carried out on behalf of the Council. The inland survey was conducted by Dr. Clements, who covered the rough country in a motor caravan, equipped with a small laboratory and a portable X-ray plant.

Of 3,384 school and pre-school children examined in the four inland areas under survey, 607 (17.9%) were recorded as showing evidence of unsatisfactory nutrition. No scurvy was found, in spite of a low intake of fresh fruits and vegetables, but early rickets was found in from 6% to 11% and nutritional anæmia in from 4% to 6% of the children examined. An enquiry among pre-school-children in Melbourne revealed evidence of malnutrition in 21.7% of those examined.

A particularly interesting survey was conducted at Mt. Isa (Queensland), where a mine settlement and a town settlement exist side by side. In the mine settlement, wages are good and the social environment of the population far better than in the town settlement. In the town school, the figures for nutritional anæmia, active rickets and chronic infections were 12%, 17% and 4% respectively, whereas in the mine school they were 3.4%, 10.3% and 1.7%. These figures afford striking proof of the importance of sociological factors.

In Sydney, where 1,621 children were examined, an attempt was made to determine the relationship between the state of nutritional development of the children of a family and the food purchased for the household, and also to gather information in general upon the causes of unsatisfactory nutrition amongst children.

The attempt to correlate the state of nutrition of 422 children from 192 families with the quantities of food purchased for the households led to the finding that the state of nutrition was unsatisfactory in 36% of the families. Ten families were observed to be suffering from malnutrition associated with an insufficient number of calories. In the others, no direct association could be found between the unsatisfactory nutrition and the amount of food purchased for the household.

Various age-groups were then investigated in an endeavour to discover the causes of malnutrition in each—viz.:

(a) Children aged nine months to two years: of these, a number were suffering from mild rickets, having been fed on diets deficient in fat with carbohydrate excesses;

(b) Children from 2 to 5 years: the history of a previous attack of mild rickets and the amount of milk available in a household were the two most important factors in determining malnutrition in this group;

(c) School-age group: in this group, malnutrition was associated with diets rich in phosphate, which could be remedied by the addition of larger quantities of green vegetables, fruit and milk.

The Council's final report, dated July 1938, summarises the results of enquiries extending over about two and a-half years. It is pointed out that the Council endeavoured, "without cumbersome and prolonged measures, to secure representative evidence or, failing truly representative evidence, to obtain suggestive data from samples obtained by readily available means. In the end . . . it was found possible only to obtain evidence within restricted limits." Nevertheless, as the Council remarks, if the results are neither conclusive nor dramatic, they are very suggestive. The principal conclusions regarding the nutrition of the Australian

people, as revealed by the investigations which have been carried out, are as follows:

(a) It may reasonably be assumed that the Australian people are, on the whole, well fed, but that a minority is not obtaining, and may not be in a position to obtain, enough food. The numerical size of this minority cannot be stated, but, within the limits of the survey, it has been said to be represented by some 6% of the dietaries recorded by housewives.

(b) There is much ignorance as to the proper balance of food items and some people are unable to obtain the essential fresh foods.

(c) In small families in the capital cities, the consumption of protective foods reaches a satisfactory standard, but in larger families of four, five or six children, the consumption is below the selected standards.

(d) A considerable mass of minor departures from normal health exists among young children. Malnutrition is of two principal kinds:

(i) Alterations to the growing bones with associated detriment to the body generally, resulting probably from lack of milk, cheese, fruit and vegetables;

(ii) Alterations to the chemical balance of the body due to excessive intake of cheap carbohydrates.

(e) It is emphasised that the degrees of ill-health indicated in the report are of a minor character and that the medium or severe types of malnutrition were not found. Nevertheless, the Council observes that milk, cheese, fruit, vegetables and fish are not always or everywhere available in sufficient quantities and at low enough prices.

The recommendations in the Final Report of the Australian Council include certain considerations in regard to the availability of milk, skim-milk, butter, cheese, potatoes, fresh vegetables and fruit and fish. For all these more important foodstuffs, it recommends that special attention should be given to means of making them readily available in the interior districts. In particular, the provision of a daily supply of milk for school-children distributed

where it will probably do the most good would be a measure of great public health value.

The Council emphasises the need for research into problems of dietary of infants and young children, and for the education of parents and children. It recommends:

- (1) The formation by the Department of Health of a division for the study of child growth with especial reference to child diet;
- (2) The extension under medical supervision of the kindergarten, nursery school and similar movements;
- (3) A scheme of education in diet and food hygiene as an essential part of the standard curriculum for all school-children.

The Council recommends the appointment of a central co-ordinating committee to foster the health of the rising generation, the publication of sound propaganda and advice with a view to the correction of faulty diets and the investigation and rectification of specialised local defects, both physical and nutritional. It suggests that such a body might be a Committee of the National Health and Medical Research Council. This recommendation has been endorsed by the latter Council, thus ensuring the appointment of a Committee to continue the work of the now disbanded Advisory Council.

The Council further recommends to each State (provincial) Government that a Committee should be appointed to educate the public, and to advise generally on nutritional matters.

BELGIUM

(a) A dietary enquiry and investigation into the state of nutrition was carried out by Dr. Madvan't Hof, medical officer of health, inspector of schools for a part of the Liège district.

This enquiry was conducted by questionnaire. It has furnished interesting results which show that, in spite of the inevitable margin of error in figures furnished by this simple method, the data obtained may nevertheless be of the greatest value from the

hygienic and social standpoint, in cases where dietary habits are known to be unsatisfactory. The collaboration of the village teacher, the school-nurse and the school medical inspection dispensary was obtained; 1,200 children from 6 to 10 years of age were observed. They came (1) from the rural part of the commune where living conditions were not as bad as elsewhere in this industrial district or (2) from the homes of the coalminers in the district, both from homes where living conditions were very bad and from those where conditions were comparatively satisfactory. Twenty-one of them from each group were questioned more closely.

The diet of these children was shown to be ill balanced, its chief characteristics being:

- Intake of energy-providing foods fairly satisfactory;
- Marked deficiency of protective foods;
- Excess of carbohydrates (bread and potatoes);
- Deficiency of milk and milk products and eggs;
- Deficiency of vegetables and fresh fruit;
- Excessive consumption of chocolate, this being found by the mothers to be an easy way of appeasing the children's hunger.

The children's state of nutrition was highly defective. The weights of children aged from 6 to 10 ranged from 16.5 to 28 kilogrammes. These figures would correspond to those for normal children of from 4½ to 9 years of age approximately, so that, as compared with children of normal growth, they were from one to one and a-half years behind.

Dental decay, rachitic symptoms and chronic infections of the throat and nose (with chronic cervical adenitis) were frequent.

Observations in regard to the elimination of ascorbic acid through the urine are now proceeding.

(b) Enquiries into non-apparent pre-deficiency states in school-children in the Brussels area were set on foot (1) by the Solvay Institute of Sociology, aided by a private grant from M. E. J. Solvay; (2) by the laboratories of physiological chemistry; (3) by the Ophthalmological Service of the University Faculty of Medicine, and lastly (4) with the assistance of Dr. Adant, of the Queen Elizabeth Foundation. The purpose of the enquiries was to

examine the value of two pre-deficiency tests applied to children of school-age of families which, at the same time, were made the subject of a detailed dietary survey of at least one month's duration. The two tests were the test for defective dark adaptation in relation to vitamin A and the capillary resistance test in relation to vitamin C.

The enquiries began early in 1937 and are now complete. The results will be published in full. Certain physiological results were communicated to a meeting of the Technical Commission of the Health Section of the League of Nations held in London in November 1937 and to the International Physiology Congress held in Zurich in August 1938 (by Bigwood, Damis, Jacquemyns and Sano). Dr. Bigwood furnished a statement to the meeting of representatives of National Nutrition Committees, of which the following paragraphs are a summary.

(1) *Test for Defective Dark Adaptation.*¹ — One-hundred-and-three children were subjected to this test. In the case of about forty of them, the adaptation was good. In about a third, adaptation was delayed, while the reactions of the remainder were uncertain. The dietary survey carried out simultaneously in the families of thirty-five children showed that reaction to the test was satisfactory when the intake of vitamin A and of pre-vitamins exceeded 3,500 international units per head per day, that there was a clear deficiency when the intake rate was less than 1,000 international units, and that, between those two rates, there were appreciable individual differences, the explanation of which is no doubt to be sought in differences in the matter of intestinal absorption, in the ability to transform pre-vitamins into active vitamins, differences in the composition of the diet otherwise than in regard to vitamin A, and lastly differences in the height and age of the subjects. It was noted that, even when there was a high proportion of carotenoids of vegetable origin as compared with the vitamin A content of foods of animal origin, the reaction to the test was in some cases unsatisfactory.

¹ This test, which is also known as the light adaptation test, is employed for the purpose of detecting vitamin A deficiency. It consists in measuring the time taken by the subject to adapt his vision from daylight to semi-darkness. One of the effects of a deficiency of vitamin A is a diminution in the formation in the retina of the eye of the visual purple necessary for vision in semi-darkness.

(2) *Vitamin C Intake and Capillary Resistance*.¹ — The average consumption of vitamin C in the different families was assessed at from 200 to 1,200 international units per head per day (10 to 60 milligrammes of ascorbic acid):

Half the families: > 600 international units (> 30 milligrammes);

In three cases only: > 1,000 international units (> 50 milligrammes).

It should be noted that certain authors regard the normal ration as being 30 milligrammes and others 50 milligrammes, the latter figure being that which at present seems to be gaining widest acceptance.

There was no relation between capillary resistance and the vitamin C intake by itself. It should, however, be observed that it was found to be good in three cases in which the intake was estimated to be over 1,000 international units.

On an average, potatoes accounted for 60% of the total intake (23% to 100%).

It should lastly be noted that the tests tended to show that the vitamin C intake may be high in the ill-balanced diets of poor people because of the high potato ration and that the vitamin C intake may be very inadequate even when economic conditions are satisfactory. This fact points to the need for improved training in domestic matters, even among those who are fairly comfortably off.

A rural enquiry is being carried out by the Solvay Institute of Sociology of Brussels University in two villages of the Flemish region and two villages of the Walloon region.

UNITED KINGDOM

In the United Kingdom, estimates were compiled, at the request of the Ministry of Health Advisory Committee on Nutrition, of the total quantity of each food consumed by the population and the proportions derived from home and imported sources respectively.

¹ The capillary resistance test for vitamin C deficiency consists in measuring the resistance of the walls of the capillaries of the skin to pressure. It is based on the fact that vitamin C deficiency causes a weakening of the capillary walls, which leads to subcutaneous bleeding with relatively light pressure on the skin.

The figures are given as an appendix to the First Report of the Committee (pages and 33-34). It is shown that fresh milk, potatoes and certain vegetables are the only foods produced almost entirely within the country; that nearly 90% of the fish and nearly 70% of the eggs in shell are derived from home sources; and that rather more than half of the total meat, about 70% of the cheese and sugar and 90% of the cereals and fats is imported. In terms of energy value or calorie equivalent, home production represents about 40% of total consumption, but, reckoned in terms of retail value, it is estimated that home-produced food is nearly half the total supply.

On the basis of these estimates, the United Kingdom Committee attempted to compare the nutritive value of the food available for consumption with nutritional requirements. Its conclusions are briefly as follows:

(1) That there is no lack of energy-giving foods in the food supply: all, except a relatively small fraction of the population, are obtaining the full amount of calories they require;

(2) That there is no aggregate deficiency of fats in the national diet, but there is some deficiency among the very poorest;

(3) That the national diet contains a sufficiency of protein, though it is probable that there is some shortage of animal protein in the diets of the poorest class;

(4) That the present national consumption of liquid milk is less than half the average requirements per head of the population;

(5) That the national consumption of fruit and vegetables is below the nutritional optimum, and that this deficiency is predominantly to be found in the poorer sections of the population.

After considering the material on which the above rough estimates were based, the Advisory Committee decided that further information was required.

Dietary studies were accordingly initiated under the supervision of the Ministry of Health in England and Wales and of the Department of Health in Scotland. These studies started about eighteen

months ago and they are being carried out all over Great Britain and include 300 families in England and Wales and 200 families in Scotland. Most of the families studied are located in rural and suburban areas. The special objectives aimed at are (1) to secure information about rural diets, as most dietary surveys in the United Kingdom have hitherto been conducted in industrial centres, while little study has been made of rural nutrition; (2) to gain a general idea of the contribution of food taken from gardens and farms to the dietary of the rural families; (3) to obtain an average figure for the percentage of wastage, particularly from vegetables. The personnel employed in these studies are all qualified dieticians who have also had a special period of training in the technique of dietary studies. The weighing method is employed and the net weights of all foods consumed are ascertained, each family being studied for at least a week.

In addition, following upon a recommendation of the Advisory Committee, the Ministry of Labour has collected particulars of the quantities of foods consumed by several thousand families throughout the country. The information was obtained in the course of a budgetary investigation undertaken by the Ministry and covering a period of one week in each of the four seasons of the year. The field work has been completed and the data are now being classified. While the returns are not so complete as the data obtained in the quantitative dietary studies, they cover a much wider field.

Of other dietary studies now being carried out in the United Kingdom, the chief is the Carnegie Trust Research survey. With the aid of a grant from the Carnegie (United Kingdom) Trust, the Rowett Institute, about a year ago, launched an extensive investigation to determine the relationship between diet and the state of health and development. In carrying out this research, Sir John Orr and his colleagues are working in close touch with the Ministry of Health and the Department of Health for Scotland.

The research consists of a dietary survey of about 1,500 families, followed by clinical examination into the state of nutrition of the children in the families studied. A comparison of the data from the dietary survey and the clinical examination should show the extent to which deficiencies in the diet can be correlated with health and physique. In certain suitable areas, supplementary

foods are fed to the children (in some cases to whole families), in order to raise the dietary to the level indicated by the League Technical Commission on Nutrition as adequate for health. The children participating in these feeding trials will be examined before and after the period of experimental feeding, which will last for about a year. About a quarter of all the children examined in the wider investigation are participating in the feeding trials, and in the areas in which these are being carried out there will also be an equal or greater number of control children. Particular attention is being paid to the mental growth of children as affected by nutritional factors.

The method of dietary survey is identical with that used in the studies being conducted under the direction of the Ministry of Health and the Department of Health for Scotland. The families studied are taken from different economic groups in urban and rural areas all over the United Kingdom and the dietaries of a number of orphanages and boarding-schools for boys and girls are also being investigated. Repeat surveys are being carried out to show the seasonal variations in food consumption.

The clinical team consists of four full-time investigators who conduct all the clinical examinations and other tests.

The results of the surveys carried out by the Ministry of Health, the Ministry of Labour and the Rowett Institute will be correlated and they should afford a reliable picture of nutrition in the United Kingdom. At present, the most comprehensive survey available is that made by Sir John Orr and his colleagues in 1936.¹

Certain local dietary surveys have been conducted, such as a survey of 205 families in the West Riding of Yorkshire, the results of which are likely to be available shortly, and a study of sixty-nine working-class families in Newcastle-upon-Tyne, the results of which have already been published.²

The results of an unofficial survey made by Sir William Crawford and Mr. Broadley have recently been published.³ Their book gives a vivid description of dietary habits in the United Kingdom.

¹ J. B. ORR: "Food, Health and Income", London, 1936.

² "A Study of the Diets of Sixty-nine Working-class Families in Newcastle-upon-Tyne", Health Department, Town Hall, Newcastle-upon-Tyne.

³ Sir W. CRAWFORD and H. BROADLEY: "The People's Food", London 1938.

For several years, investigations to establish suitable objective tests for determining the state of nutrition of school-children have been in progress in a number of areas in England at the instigation of the Ministry of Health. Some results of these researches have appeared from time to time in the reports of Medical Officers of Health, but, up to the present, it has not been possible to co-ordinate them.

Studies of the state of nutrition of expectant and nursing mothers are at present in progress in some areas. They are concerned mainly with the composition of the blood at different stages of pregnancy and lactation. The results of some of these investigations have been reported in a paper which appeared recently.¹

In 1934, on the initiative of the Advisory Committee on Milk Publicity of the Milk Marketing Board for England and Wales, a Milk Nutrition Committee was appointed with the object of investigating the nutritional value of milk, in connection particularly with schemes for the supply of milk at reduced rates, of ascertaining the effect upon health of the consumption of milk in varying quantities and of obtaining such further evidence as was possible as to the relative nutritional value of raw as compared with pasteurised milk. Extensive trials have been conducted with about 8,000 school-children who were divided into four sections, each of approximately 2,000; one group of controls receiving no milk but biscuits as a placebo; one group receiving two-thirds of a pint of raw milk; one group receiving one-third of a pint of pasteurised milk; and the fourth receiving two-thirds of a pint of pasteurised milk.

A preliminary account of the investigations is given in Part II of the report entitled "Milk and Nutrition", published by the National Institute for Research in Dairying.²

It is stated in this interim report that, taking all ages and all areas together, the average increase in height and weight over the year of enquiry rose from the groups of children whose supplement

¹ RAMSAY, THIERENS, MAGEE: "The Composition of Blood of Pregnant Women at the Seventh Month", *British Medical Journal*, June 4th, 1938, Vol. I, page 1199.

² "Milk and Nutrition", Part II: The Effects of Dietary Supplements of Pasteurised and Raw Milk on the Growth and Health of School-children (Interim Report). National Institute for Research in Dairying, Shinfield, Reading. Parts I and III deal with the effect of commercial pasteurisation on the nutritive value of milk as determined by laboratory experiment and by experiments on calves. It is expected that the final report of the Committee analysing the data obtained will shortly be published.

was biscuits to the groups whose supplement was one-third of a pint of milk, and again from the latter to the groups whose supplement was two-thirds of a pint of milk. In addition, ignoring age, sex and area differences, the results suggest that the milk supplements led to increases in the mean chest girth and muscular strength of the children.

An important addition to the material on nutrition problems will shortly be available in the form of a report by the Committee of the United Kingdom Economic Advisory Council, which was set up in November 1936 to advise generally on nutritional matters relating to the Colonial Empire. The Committee has surveyed the situation in the Colonial Empire in the light of reports submitted from each territory. It is also arranging for a series of dietetic surveys to be carried out in the colonies in conjunction with the Medical Research Council.¹

Certain Colonial Governments have issued reports on nutrition, and a list of these is given in Annex III.²

BULGARIA

From the researches carried out in 1935/36 by the Institute of Agricultural and Economic Studies at the Ministry of Agriculture, it appears that, in the Bulgarian villages, the food consumption of an adult male represents an average of 3,408 Calories. The energy value of the diet is, on the average, adequate, but would seem, during periods of intensive agricultural labour, to be quite insufficient. The Bulgarian peasant expends about 1,800 Calories in the average working-day. The 1,600 calories required for static physiological subsistence bring the figure up to 3,400 Calories. According to Professor Zlataroff, for intensive peasant labour, these 1,600 Calories should be supplemented by a further 2,500-5,000 Calories, and, on this basis, the peasant is definitely underfed during the busy agricultural seasons.

¹ Cf. "The Colonial Empire in 1937/38" (Cmd. 5760), pages 37 and 38 (published by H.M. Stationery Office, London).

² Reference may also be made to "Nutrition Research in the British Colonial Empire", issued in January 1937 by the Imperial Bureau of Animal Nutrition, Aberdeen. This publication contains a review of the principal results of recent investigations.

It is therefore considered necessary to raise the general standard of living in Bulgaria.

The diet is also very monotonous. Bread is the staple food (providing 79% of the total energy value of the diet) of the rural population, and sometimes the diet consists only of bread. Its composition varies, the ingredients often being of poor quality and even unfit for human consumption.

The Bulgarian authorities think it would be desirable to stimulate the consumption of foodstuffs other than bread and to improve the quality of the latter.

The peasants' average normal consumption is 114 grammes of protein, 55 grammes of fat, and 644 grammes of carbohydrate. Compared with the accepted standards, this diet is deficient in fat and over-abundant in carbohydrate. The food is mostly of vegetable origin, as may be seen from the following tables:

	Protein	Fat	Carbohydrate
	%	%	%
Foodstuffs of vegetable origin	79.61	46.93	98.77
Foodstuffs of animal origin	20.39	53.07	1.23

Percentage of the Total Calories supplied by Foodstuffs consumed in a Peasant Family.

Flour	72
Meat, fats	10
Dairy produce and eggs	6
Vegetables	5
Fruit, grapes, water-melons, melons	4
Alcoholic beverages	2
Sugar and rice	1

—i.e., 84% products of vegetable origin and 16% products of animal origin.

The Bulgarian statement refers to the necessity for encouraging the production and consumption of products of animal origin, in order to obtain the quantities of fats and proteins requisite for a sound dietary.

Milk and dairy produce form a comparatively small part of the Bulgarian peasant's dietary. According to the statistics of the Institute of Agricultural and Economic Studies, the consumption is 67 litres of milk per head per annum on the farms.

The home-grown products comprise some 82.6% of the total expenditure for food, only the remaining 17.4% being purchased.

CANADA

The Canadian Council has supported, and has been the means of obtaining financial assistance for completing, a dietary survey in Toronto by the University of Toronto and a food purchase and consumption survey in Alberta directed by the University of Alberta.

The Alberta survey, which has been proceeding since May 1936, relates to Edmonton and Lacombe. It is intended to publish a report covering all aspects of the work, including some analyses of the adequacy of diets at different income-levels in 1939.¹

In the Toronto survey, the data have already been collected and the results are being assembled for publication. It is planned to give a picture of food consumption by low-income families, to ascertain the adequacy or otherwise of diets in actual use and to secure information regarding dietary defects.

Detailed records have been secured of food consumption during one week by each individual member of the families under examination. A total of 100 families was covered with incomes varying from \$16 to \$20 per week. The collection of data was spread over a year, in order that the effects of the various seasons might be observed.

New surveys are to be undertaken in Nova Scotia, rural Quebec and Alberta.

The Canadian Council has outlined a standard method for collecting data in dietary surveys.

The Council is also co-operating in a family expenditure (budgetary) survey which is being conducted by the Bureau of Statistics and which will provide information on food expenditures and their relationship to other expenditures and to income. About 2,700 wage-earning families are to be studied and a daily record of food purchased and also of food from other sources will be obtained for periods of one week at three different seasons of the year.

¹ Certain published information is already available regarding the Alberta surveys—for example, "Food Purchases by Families in Edmonton and Lacombe, Alberta" by STEWART and PORTER, *Canadian Public Health Journal*, February 1938, and "The Relation of Family Income to Expenditure for Certain Foods in Edmonton, Alberta", also by STEWART and PORTER, Proceedings of the Tenth Annual Meeting of the Canadian Society of Agricultural Economics.

EGYPT

The Egyptian delegate to the meeting of National Nutrition Committees (Dr. Hassan) drew attention to a survey which had been undertaken in his country of the distribution of pellagra and the factors governing its occurrence. In some parts of Egypt, as much as 34% of the population suffered from manifest pellagra and a large part of nutritional work in that country was therefore directed towards the solution of this problem. He gave a description of the methods employed for the suppression of the disease. These included dietary treatment and treatment for parasitic infection. The removal of parasites, which was an essential step in the cure, was carried out by the numerous permanent and travelling *bilharzia* and *ankylostoma* hospitals. Patients who attended these hospitals were formerly given 30 grammes of yeast daily, but this had now been replaced by three or four cooked eggs a day. Measures were being taken by the Ministry of Health to prevent reinfection, which was frequent, as part of a scheme for improving conditions in rural areas. The pellagra problem was linked with that of intestinal parasites and any measures adopted to keep down the parasitic infection helped to protect the peasant against pellagra.

Work had also been done in Egypt on rickets and its causation. Rickets was a common ailment in that country, in spite of the abundant sunshine. Some authorities attributed this to the low vitamin D content of human, cow and buffalo milk, while others believed that the ultra-violet rays were intercepted by the layers of dust in the atmosphere. Dr. Hassan suggested that the condition might be due to a low calcium intake. He pointed out that the population north of Assuan did not drink much milk. This was not, however, the case in the Nile Valley from Assuan to the Sudan border, where the people drank milk in their tea twice or three times a day. Dr. Hassan had calculated that the milk intake per person in that region varied from 150 c.c. to 1 litre a day. Every family had its goats or its cow to supply it with milk. He had failed to find any evidence of rickets or pellagra in the region south of Assuan, which, incidentally, was practically free from parasites.

FINLAND

An investigation was carried out in Finland in 1936 to ascertain to what extent the normal diet in Finland satisfies requirements

according to modern nutrition standards. The enquiry covered fifty-four working-class families in different parts of the country, both rural and urban. The weighing method was used for a period of ten days. The investigation took place in the spring and was repeated in the autumn. A similar investigation early in 1937 comprised forty working-class families.

These enquiries showed that, on an average, almost 80% of the daily intake of calories was derived from cereals, milk and milk products and potatoes. The use of sugar was very small, while that of vegetables and fruits in winter was almost nil. The shares of different foodstuffs in the diets of the families examined averaged as follows:

	%
Cereals	43
Milk and milk products	25
Potatoes	11
Meat	9
Fish	1
Sugar	6
Margarine	2.3
Vegetables, roots and fruits	1
Peas	1

The amount of food consumed was frequently inadequate in very poor families.

In so far, however, as sufficient food was consumed to satisfy energy requirements, the protein intake was, almost without exception, adequate. The quality of the protein was good, since about half of it was of animal origin. The fat content of the food was fair, the proportion being about 20% of the total caloric value. Calcium and phosphorus intake was also quite adequate in most cases (standards: 0.7 gramme calcium and 1.3 gramme phosphorus).

The vitamin content of the food was generally adequate in summer, owing principally to the liberal use of milk. From November to the end of May, however, the vitamin A intake was inadequate, being under 50% of standard¹ in about half of the families examined. This is due in the majority of cases to the fact that the vitamin A content of milk during stable-feeding is only about a third of the vitamin A content in the summer months. The point is referred to again on page 76.

¹ 4,000 international units for persons over 10 years and 2,000 international units for children below 10 years.

The intake of vitamin C was considerably better than that of vitamin A. Although the consumption of vegetables and fruits was small, a sufficient amount of vitamin C was generally obtained from milk and potatoes. About 50% of the families examined reached or exceeded the standard¹ intake in the spring, 87% in the autumn and 70% in midwinter. According to the Göthlin test, there was a probable deficiency in the spring in 11%, in the autumn in 2% and in the winter in 7% of the persons examined.

The vitamin B₁ intake was nearly always sufficient (standard: 250 international units per person), owing to the liberal use of milk and potatoes and the consumption of whole-meal rye bread. Milk also appears to provide sufficient vitamin B₂ in Finnish diets.

The prevalence of rickets among infants shows that nursing-mothers should receive more vitamin D, and for this purpose Baltic herrings and eggs are recommended.

Thus, although Finnish diets contain relatively few articles of food, and vegetables are hardly consumed at all during half of the year, they are regarded as sound. There is a liberal use of milk and milk products and a large consumption of potatoes. The important problem is to increase the vitamin-A content of milk and milk products during the winter.

Townpeople and intellectual workers have a more varied diet than the rural population, but it should be noted that they also consume large quantities of milk and milk products. Thus the daily consumption of milk per person in Helsinki is 0.65 litre.

The results summarised above are confirmed by statistical data regarding rural families collected by the Central Association of Agricultural Societies in Finland.

Dietary and nutrition surveys have also been made of elementary school-children in different parts of the country and drawn from every social class, and of women employees in commercial firms, factories and offices. The data at the disposal of the Nutrition Committee include information regarding the nutrition of 3,682 of the poorest and largest families obtained from a survey undertaken in 1936. Other studies relate to the consumption of foodstuffs in hospitals, nutrition in the army and the physical condition of conscripts. These studies are not yet completed.

¹ I.e., 1,000 international units per person over 10 years; 500 international units per person under 10 years.

FRANCE

A special Service for National Nutrition Surveys has been set up under the auspices of the National Scientific Research Fund. It has been carrying out the two types of survey recommended by the National Nutrition Committee in 1936, one dealing with the production and the other with the consumption of foodstuffs.

In the production survey, an attempt has been made to determine for each year over a specified period the quantities of foodstuffs available to the population as a whole. A list of the principal foodstuffs was drawn up on the basis of the statistics relating to agricultural production, foreign trade and certain branches of industrial production. Estimates were then made, in respect of each of the items in this list, of the quantities available in France in each of a number of years between 1900 and 1937, including every year after 1929. Finally, the quantity of the different nutritive factors contained in the estimated supplies was calculated.

The object of the consumption survey is to determine the foods actually consumed in France and the manner of their preparation, the analytical tables of foodstuffs compiled by Mme. Randoin being used to calculate the quantity of the several nutritive factors actually consumed. Two types of social groups have been investigated—viz., groups of men, women, young persons and children of various ages, and families belonging to typical categories of the population.

As regards the first type, the male groups selected consist of agricultural labourers, sailors, troops, certain technical schools, monasteries and homes for the aged; the female groups of maternity homes, institutions for the aged and convents; and the juvenile ones of holiday camps, vocational and secondary schools and reformatories. In each group, the investigator has drawn up a report on the number of individuals partaking of each meal, with an indication of social origin, state of health, age and weight. Some sixty groups have been covered, equivalent to a total of 12,200 individuals for a period of seven days.

The family survey covers 240 families in four main categories of the population—viz., rural communities, clerks, factory workers and the higher categories of employees, the last representing the

middle classes. Close attention has been given to the social conditions of the families, the amount spent on food and its relation to total expenditure, the price of each foodstuff purchased and methods of cooking. The visits lasted a week and were repeated four times in the year for each family, in order that seasonal variations might be taken into account. The results are now being analysed.

• In the consumption surveys as a whole, the equivalent of 110,800 individuals a day have been examined.

Similar investigations have been undertaken in North Africa. In addition, the Ministry for the Colonies has requested army doctors and colonial medical officers to conduct a survey of the questionnaire type in the various French colonies.

The "Assemblée française de Médecine générale" has carried out a survey, through general practitioners, on the consumption habits and the incidence of states of dietary deficiency amongst their patients. Their general conclusions are that, on the whole, nutrition in France is adequate, except in the slums, but that cases of inadequate diet may be found in the richer classes as well as the poorer. Over-eating is on the decline and the state of nutrition of infants has shown particular progress. They note, however, the need for better bread, safer milk and better facilities for school meals in country districts.

A study of the food habits of the peasants throughout the country is being carried out; and a scientific study of the food habits and the state of nutrition of university students in Nancy has been made.

The statement furnished to the League on behalf of the French Nutrition Committee draws attention to the co-operation of an important federation of agricultural associations and its branches in the work of the National Nutrition Committee. The President of the Committee is not only the Minister of Agriculture but is also the President of the Fédération nationale de la Mutualité et de la Coopération agricoles.

The activities of the National Nutrition Committee figure prominently in the publications of agricultural organisations, and articles have been published describing France's achievements in the improvement of nutrition. It is suggested that farmers, thus informed, will be able, with the help of their co-operatives and

syndicates, to develop agricultural production in such a manner as to meet the real needs of consumers.

Agricultural circles in France are stated to be keenly interested in the question of improving nutrition. The National Mutual Agricultural Union has decided to contribute funds towards the teaching of nutritional science, while provincial agricultural organisations have helped the investigators carrying out the nutrition surveys by finding families willing to collaborate. Further, the national bodies supplied information and seconded one of their officials for the production survey.

The French statement points out that the organisation of French agriculture has already enabled considerable improvements to be made in the quality of agricultural products and methods of distribution. The co-operative movement has secured valuable results by co-ordinating scattered efforts; its achievements in connection with the production and marketing of fruit and vegetables afford a striking example of what can be done by organisation. Production has been raised through the use of better varieties and treatment against plant diseases; the appearance of the produce has been improved by resort to modern methods of picking and the creation of co-operative centres for sorting and packing; and supply has been adapted to demand through the organisation of selling agencies in leading markets.

Social insurance funds are taking an active interest in the problem of improving nutrition in France.

HUNGARY

Since 1926, more than twenty different surveys have been made in Hungary, covering some 40,500 people in different geographical regions and in various social and age groups. The main conclusions of these surveys are as follows: ¹

- (a) The diet of large sections of the agricultural population consists of highly milled cereals and "dry" vegetables;

¹ Based on a report by Dr. Dabis for the second Sub-Committee of the Hungarian National Committee on Nutrition.

(b) The intake of calories and of animal proteins is inadequate amongst the poorer agricultural labourers and industrial workers;

(c) The standard of rural culinary technique is low (apart from the baking of bread);

(d) Very little sugar is consumed in the villages;

(e) Consumption of fruit and green vegetables is inadequate in many sections of the population.

It is probable that the poorer classes in both town and village suffer from a deficiency of minerals; that even well-to-do villagers do not get enough vitamin C and vitamin D; but that nutritional conditions are better in the trans-Danubian districts.

A comparison of total supplies of foodstuffs and of total requirements in Hungary has also been made.

It was found that, if exports were to remain unchanged and if requirements were to be fully met, the present production of milk would need to be increased by 120%. The production of eggs would need to be raised by as much as 470% and that of fresh vegetables by 20%. The total production of fruits appears to cover total annual requirements, but it is likely that consumption is very unevenly distributed both regionally and seasonally.

It appears that the total energy and protein requirements of the population are covered by production. But the consumption of animal protein is too low.

It was deduced that certain sections of the population must suffer from deficiencies of animal protein, of the vitamin B complex (particularly B₁), of vitamin C during the winter, of vitamin D, of calcium and possibly of iron.

After careful study of all aspects of the problem, the Hungarian National Committee came to the conclusion that, while some improvement might be brought about through State and social relief work, the objective of providing the whole population with the optimal diet could only be achieved by means of a complete reorganisation of agricultural production. This reorganisation should aim at a substantial increase in the production of milk, eggs, green vegetables, fruit and animal protein.

The Committee has therefore begun to work out a plan for such a reorganisation of agricultural production as will lead to increased output of the commodities required.

In the County of Bekes, experimental feeding is being carried out on 130 children, with the object of obtaining information regarding the effect of diet on development. The experiment will continue for several years.

INDIA

The Nutrition Advisory Committee of the Indian Research Fund Association, at its first meeting in June 1936, recommended the carrying-out of surveys of diet and state of nutrition in various parts of India. Under the scheme which was prepared and which is financed by the Indian Research Fund Association, three field workers, attached to the Coonoor Laboratories, were appointed for five years to extend survey work. These have already been trained, and are now working in various areas. Dr. D. C. Wilson is also carrying out surveys of diet and state of nutrition in collaboration with the Director of Nutrition Research.

Surveys have already been conducted in the Madras Presidency, Madras City, Mysore State, Travancore, Assam, Kashmir, the Punjab, Delhi Province, the United Provinces, the Central Provinces, Bengal, Calcutta and Orissa. The majority of these have been in rural areas. A number of others are projected. The work has not been long in progress, and much data have been collected which have still to be worked up for publication. Ultimately, a fairly complete picture of dietary habits throughout the sub-continent of India will be available.

The Collection of Data about Food Consumption. — The technique followed in the various districts has been fairly uniform, the whole scheme being under the supervision of the Coonoor Laboratories. The field workers were trained at Coonoor before beginning their investigations. In selecting suitable areas for survey, choice is influenced by the amount of local assistance available. Use has been made of rural reconstruction agencies, health units, economic survey workers, members of the public health departments, health visitors under training, mission workers of various kinds, etc., to

establish contact with the families concerned. The families have been typical of the population of a large surrounding area in which there were fewer opportunities for carrying out surveys.

In the majority of the surveys, the diet of from twenty to sixty families has been investigated over a period of approximately three weeks. In some cases, a "repeat" survey has been made at another season. In general, the group of families studied in the various areas has represented a cross-section of the village community.

The investigators usually visit the families early in the morning, before the preparation of the morning meal. The food which is about to be cooked is weighed in a portable balance. The midday meal (in South India) usually consists of the remains of the morning meal and consequently no midday visit is necessary. A further visit is paid in the evening, when the food about to be prepared for the evening meal is weighed. The data are entered on an appropriate form.

Subsequently, intake per consumption unit of calories, protein minerals, etc., is calculated. Intake of the principal foods (cereals, milk, etc.) is also calculated, this information being often very valuable, particularly in relation to agricultural policy.

The Investigation of "State of Nutrition". — Investigations among school-children have been carried out side by side with diet surveys in the various areas. The children examined do not necessarily belong to the families whose food intake is studied in detail.

Methods of examination have included the following:

- Determination of height and weight for age;
- The A.C.H. index of nutrition;
- Dynamometer tests;
- The incidence of signs of deficiency disease.

Other tests have been employed—*e.g.*, general clinical assessment of state of nutrition, hæmoglobin determinations, etc. The dark adaptation test for vitamin A deficiency is now being studied.

In general, great emphasis is placed on the incidence of deficiency disease. Children showing xerophthalmia, stomatitis, or phrynoderma are usually in a state of severe malnutrition, and the

comparison of the incidence of these conditions in various groups, with different dietary habits, has provided valuable information.

Attempts are being made to obtain information about the incidence of various diseases in the areas concerned.

Provincial Nutrition Workers. — Courses in nutrition have been organised in Coonoor for members of public health departments and services. Almost all the States and provinces in India have sent a worker to undergo this training, the object of the scheme being that each State or province should have someone available who is capable of carrying out practical nutrition work. The courses have included instruction in methods of carrying out dietary surveys and of investigating "state of nutrition". The officers concerned may be used for survey work. In certain provinces and States, schemes for carrying out surveys, etc., in which the nutrition officer trained in Coonoor will play a prominent part, have already been projected.

IRAQ

Little information is available regarding the quantities or varieties of food consumed in Iraq. The Nutrition Committee in that country decided that the first step in its work should be a general survey of the ordinary diets in different social classes and in different regions of the country. Special surveys of the diet of fellahin on Government farms are also being undertaken. The results so far obtained have confirmed the generally held opinion that the nutrition of the fellahin and lower classes in the towns is insufficient both in quality and quantity. Further, the nutrition of higher-wage classes is markedly inadequate. At the present stage, it is not possible to go into details regarding the deficiencies in the dietary in the absence of reasonably accurate figures. Nevertheless, the following information was furnished by the delegate of Iraq at the meeting of representatives of National Nutrition Committees.

Judging by preliminary results, a large proportion of the population in that country is apparently subsisting on an extremely low budget and a surprisingly low diet. Some workers even subsist on a diet of bread, tea and sugar, together with perhaps the addition

of lettuces during about two months in the year and water-melon for a few months, but otherwise practically no vegetables or fresh fruits. A certain quantity of dates may be consumed, according to the locality and prices. Iraqi bread is wholemeal, unleavened, palatable and of high quality, comparing favourably with that consumed in European countries.

The vitamin A and vitamin C intakes of the poorer classes are both low. Vitamin C is frequently completely absent from diets during about three months of the year.

The delegate of Iraq said that the intake of phosphorus appeared to be low. That of calcium was somewhat better, but cases of rickets—and occasionally osteomalacia—were found. This is unexpected in view of the large amount of sunlight in Iraq and the fact that the children are well exposed to the direct sunlight.

A survey of health and anthropometrical standards of school-children has been undertaken under the direction of the Education Department. Bagdad is being studied first. So far, 10,000 children have been examined and a further 5,000 remain to be done. When the data for these are collected, a report will be published and the survey extended to other parts of the country.

The Iraqi Committee is compiling a calendar which will show the fresh foods available at different seasons of the year, and Dr. Kennedy, at the meeting of representatives of National Nutrition Committees, suggested that other Committees might invite the Ministries of Agriculture in their respective countries to draw up similar calendars showing at what seasons the different fresh fruits and vegetables were obtainable at low prices. Such data would, he thought, be of value in advising the housewives of poor families and would assist those responsible for drawing up diets in hospitals and public institutions. They would also throw light on the food resources of the countries concerned and show, for example, at what seasons vitamin C was plentiful or scarce.

The statement furnished by the Iraqi Government to the League contains figures which tend to show that the land dietary capacity of the country is as high as 5.7 acres of arable land *per capita*. This appears to indicate that the potential food production of Iraq is very great, in relation to the population.

LATVIA

The Latvian delegate at the meeting of representatives of National Nutrition Committees gave a striking account of the evolution in the consumption of foodstuffs in his country during the past ten years. His description was based on statistics regarding working-class family budgets in Riga during 1926/27 and 1936/37.

These statistics tend to show that, in 1926/27, expenditure on foodstuffs amounted to 53% of the average family's total expenditure, while, in 1936/37, it accounted for only 40%, as a result of the fall in prices. The consumption of dairy produce, meat, vegetables, fruit and berries, and also of sugar and wheaten bread, rose considerably. The quantity of unskimmed milk consumed by an adult per annum increased by 15%, and that of butter by 56%. The number of calories absorbed in twenty-four hours per unit of consumption increased by 13% from 2,947 in 1926/27 to 3,343 ten years later. Animal products accounted for 32% more calories in the later period. While there was a decrease of 28% in the amount spent annually per consumption unit on foodstuffs, the quantity consumed was usually very much greater and the quality very much better.

An increase in income is followed by larger consumption of milk, butter, meat, fish, fruit and berries, sugar, vegetables and eggs. An average family with an income in excess of 2,500 lats per annum consumes 78% more meat than an average family whose income does not exceed 1,600 lats per annum. On the other hand, an increase in income as a rule is followed by a decline in the consumption of wheat products.

The above statements relate to working-class families in Riga, where there is a population of 400,000. Of the two million inhabitants of Latvia, however, about 1,250,000 live in rural districts. It is therefore interesting to note that, during the past few years, the quantity of the principal foodstuffs consumed per adult of the rural population has also increased. This fact is indicated by statistics which have been compiled in respect of 128 farms in all parts of Latvia. The quantity of foods consumed daily is entered in special questionnaires sent out by the State Statistical Bureau, and the figures are summarised at the end of the year.

Comparing average consumption during the periods 1927-1932 and 1936/37, it is found that the consumption of unskimmed milk, butter, meat, eggs and wheat rose, while that of rye, sugar and salted herrings fell. The calorie intake of the rural adult population showed only a slight change between the two periods, rising from 4,700 calories per day in 1927-1932 to 4,800 calories in 1936/37.

It may be added that, concurrently with increased consumption, there has been a considerable rise in the production of foodstuffs in Latvia. For example, between 1929-1933 and 1934-1937, milch cows increased by 13%, and they yielded a larger quantity of milk with a higher cream content. The output of unskimmed milk in 1929/30 amounted to 1,300,000 tons, and in 1936/37 to 1,640,000 tons, an increase of 25%. The increase in the production of milk and dairy produce has gone almost entirely to increase the consumption of these commodities in both urban and rural districts.

Among the reasons advanced for the increased production and consumption of foodstuffs outlined above is the fact that the Latvian Government supplies growers with agricultural machinery and fertilisers at a low price, assists them to purchase selected live-stock, and propagates agricultural information through the organisation of courses and the distribution of literature. The service of agricultural experts, who assist and advise farmers, has also been increased considerably.

NETHERLANDS

Official bodies and private persons have at different times conducted enquiries into the food habits and nutritional state of sections of the population. Some of these are not yet complete, but certain information furnished by the Dutch Government and by the Dutch delegate at the meeting of representatives of National Nutrition Committees is given below.

A Committee has been set up by the Ministry of Social Affairs to investigate the state of nutrition and health of the unemployed. Enquiries have been made amongst 500 families in twenty-eight communes. The year was divided into three parts and investigations

covered one month in each period, making three months in all. The field work was conducted by twenty-two domestic science teachers, and careful records were kept of the amounts consumed in each household. The results should be available in 1939.

Another enquiry in the Netherlands has covered 2,000 working-class women, mostly pregnant. Blood samples were taken of these women, and examination showed that there was little difference between the amount of vitamins A and C in the case of the wives of the unemployed and those whose husbands were in work. Both showed a deficiency of these vitamins.

A family budget survey has been carried out by the Central Bureau of Statistics in the Netherlands. Six-hundred families were covered, including all classes of workers and also well-to-do people. In general, it has been shown that there is a lack of calcium, owing probably to the low consumption of milk.

During the past three years, steps have been taken to observe the state of nutrition of school-children and about 50,000 are examined each year.

Calculations have been made regarding the food requirements of the Dutch people in relation to home production, and the conclusion reached is that, should the need arise, domestic production could probably be made to meet the food requirements of the population.

Investigations conducted by municipal authorities include two at The Hague into the budgetary situation of families of unemployed workers, one in March 1935 covering sixty-two families and another in the last quarter of 1936 covering ninety families.

In Amsterdam, enquiries were made in 1934/35 into the situation of seventy-eight unemployed workers and their families and thirty-seven employed workers and their families. In the same city, the state of nutrition of over 7,000 school-children was examined in 1935 and a somewhat smaller number in the following year. An investigation in 1934/35 covered the budgets of, and the quantities of foodstuffs consumed by, 184 families in Amsterdam.

An enquiry in 1935 and 1936 dealt with the budgets and state of health of eighty-one unemployed workers and their families in Utrecht, while a number of investigations have been conducted into the height and weight of school-children in the same city.

In Rotterdam, the state of nutrition of about 11,000 school-children was investigated in February of each of the years 1935, 1936 and 1937.

Recent unofficial investigations have included two into the state of nutrition of the families of unemployed workers and a survey organised in 1936 by the Rural Foundation for Education in Household Management into the state of nutrition of over 260 families of agricultural workers, small farmers, fishermen, etc. Dr. den Hartog has made three enquiries into the nutritional state of rural workers and rural families in the province of Groeningen.

NEW ZEALAND¹

The climate of New Zealand is favourable to the production of all foodstuffs necessary for an adequate and satisfactory diet. The following extract from the *New Zealand Official Year-Book* for 1936 gives an indication of the consumption of certain foodstuffs, from which it will be seen that cheese is not freely used, meat bulking largely in the diet of New Zealanders:

Average Annual Consumption of Certain Articles of Foodstuffs.

Article	Estimated annual consumption per head (lb.)
Butter	40
Cheese	5
<i>Fresh meat:</i>	
Beef	117
Mutton	87
Lamb	23
Pork	6
Bacon and ham	11
Sugar	104
Potatoes	181

The amount of vegetables consumed is very difficult to assess, as most people have their own gardens and grow their own vegetables; fresh fruit also is readily procurable. The average daily

¹ The information given in this section was furnished by the Department of Health in New Zealand in 1937.

consumption of milk is calculated at about five-eighths of a pint per person.

There are no slum conditions in New Zealand comparable to conditions in older countries overseas. New Zealanders are not flat-dwellers; the cities and small towns are all well spread out and a large proportion of the people live in homes, with flower, fruit and vegetable gardens attached.

While no close observation of minor manifestations of rickets has been made, gross manifestations of deficiency diseases, such as rickets and scurvy, are not present in New Zealand. School medical officers report a definite proportion of school-children as suffering from faulty posture and minor physical defects, and two conditions which give rise to concern are dental caries and goitre. Research work has been carried out regarding goitre and is still proceeding.

NORWAY

The nutrition problem in Norway has to be considered in the light of the fact that climatic and soil conditions in that country do not permit the production of foods adequate for the maintenance of optimal nutrition. There is a great lack of certain foodstuffs and an abundance of others.

If the annual production of certain important foods in Norway is compared with the estimated annual food requirements, it is found that there is a considerable deficiency in the case of certain foodstuffs such as cereals and vegetables.¹

On the other hand, there is a surplus production of, for example, fish and potatoes.

¹ One delegate, referring to the small area of arable land in certain countries and the difficulty of producing fresh vegetables and fruit, wondered whether the system of water culture devised by Berkeley might not eventually be used to some extent in such countries. It had been shown that it was possible to produce pumpkins, tomatoes, etc., on a commercial scale by using this method. Plants could thus be grown in water on rocky or waste land. In California, this method was apparently so well established that it was being used on the roofs of hotels.

Actual figures are given in the following table:

Estimated Food Requirements of Norway compared with Home Production.

	Annual requirements for the population as a whole		Approximate annual production for the whole country
	Oslo Committee 1937 Tons	Langfeldt 1932 Tons	Tons
Whole milk	576,000	720,000	1,352,000 (Aggregate presumed milk production for 1935, including milk used for butter, cheese, fodder, etc.)
Skim-milk	434,200	—	—
Eggs	15,200	21,900	21,560 (1935)
Meat, blood, intestines	71,400	56,700	55,000 (not easy to estimate accurately)
Fish	86,200	100,000	683,300 (1935)
Green vegetables and roots	207,600	219,000	64,000 (average for 1934 and 1935)
Potatoes	427,000	730,000	916,000 (1935)
Fruit and berries	41,000	73,000	55,000 (average for 1934 and 1935)
Bread	335,800 *	—	— 9,285 (1935, of this about 5,000 tons is mixed with margarine)
Butter	30,050	21,900	—
Cheese	29,850	21,900	17,500 (1935, dairy-produced only)
Oil	540	—	—
Flour and groats	66,820	—	—
Sugar	29,400	—	—
Margarine	47,100	—	51,500
Bacon	9,420	29,200	44,700
Peas and beans	9,420	7,300	1,700
Cocoa	6,530	—	—
Coffee	8,880	—	—

* This corresponds to 223,000 tons of bread cereals. Together with the necessary quantities of flour and groats, this gives a total annual requirement of about 290,000 tons of cereals and flour for human nutrition. Home production figures for 1935 in respect of the two principal bread cereals were about 51,000 tons of wheat and 12,000 tons of rye.

In 1933, a survey was undertaken for a period of four weeks in May and June of the diets of 301 families in rural or small industrial districts in South-eastern Norway. Only sixty-five of the families were wholly self-supporting, 132 were on part relief and 104 were entirely dependent on relief.

It was found that the diet was generally very monotonous and, in the case of families on relief, it consisted almost entirely of skim-milk, salt bacon, salt herring, cereals, potatoes and sugar.

The energy value and the protein, fat and mineral content of the diet was considerably greater in the self-supporting families than in those dependent on relief, and there was a similar difference between families receiving higher and those receiving lower grants of relief. In other words, the consumption of the protective foods increased as the purchasing power of the family increased. Families which grew potatoes or kept a cow were found to have a more adequate diet, owing to a higher consumption of potatoes or milk products.

The calorie intake, as well as the protein and mineral intake, was quite inadequate in many of the families. The consumption of fresh vegetables and fruit was too low in all, and that of milk, eggs, meat and dairy produce was too low in many families. It was found that fifty-three families (18% of those examined) did not use any whole milk at all during the four weeks of the investigation.

The conclusion is drawn that the scales of relief were inadequate to provide for the nutritional requirements of the families and that the situation was especially serious where there were several children, since the extra relief grant made for each additional child was inadequate to cover its food requirements.

The statement furnished to the League by the Norwegian Government contains an account of different investigations made in the past and, on the basis of these, gives the following general description regarding consumption of the principal groups of protective foods in Norway:

" On the basis of the above-mentioned investigations and taking into account the figures found in the production and trade statistics (but with strong reservations in view of the incompleteness of the material), the following general description may be given of consumption in the principal groups of ' protective foods ' in Norway:

" Milk: medium irregular consumption;

" Milk products (butter and cheese): consumption too small and irregular;

- " Meat: rather small and very irregular consumption;
- " Fish: comparatively large but very irregular consumption;
- " Eggs: medium and surprisingly regular consumption;
- " Fresh vegetables: decidedly too small and very irregular consumption;
- " Potatoes: medium and fairly regular consumption;
- " Fresh fruit: decidedly too small and very irregular consumption.

" There are grounds for supposing that errors in diet are most pronounced among the less well-to-do inhabitants of the rural and coastal districts. The most unsatisfactory dietary has hitherto been found among families in receipt of public relief and here especially among those with the largest number of children."

Apart from a minor enquiry in 1932, covering thirty-five families in an industrial district near Bergen, all the Norwegian investigations in the past dealt only with the dietary, while the state of health and nutrition were not ascertained.

Between 1935 and 1937, however, a survey was carried out by Dr. Evang and Dr. Hansen which embraced both the dietary of the families and certain aspects of their clinical state of nutrition. The results are expected to be published in the near future. About 250 families, most of them living in or near Oslo, and a smaller number of families in two fishing-districts of Northern Norway were examined. A combined periodical examination was made of:

- (1) Dietary (by the weighing method);
- (2) State of nutrition;
- (3) Occupation (muscular performance);
- (4) Financial resources.

The dietary was examined two or three times a year for four weeks at a time, with a view to seasonal variations. Each housewife was supplied with scales and assisted by inspectors.

At the same time, certain aspects of the clinical state of nutrition of the individual members of the family were investigated, and the medical history of all of them was recorded. The heart

and lungs were physically examined and the height and weight measured. The general condition was judged from appearance, and the teeth were examined by a dentist. The hæmoglobin was determined by the Zeiss-Ikon hæmometer, and the capillary resistance test, Frandsen's distinction test and Pirquet's tuberculin test were applied. It was realised that the effectiveness of the capillary test and the distinction test was open to doubt, but they were used experimentally in these cases, as it was thought that, in general, as many tests as possible should be used. In the case of individuals giving a positive reaction to the capillary test, röntgenograms of the teeth were taken. For some of those reacting positively, the distinction test included a study of the effect of vitamin A preparations given *per os* or injected intramuscularly.

In the same country, the University Hygiene Institute has been conducting investigations since 1933, into the dietary in various kinds of institutions. These enquiries, which are still proceeding, have covered a number of hospitals, asylums, sanatoria, tuberculosis hospitals, coast hospitals, children's homes and boarding-schools. Other recent enquiries by the Institute include an investigation in boarding-schools in Finnmark, an enquiry into the dietary of school-children in Nord-Odal, with special regard to the occurrence of goitre and an examination of the dietary and nutritional conditions in a lunatic asylum. It is stated that the Institute's enquiries show that errors in diet are very frequent. In a number of institutions, the sums allotted for the supply of food were found to be so small that it was quite impossible to provide an adequate diet with the present prices of foodstuffs. In some of the homes for children the expenditure on food was extremely small.

POLAND

A National Committee on Nutrition has quite recently been appointed in Poland (September 1938).

Various institutes in Poland have collected information on nutritional conditions in that country. The details of a few surveys have been published by the Central Statistical Office, the Institute of Social Affairs and the Institute of Social Economy. These

surveys concern working-class families (1927, 1935), unemployed families (1932), families of employees (1932) and teachers in urban and rural districts (1934). The surveys have dealt with family budgets, but they include much information on nutrition questions.

The Institute of Rural Economy published in 1937 the results of enquiries on the nutrition of farming families based on agricultural records. Another economic survey was conducted by the Institute of Social Economy and covered about sixty villages in various parts of the country. This survey was in the form of questionnaires (including questions on nutrition) addressed to the wives of farmers.

SWEDEN

In Sweden, investigations have been made into the vitamin A intake of school-children. About a hundred children were examined near Stockholm and only about 30% to 40% were found to be normal (though the standards employed (Jeans and Zentmire) were somewhat high). It was found that better results were obtained in respect of the older children, a fact which may be due to the method employed or may indicate that the vitamin A requirements of small children are greater than those of older ones.

In a second investigation, carried out in the most northerly part of Sweden, very few of the subjects observed were found to be normal according to Jeans and Zentmire's standards. Marked differences were found to arise from the manner of living, the social and economic situation of the persons examined, etc. The full results of these surveys will probably be ready for publication this year.

The Swedish Committee has (1) undertaken a study from the nutritional standpoint of material from the 1933 family budgets enquiry, with the object, *inter alia*, of estimating the distribution in these budgets of various vital constituents of diet (the investigation is not yet entirely completed); (2) made an enquiry into diet conditions in Swedish hospitals, the results of which were published in 1937; (3) decided to make an investigation into the diets of school-children.

UNITED STATES OF AMERICA¹

Information has been collected regarding the diets of families of employed wage-earners and clerical workers in cities. The results of these investigations, which have been directed by Dr. Stiebeling, of the Bureau of Home Economics, will shortly be published by the United States Department of Agriculture.

The enquiry has produced information regarding expenditures for food by families of wage-earners and low-salaried clerical workers, the quantities of different kinds of food purchased by them, and the nutritive adequacy of diets. An analysis was made of about 4,000 dietary records covering one week each, obtained during the period December 1934 to February 1937 in forty-three industrial centres. It should be noted that none of the families examined had been on relief during the preceding year, while all had incomes of at least \$500 and had enjoyed fairly steady employment. The data on food consumption were obtained by the weighing method.

The following are some of the results of the survey:

(a) Most families were found to spend between 25% and 40% of their income on food.

(b) Rising expenditures for food meant increased purchases of nearly all kinds of foods, but the increments were most pronounced in the case of milk, butter, cream, eggs, meat, fruit and vegetables.

(c) As regards the nutritive value of the food as related to standards of adequacy, less than 2% of the white families examined had diets furnishing less than the minimum requirement of protein (45 grammes); less than 5% had diets furnishing less than 10 milligrammes of iron per requirement unit a day. About a sixth had diets furnishing less than the average minimum requirement of 0.45 gramme of calcium a unit a day; about a third obtained diets high enough in vitamin A to ensure good visual adaptation in semi-darkness; about a tenth obtained less than 300 international units of vitamin B₁ a unit a day. In about 10%

¹ Cf. pages 66-71 of "The Workers' Standard of Living", published by the International Labour Office (Series B (Economic Conditions), No. 30). The same publication also contains useful information regarding nutritional conditions in Poland (pages 78-80), India (pages 85-87) and Japan (pages 92-94).

of the families, the food before cooking had less than 37 milligrammes of ascorbic acid a unit a day. Riboflavin appeared to be fairly well supplied in average diets. Finally, except in the south-east, diets seemed ample in the pellagra-preventing factor.

(d) The diets were classed as good, fair or poor, according to their nutritive content per requirement unit. At each important level of expenditure for food, all grades of diet were found, but the percentage that fell in the higher grades increased with rising expenditures for food. From 40% to 60% of the diets of white families in the four regions from which most extensive data were obtained were found to be in need of improvement. Over 60% of the diets of negro families in the south were in this class. It is interesting to note that the quality of the food supply selected by families was by no means only a matter of level of food expenditure, for, at every expenditure-level above a certain minimum, some families succeeded in obtaining good diets, while others procured food only fair or poor from the standpoint of nutritive value. Of every ten white families spending enough or more on food to purchase adequate diets, only from two to four selected good or very good diets.

(e) Average diets included fewer eggs, from half to two-thirds as much milk, and less than two-thirds as much vegetables and fruit as did diets graded good. But even the good diets fell short of the allowances of these protective foods believed by many authorities to be optimal.

Food investigations have also been made in the United States in connection with the Study of Consumer Purchases, of which the field work was done in 1936. This study has been conducted by the Bureau of Home Economics and the Bureau of Labour Statistics, with the co-operation of the National Resources Committee, the Central Statistical Board and the Works Progress Administration. The objective has been to provide information regarding the income and expenditures of American-born families at different income-levels; families living in cities, villages and farms and in various geographical regions have been covered.

Food records were obtained from a number of the families included in the investigation, and these records provided the basis for estimating the adequacy of diets at the different income-levels. The records covered a seven-day period.

The data have now been collected and are being tabulated and analysed, though preliminary reports on some aspects of the study have been issued. These preliminary reports seem to show: ¹

(1) That there is a striking uniformity in American ideas as to what is "right" to spend for food;

(2) That families which are able to spend more for food buy more milk, butter, eggs, meat, fruits and vegetables.

(3) That some families have too little money to buy a fully adequate food supply, however carefully they select it.

(4) That many families, even when spending fairly generous amounts for food, obtained insufficient calcium, vitamin A and vitamin B. A large proportion of the families on poor diets would be able to secure food adequate for their nutritional needs if they realised the importance of good nutrition and if they selected an assortment of food to give them the best returns in nutritive value for the money spent.

Three extensive investigations into the nutritional status of young women of college age are being carried out under the Bureau of Home Economics, with Federal financial support. The most comprehensive of these is in six of the North-Central States of the country. On entering college, the freshmen undergo a physical examination (anthropometric measurements, basal metabolism determinations, blood studies including hæmoglobin tests, red and white blood cell counts). Their dietary habits, both quantitative and qualitative, are also recorded. So far, only the anthropometric measurements are available. The object is not only to determine the present nutritional status of young women of this age, but also to ascertain whether dietary standards as now established for this category of person are correct. The investigation is to go on for five years.

In two groups of States, one in the north-east and one in the north-west, studies are being carried on to determine the vitamin C metabolism and requirements of young women of college age. As far as can be judged by the preliminary findings, there is a somewhat

¹ H. K. STIEBELING: "Some Pre-views of an Analysis of American Diets", *Medical Woman's Journal*, November 1937, pages 313 to 317.

higher consumption of vitamin C in the north-west than in the north-east and this has also been shown to be the case in the dietary analyses of Stiebelling noted above.

Studies have been made on the vitamin A requirements of five normal adults kept on a controlled diet. The tests, made by the light adaptation methods, showed wide variations in individual minimum requirements varying from 25 to 56 international units per kilogramme of body-weight in the case of vitamin A, and 43 to 104 international units per kilogramme in the case of carotene. Further studies are being made of the influence of different fats on the efficiency of carotene in providing for the vitamin A requirements of adults.

Investigations have been undertaken into the dietary habits of children in institutions; the State university of Illinois, for example, has investigated the calcium and phosphorus requirements of children.

In connection with rural populations, records have been kept over long periods, the system of special household books having been employed. A notable example exists in the State of Illinois, where household and farm records including detailed accounts have in some cases been kept over a period of seven years. Within the past year, efforts have also been made to correlate the production records of the farm and the consumption records of the home, and this should enable a true picture to be given of the food habits of the family.

The American representative at the meeting of National Nutrition Committees drew attention to two surveys which had been conducted with the aid of Federal funds in two geographically different regions of South Carolina by a group of research workers in 1935. These workers had endeavoured to ascertain from the actual consumption of the population in those regions what diets proved to be adequate on analysis. The aim was to obtain sufficient information to be able to recommend the best local diets for these regions.

YUGOSLAVIA

An interesting account of the principal aspects of the nutrition problem in Yugoslavia is contained in the reply furnished by the

Yugoslav Government to the League's enquiry. The following is only a bare summary of the main points which emerge:

(a) Foodstuffs of animal origin, especially meat, predominate among the urban population in that country.

(b) As regards the villages, the dietary shows marked seasonal differences. Broadly speaking, the peasants' winter dietary is monotonous and inadequate in quantity and quality, consisting almost solely of bread and beans. In the spring, there is a partial famine of foods rich in protein, mineral elements and vitamins. The peasants' summer dietary provides nearly all the necessary elements, while, in the autumn, his nutrition improves noticeably.

(c) The nutrition of the population of Yugoslavia also varies according to geographical situation, the type of land cultivated, the methods of farming practised, distance from towns, cultural standards and the number of fasts observed. It is stated that a good many villages observe practically all the Orthodox fasts, which may amount to as many as 206 days in the year.

(d) It is noted that, even in the rich wheat areas, many houses are to be found in which, from Christmas onwards, there is no wheat for making bread, the villagers being obliged to buy it in the market. Similarly, under present-day economic conditions, the peasant is obliged to send his milk and eggs to the market instead of consuming them at home, and farm workers and their children suffer from all kinds of deficiency diseases.

Up to 1938, no systematic examination of nutrition conditions had been made covering the whole country, though studies had been carried out in certain localities. During the year 1938, however, the following nutrition studies have been undertaken:

1. *A study of the nutrition of rural populations* by the methods employed by the Bureau of Home Economics of the United States Department of Agriculture was begun in May 1938. During discussions towards the end of 1937 between the representative of the Health Section of the League of Nations, (Dr. Stiebeling), and representatives of the Central Institute of Hygiene and the School of Public Health, model nutrition schemes as employed in the United States were studied and adapted to Yugoslav conditions. The whole territory of the State was then divided for purposes of study between the Central Institute of Hygiene at Belgrade

and the School of Public Health at Zagreb. To begin with, six villages were chosen—viz., three within the area of one of these institutes and three in the other. The villages were chosen so as to give a rough idea of the nutrition methods of the rural population throughout the country. It is expected that, before the end of the year, the work will be extended to a number of other villages.

Since these studies involve one week in each village during each of the four seasons, no information can yet be given as to their results.

2. *An enquiry into the problem of nutrition in relation to social and economic conditions* will be carried out this year by the Institute of Hygiene of Ljubljana in two communes. For this purpose, the Institute has prepared a scheme of investigation covering agricultural, social, economic and housing conditions, nutrition, hygienic conditions and the state of health of the families of the agriculturists.

3. At the beginning of last year, a circular was sent to all health establishments by the Ministry of Social Insurance and Public Health, recommending *the registration of all cases of manifest vitamin deficiency diseases throughout the country*. The attention of doctors was particularly drawn to the relation between nutrition in the various regions of the State and cases of vitamin deficiency diseases. This study was designed to show, among other things, the connection between the fasts of the Christian part of the population and cases of vitamin deficiency diseases.

The information collected goes to show that cases of vitamin deficiency diseases were common to the entire population, both urban and rural.

Of 2,371 cases of vitamin deficiency examined, 53 were cases of vitamin A deficiency, 103 of B, 154 of C, 1,870 of D and 92 undetermined. This shows that every type of vitamin deficiency is represented in Yugoslavia. The principal form is rickets, but there is plenty of vitamin C and vitamin B deficiency. Pellagra is especially common. During the Easter fast, epidemics of hemeralopia (night-blindness) occur amongst adults in certain regions of Serbia, and other eye diseases among children.

Similar questionnaires have been sent out this year to all medical institutions and doctors.

4. *A study of the nutrition of infants in the rural population* was started at the beginning of this year, with the help of all health institutions and doctors throughout the country. This study is mainly devoted to the method of feeding infants in villages, and where an artificial method of nutrition is adopted, the manner in which this is carried out. The doctor who obtains the information is asked to give his opinion as to the state of health of every child for which data are obtained. This study promises to yield interesting results.

5. *A number of "nutrition diaries" have been kept*, of which the two principal relate to the villages of Rusanj and Zuc, both in the district of Vračar. The diaries have been kept daily for a whole year and not only has a careful note been made of each meal, but the quantity of foodstuffs consumed has been weighed and duly entered. At the same time, a note has been made of how every member of the family was occupied every day, and of the family's income and expenditure. The diaries have not yet been published.

Chapter V.

SPECIAL RESEARCH

While a vast amount of research has been made into nutrition problems in recent years and the broad foundations of the new knowledge have been securely laid, it remains nevertheless true that exact data are lacking on many points, and there is a large number of aspects of the nutrition problem on which research is urgently needed.

COMPOSITION OF FOODSTUFFS

At the present time, considerable attention is being paid by certain National Committees to investigations into the relative nutritive value of different foodstuffs. The composition of particular foods varies from country to country, and even as between different regions of the same country. It is desirable that laboratories should be encouraged to continue their work in this field, as most of the existing food-composition tables are inadequate or in need of revision. The importance of stimulating research in individual countries and of establishing reliable food-composition tables was stressed by several delegates at the meeting of representatives of National Nutrition Committees. Many foods have not yet been analysed at all.

As examples of this type of work, reference may be made to two investigations carried out under the auspices of the *Australian Council*. One of these consisted of an investigation into the mineral content of certain foods in Queensland; the other was an analysis of the nutritive value of the foods consumed in Australian households as recorded in the booklets used in the family dietary survey. Articles of food from samples locally obtained in the open market were analysed and a classified list of foodstuffs with

tables showing edible proportions, chemical composition and calorie value under Australian conditions has been published.

In *Canada*, a national dietary standard has been drawn up and adopted. This standard, which is a compromise between minimal and optimal requirements, will be revised when further information warrants a change. A Sub-Committee is collecting data on what is known regarding the nutritional values of Canadian foods. This Sub-Committee is canvassing university and research institutions in Canada as to existing information on this subject, and will assist in organising, co-ordinating and supporting future work on the composition of Canadian foods in different laboratories. Three laboratories are now engaged in analysing food, including prepared foods.

In *Sweden*, an investigation into the mineral content of Swedish flours has been concluded. The Swedish Milling Federation has requested the Nutrition Council in Sweden to carry out an enquiry to determine the nutritive value of flour and bread, the expenses of which will be defrayed by the Federation and the Co-operative Wholesale Union.

In *Denmark*, at the instigation of the Nutrition Committee, investigations have been carried out in respect of the calcium and phosphorus content of a number of foodstuffs.

In connection with the investigation into the nutrition of working-class families referred to on page 38, a large number of common foodstuffs was analysed in the Biochemical Institute in *Finland*, especially with regard to their carotene and vitamin A and vitamin C content. The Finnish delegate at the meeting of representatives of National Nutrition Committees referred to the desirability of investigating the value of vegetables as a source of vitamin A in human nutrition and the extent to which carotene is converted into vitamin A in the body.

The chemical laboratory of the Central Institute of Hygiene at *Belgrade* is examining the nutritive elements in foodstuffs of native origin. Since last year, it has been studying the vitamin content of vegetables.

The *Venezuelan* Sub-Committee on Nutrition is making a detailed study of dietetics in respect of the staple foodstuffs produced in the country.

The scientific aspect of the problem of nutrition is a subject of special study at the University of *Latvia*, which has a large laboratory for this purpose. The latest research work done there has been mainly concerned with the nutritive value of domestic foodstuffs.

In *Iraq*, analyses are being made of milk from various sources (cow, buffalo, goat, etc.) and of milk products (liban, butter, etc.). Analytical investigation of wheats grown in *Iraq* is also taking place, as there appear to be considerable differences arising in the various types. Many analyses of the commercial varieties of dates have been completed for the purpose of determining their nutritive value, especially as regards mineral content. A product similar to honey has been obtained from dates, having the nutritive qualities of the fruits in a more available form, and it is to be produced on a commercial basis in the near future.

The analysis of a number of foodstuffs produced locally has been completed in *Egypt*, but the majority still need to be analysed.

Food analysis data obtained by research in the Coonoor Laboratories in *India* is incorporated in a publication entitled "The Nutritive Value of Indian Foods and the Planning of Satisfactory Diets", published by the Government of India.

The nutritive value of soya bean has been studied in *India* by experiments on animals and also by controlled experiments on school-children. The general conclusion is that soya bean, considered as a supplement to typical Indian diets, is not of outstanding value. Work on the biological value of proteins has been continued and extended at Coonoor and elsewhere in *India*, and a considerable number of common foods have been investigated. Experiments have been carried out, in order to ascertain the value of milk as a supplement to Indian dietaries. It has been conclusively shown that skim-milk is of great value in improving the health and development of Indian children.

In the *United Kingdom*, the conversion factors for individual foods needed to ascertain the actual quantities of nutrients consumed in relation to any given amount of food purchased have been considered. So far, bacon and ham have been dealt with, and more reliable figures of the proportions of protein, fat, etc., have been obtained than those hitherto available. It is proposed to carry

out similar researches into the nutrient constituents of beef. The report of the United Kingdom Food Investigation Board for the year 1937¹ gives interesting accounts of researches in relation to meat, poultry and eggs, pork, bacon and ham, fish, fruit and vegetables.

In *France*, different research centres are working on the several questions of nitrogen, fat and mineral metabolism, on the functions of the liver in intermediate metabolism and on the fundamental laws regulating nutrition. The question of pre-deficiencies in general, particularly in children, is being systematically investigated, and various vitamin studies are in progress. Further work is being carried out on the use of spectrophotometric methods of measuring vitamin A, carotenes and vitamin C, and a new biological test for vitamin A, using the measurement of the chronaxis, has been suggested.

A histochemical method for testing vitamin C in plant and animal organs is being used in the study of vitamin C metabolism in France.

The laboratory of the Centre de Recherches sur l'Alimentation is conducting research on the rôle of different vitamins B in nutrition and on the importance of a biochemical equilibrium in the diet. Analyses of foodstuffs are also made, in order to keep the food composition tables up to date and to extend them further.

The Service de la Recherche scientifique is considering the possibility of forming, in 1939, a special committee to group together the different workers in the field of nutrition and to develop a systematic plan of research.

The Bureau of Home Economics in the *United States of America* maintains a staff of experts to collect information from reliable sources on the composition of foods.

Research work is taking place at the State agricultural experiment stations throughout the country. Considerable work has been done on the vitamin content of foods as affected by different factors, and on the composition of fresh fruits, vegetables, etc.

The experiment stations receive Federal support and are supervised by the United States Department of Agriculture

¹ Obtainable from H.M. Stationery Office, London.

through the Office of Experiment Stations. Annual lists of projects and publications on this work are available, and a non-technical report of progress is also issued annually as part of the report on the agricultural experiment stations.

Studies on the effect of canning on the vitamin C content of tomatoes, and the effect of cooking on the vitamin B₁ and vitamin A content of vegetables were made in answer to consumers' requests for information.

The vitamin B₁ content of foods is now assayed in terms of crystalline thiamin.

A compilation of the vitamin values of foods is being brought up to date.

Studies of the physiological function of vanadium are being made.

Practical and extensive tables on food composition are being completed for general use. The principles and methods of food preparation and preservation are also studied in the United States.

VARIATIONS IN FOOD COMPOSITION

The importance of investigating seasonal variations in the vitamin content of foodstuffs, such as oranges, has been brought out by ascorbic acid tests on oranges in Iraq. The tests showed that, while the oranges had a high content of ascorbic acid at the height of the season, at the end, a proportion of the samples had none at all. These experiments are confirmed by others in Egypt on the vitamin C content of limes. In the United States, investigations on the vitamin C content of oranges have shown that, in some varieties, there is an increase in vitamin C content up to maturity and a decrease after maturity.

Mention should be made of a project for studying the composition and nutritive value of vegetables in the United States of America, which is being financed by Federal funds allotted to the State experiment stations. Experience has shown that, in the United States, there are wide variations in the composition and value of the foods grown in different parts of the country. The experiment stations are therefore investigating variations in the mineral content of vegetables grown under different environmental conditions. Further

analyses are envisaged of the vitamin and protein content and the availability of the minerals, nitrogen and carbohydrate of vegetables.

RESEARCH AIMING AT IMPROVED NUTRITION

In certain countries, methods of improving the nutritive qualities of particular foodstuffs are being examined. The questions dealt with include, for example, the cleanliness and purity of milk, which is considered in a later chapter.

In Iraq, investigations are being made into the possibility of producing yeast on a large scale as a source of vitamins and protein. In the same country, "gaynar", a specially processed cream of wide consumption, has been investigated, partly for the purpose of preserving and improving its nutritive qualities by the introduction of modern processing practices.

THE VITAMINISATION OF FOODSTUFFS

Both the Swedish and the Belgian delegates at the meeting held in Geneva in October referred to the importance of the question of the vitaminisation of foodstuffs. In Sweden, vitaminisation is not forbidden or controlled by the authorities, but the Nutrition Committee has succeeded in bringing about a voluntary arrangement between manufacturers, who have agreed to refrain from adding vitamins to foodstuffs pending legislation on the subject. A State laboratory for the control of vitaminised foodstuffs will probably be ready in 1939, and a special law regulating vitaminisation is contemplated.

On this question, the Belgian delegate writes as follows:

"In principle and generally speaking, many of the representatives on our Committee are of opinion that the artificial vitaminisation of foodstuffs should not be encouraged. There are cases, however, where this enrichment has been practised, as, for instance, the vitaminisation of margarine. The Committee considers such practices dangerous in our country so long as the State is not in a position to provide an official service to control the vitamin content of foodstuffs."

The Canadian delegate stated that preparations were being made in his country for vitamin control, the need of which was often felt.

The Danish Committee has done work on the vitaminisation of margarine, and, in Norway, the National Nutrition Council has had under consideration the question of State support for the vitaminisation of syrup.

BUTTER AND MARGARINE

The Swedish Council has sponsored an investigation, financed by the Government, into the composition of the fatty acids of butter and margarine with special reference to their effect on the absorption of calcium. The investigation has not yet been completed, but preliminary results are available. One of the two investigators, Professor Widmark, states that, in the case of adult animals, no difference was observed between butter and margarine with regard to their influence on the utilisation of calcium in the food. In growing animals, a slightly better calcium retention was observed in the case of those fed on a diet containing butter than in the case of those fed on a margarine diet. This difference was most marked in the autumn. Margarine was not found to have any positively harmful effect, and the assimilation of calcium was not lowered when the amount of margarine in the diet was increased.

Professor Westerlund, the other investigator, concluded that there was no difference in calcium retention between two groups of adult male albino rats, which could be attributed to the fact that they were fed respectively on margarine and butter.

DEFICIENCY DISEASES

Work is also being done in many countries in regard to deficiency diseases. It is now known, not only that a number of diseases are attributable to defects in diet, but that, even if a poor diet does not result in actual illness, it may show itself in minor forms of ill-health, in retarded physical growth or in backward mental development.

The cause of a deficiency state may date far back in the history of the individual concerned, and the effects of a poor diet may not appear until much later. During the great war, for example, it was found in a concentration camp that the same defective diet had produced scurvy in one group and pellagra in another, consequent on the pre-deficiency states peculiar to each.

The following examples of investigations into deficiency diseases have been brought to the attention of the League Secretariat.

A number of investigations have been begun in Denmark, at the instance of the Nutrition Committee, in regard to the effect of nutrition upon the condition of children's teeth.

In Norway, enquiries have been made respecting the occurrence of rickets and vitamin C deficiency in certain defined districts.

The Finnish Committee has made a study of the relationship between the occurrence of goitre and the amount of iodine secreted in the urine. The investigations in two districts, one where goitre is fairly general and another where it is exceptional, have shown that the iodine content of the urine is lower in the former. Practical measures for remedying the situation are under consideration.

In Iraq, investigations have been made into vitamin A and vitamin C deficiencies among children and young adults in Baghdad, using the dark adaptation test and ascorbic acid titration. As regards the vitamin A investigation, all the subjects examined showed an immediate response, even to a single dose of vitamin A concentrate. A number of other investigations are taking place in Iraq. One of the most interesting of these is Dr. Kennedy's investigation into the ultra-violet content of skyshine. It has been observed that rickets occurs in Iraq in spite of the large amount of sunlight there. Dr. Kennedy points out that bright sunshine does not necessarily indicate a large amount of ultra-violet radiation in the sky. He considers that National Nutrition Committees might usefully promote further research into the measurement of ultra-violet rays.

On page 63, an account is given of the system of registering cases of vitamin deficiency diseases in Yugoslavia.

Chapter VI.

ACTION TAKEN WITH A VIEW TO IMPROVING NUTRITIONAL STANDARDS

Much of the work of some of the National Nutrition Committees consists of giving advice to public authorities and others in response to specific enquiries. In Belgium, for example, the Nutrition Committee was consulted by the Unemployment Commissioner regarding the minimum diet required to preserve the body from a decline of fitness and the cost of such a diet.

Apart from replying to specific questions such as these, the Committees have, in some cases, made recommendations to their Governments and to other bodies on their own initiative. The Danish Committee, for instance, in the autumn of 1937, prepared and submitted to the Ministry of Justice a draft law designed to ensure the proper preparation of flour from the health point of view. Again, the Committee in Iraq—following upon a recommendation of the League Technical Commission¹—has advised the Iraqi Government on measures which could be taken to stimulate fisheries.

Usually, however, the recommendations are in more general terms and scarcely go beyond the enunciation of broad general principles which should be observed in shaping policy. In the Fourth Report of the Australian Council, for example, it is stated that, if the children of the inland districts are not receiving milk, fruit or vegetables, a sufficient quantity of these articles can be, and should be, supplied by cheap transport, by municipal or State organisations or by other means; that the breeding of goats for the supply of milk should be actively encouraged in inland districts; that there is need for action to ensure that mothers are reliably advised; that children who do not receive an adequate supply of milk should be

¹ Document C.H.1355, September 9th, 1938, page 7.

regularly so supplied; and that appropriate instruction should be given to teachers and children.

Measures have been taken in many countries with the object of improving national nutrition and of remedying deficiencies in the dietary of the less well-to-do sections of the population. The following information, quoted mainly from the replies furnished by Governments in response to the League's request, shows the action taken in certain countries.

One of the most effective forms of action in this field has been *the encouragement given to the production and consumption of commodities of high nutritive value, particularly of milk*. In Latvia, for example, the bonuses offered by the co-operative dairies to milk producers are stated to have improved quality appreciably. In Norway, with the object of remedying deficiencies in the diet of the poorer sections of the population, grants are made by the Department of Agriculture for the provision of cheap milk (and also meat and bacon) for poor families. In 1937/38, 900,000 kroner were allocated for the provision of cheap milk and 250,000 kroner for securing an increased consumption of meat and bacon.

In the United Kingdom, the declared policy of the Government is to promote "the increased consumption of milk among those sections of the population for whom it is of particular value".¹ In recent years, measures have been taken in that country to provide milk, free or at a reduced price, to necessitous mothers and children. The milk-in-schools scheme, which enables children of school age to get one-third of a pint daily for a halfpenny, is referred to later.

The milk-in-industry scheme has also been successfully developed in the United Kingdom and, through it, industrial workers are able to have milk at work. There are stated to be now over 7,000 factories which employ nearly $2\frac{1}{4}$ million workpeople participating in the scheme. Consumption is at the rate of $8\frac{1}{2}$ million gallons a year, having nearly doubled in twelve months. There is said to be no adverse effect on ordinary retail sales, while the scheme has led to decreased absenteeism and better health among the workers drinking milk daily.²

¹ Cmd. 5533: "Milk Policy", July 1937.

² Report of the Milk Publicity Council, quoted in *The Times*, September 10th, 1938.

In 1936, the Nutrition Committee in the United Kingdom published a report on "The Nutritive Value of Milk", so as to bring prominently to public notice the importance of including an adequate quantity of milk in the diet.

The Belgian Committee has examined the question of improving the nutritive qualities and cleanliness of milk. In a report entitled "Outlines of a Milk Campaign", the establishment of a central body to organise and encourage the campaign for good milk was suggested. The Ministry of Agriculture now proposes to establish a Milk Office, whose function will be to engage in propaganda in favour of milk.

Attempts are being made in Hungary to improve the consumption of milk, which is low, averaging 157 litres per head annually.

The Village Association of Hungarian Farmers and Landworkers initiated a milk distribution campaign in 1937. This association, with financial assistance from the Government and other sources, distributed 123,000 litres of milk to 10,226 children. Each child received 200 c.c. of milk daily for the first three months of the year.

The work has been extended in 1938. Distribution is planned for six months, as from October 15th, to reach 23,000 children. Each child will receive 250 c.c. of free milk. Altogether 500,000 litres of milk will be distributed, the cost being defrayed partly by the Government and partly by local contributions.

The milk is given free to poor children, but the children of better-class farmers may receive it for a small charge. It is distributed in the school.

In Budapest, 16,000 poor children receive a free breakfast of milk and bread, 701,403 litres of milk being distributed in this way in 1937.

In 1939, the distribution of milk is to be further extended. The Government has placed 2½ million pengő at the disposal of the Home Office for the purpose of providing free milk to pregnant and nursing women, babies and young children. Altogether, it is planned to supply 186,000 persons with 14,256,000 litres of milk in the year, free of charge.

In Iraq, a Committee has been appointed to deal with milk production and milk control, milk being the chief protein source for large numbers of the population.

Milk and milk products play an important part as a source of vitamins in Finnish diets. Reference has already been made in an earlier chapter to the fact that, in Finland, there is a serious deficiency of vitamin A in the diet of the population during the winter months, this being attributed to the decreased vitamin A content of milk during stall-feeding. According to Finnish authorities; cows' milk in that country contains about 2,000 international units of vitamin A per litre during pasture-feeding, and only about 700 units during stall-feeding. Efforts are therefore being made to change the cattle feed in such a way as to keep the vitamin A content of milk and milk products uniform throughout the year.

In this connection, the Finnish delegate at the meeting of representatives of National Nutrition Committees stated that the so-called A.I.V. process for the preservation of fresh fodder, which guaranteed the full preservation of carotene in fodder, was now spreading into general practice.

This process, which passed its experimental stage several years ago, is a method for the efficient preservation of protein-rich crops. By the use of the process, it is possible to conserve all kinds of succulent crops in such a manner that the nutritive losses are low and the vitamins and other constituents are not destroyed, while the fodder is palatable to the cows. High-protein plants may be cut and preserved when they are still immature—that is, when their protein and vitamin contents are high and their digestibility is good. This means that grasslands may be cut several times in the season instead of once as formerly, and that immature, digestible and vitamin-rich feeds can be preserved for the winter feeding of cattle. The use of concentrates is thereby diminished during the period of stall-feeding and at the same time winter milk comes to approach summer milk in quality, and particularly in its vitamin content. Thus the use of A.I.V. fodder in cattle-feeding is of great significance in regard to human nutrition.¹

Attention is also paid in Finland to the important problem of preserving the vitamin C in milk. This vitamin is rapidly lost if

¹ Full details of the process are given in "Cattle Fodder and Human Nutrition", by A. I. VIRTANEN (Cambridge University Press, August 1938).

It may be mentioned that efforts have also been made in Finland to increase the vitamin A intake in winter by the inclusion of raw or cooked carrots in the diet, particularly in the army and hospitals. It is considered doubtful, however, whether much progress can be achieved by this method.

the milk is exposed to light and, even without such exposure, slow decomposition takes place and increases with shaking. In order that the vitamin C may be preserved, therefore, it is desirable that the milk should reach consumers as quickly as possible. Measures have accordingly been taken to increase the rapidity of transport and to limit the area from which milk is drawn. In Helsinki, the vitamin C content of milk sold in the shops shows a loss compared with that of fresh milk of roughly 20%, which is not appreciable when comparison is made with the pasteurised milk sold in other European towns.¹

The Milk Inspectorate of Helsinki has fixed and controls the minimum carotene² content for bottled milk. It is hoped gradually to extend this control to all liquid milk. The Inspectorate also examines the vitamin C content of milk.

PROVISION OF CHEAP FOOD

A direction in which considerable progress has been made in several countries is in the provision of meals, either free or at low prices, to special groups of consumers.

In Norway, persons in receipt of relief are given food rations in certain districts. In February 1936, the Oslo City Council appointed a committee of four food experts to enquire into the conditions of nourishment among the recipients of relief in Oslo. In June 1937, the committee submitted its report with detailed recommendations for a scale of dietary for such persons. The local authorities in a number of districts have in recent years proceeded to increase their grants for supplying food to recipients of relief, these increases in some cases being greater than what is necessary to meet the rise in prices.

In Yugoslavia, there are many popular kitchens and the number is increasing. During 1936, the fifty-six kitchens maintained by

¹ In Finland, milk is not pasteurised, as the cattle are healthy and non-tubercular. Finland is probably the only country in the world where there is no bovine tuberculosis, this result having been achieved by the slaughter of the few infected animals.

² It has been ascertained that the ratio of vitamin A to carotene in the milk of Finnish breeds of cows is sufficiently constant to enable rough estimates of the vitamin A content to be based on the carotene content, which is relatively easy to determine.

the Ministry of Social Assistance and Public Health provided 839,602 meals.

The Yugoslav Government has given direct help in the feeding of the poorer population in years of bad harvests. This has been particularly the case in the so-called "passive" areas where, by reason of the poor quality of the soil or the small area of the holdings, the peasants' harvests were insufficient to feed their families. Foodstuffs have been distributed by the State to distressed widows, the poor, the infirm, orphans and persons incapable of work: and also as wages for labour on public works by poor peasants.

The Latvian Chamber of Labour has opened eleven restaurants in Riga, in which it distributes meals to urban workers at low prices. A meal of two courses can be obtained for 30 centimes, and one of three courses for 40 centimes.

In Uruguay, to take another example, over one and a-half million cheap meals were served under the auspices of the Nutrition Institute in popular restaurants in Montevideo, and nearly two and a-quarter million meals in the Republic as a whole during the year ended April 30th, 1938. According to the annual report of the Uruguayan Institute, the meals, which are intended for the working-classes, are composed exclusively of national products and, while being prepared on a scientific basis, take full account of the need for variety and for conforming to the customs of the people. Three meals are served daily, and these include the approximate quantities of constituents required to make up an adequate diet, including a daily ration of 510 grammes of pasteurised milk. The system is to be further extended.

It may be noted here that the building of the first model popular restaurant has been begun in Venezuela.

Popular restaurants have been started in certain Egyptian towns, where the very poor may get a decent meal for 1 piastre ($2\frac{1}{2}$ d.). For this sum, rice, vegetables, meat and bread are provided in quantities adequate for an adult. Such a meal costs the authorities nearly 2 piastres.

In Hungary, free food is distributed to the children of poor parents. In villages, the feeding is carried out by the Green Cross Organisation, the menu being planned by the National Nutrition Committee and the cost being largely met by the Home Office. Two meals—breakfast and lunch—are provided in

the schools or day-nurseries during the winter months. The City of Budapest also supplies free breakfasts and lunches to poor children.

In certain cases, food is also distributed to the unemployed in Hungary.

In this connection, mention may be made of the work of the Federal Surplus Commodities Corporation in the United States. This Corporation was formed in October 1933 to assist the Agricultural Adjustment Administration in its programme for the removal of price-depressing surpluses of farm products from the normal channels of trade. The Corporation disposes of commodities purchased by the Administration under its surplus purchase plan, and some of the commodities are donated to State and local relief agencies for distribution to needy persons under their care.

In the Netherlands, certain foodstuffs which cannot be sold at remunerative prices are supplied cheaply to the poor. In 1932, the price of butter and margarine was increased and, in order to meet in part the demand for fats among the poorer sections of the population, it was decided to allow them to buy margarine unmixed with butter. In 1937, over 6 $\frac{1}{4}$ million kilogrammes of unmixed margarine were supplied in this way, at a low price. At first, such margarine was supplied only to the unemployed and to persons on relief with four children or more in the family. These facilities have since been extended to families comprising from two to five members and, since 1937, the categories entitled to purchase margarine at the reduced price may also obtain edible fats at low cost.

In 1933, in view of the over-production of cattle, the Government had a proportion of the stock slaughtered, and the meat thus obtained was tinned and distributed to the unemployed. This policy has been continued and extended in subsequent years, and the products have also been made available to charitable institutions and to school-children. Vegetables are also distributed to the categories and institutions entitled to receive meat at reduced prices. Since minimum prices were fixed for the sale of vegetables, there has always remained an unsaleable surplus, which the Ministry of Agriculture places at the disposal of the Ministry of Social Affairs. During 1937, nearly 10 million kilogrammes of fresh vegetables and 160,000 kilogrammes of preserved vegetables

were distributed at a low price. Since 1937, tinned vegetables and tomato soup have been supplied to the unemployed and those on relief at low prices. Fish is distributed cheaply to the poor, being bought by the Ministry of Social Affairs at the public sales in IJmuiden at trade prices.

As regards the Netherlands, mention may also be made of "controlled retailing" in the event of slaughter under *force majeure*. Meat from animals which have had to be slaughtered is sold after bacteriological examination under the supervision of the public authorities. In this way, persons of small means are able to obtain fresh food cheaply, and the bacteriological examination removes any danger of food poisoning.

THE FEEDING OF SCHOOL-CHILDREN

Special attention is being paid to the feeding of school-children. In the United Kingdom, local education authorities are encouraged by the Board of Education to make full use of the powers conferred on them by the Education Act, 1921, to provide meals and/or milk for necessitous under-nourished children, and the numbers of children provided with supplementary nourishment increase year by year. Moreover, under the milk-in-schools scheme, nearly half of the children in public elementary schools obtain milk daily at a cheap rate—one-third of a pint for a halfpenny or two-thirds for one penny. This scheme is available also for children in certain other categories of schools, mainly those grant-aided by the Board. Efforts have recently been made to extend the scheme to school holidays, so that the children may have the benefit of milk out of term time.¹

The Board has recently appointed an expert inspector whose duty it is to visit the centres at which free meals are provided, and from the dietetic point of view to advise the authorities as to the dietary and the preparation and service of the meals provided.

¹ Report of the Milk Publicity Council, quoted in *The Times*, September 10th, 1938.

The Board also encourages the provision by local education authorities at schools to which children have to travel some distance from their homes of canteens, at which a wholesome cooked meal may be obtained at midday at a cheap rate.

The French Government endeavours to ensure the satisfactory feeding of children in institutions for which it is responsible. The health regulations applicable in secondary schools and colleges, drawn up by the Ministry of National Education, include detailed provisions regarding the selection and preparation of food, dietaries, expenditure on food, and supervision of foodstuffs. Specimen menus appropriate to the different seasons are appended to the regulations.

Giving effect to suggestions made by the National Nutrition Committee, the Ministry of National Education increased the number of school canteens in France by 1,694 in 1937 alone.

Through the active efforts of the National Milk Propaganda Committee and with the aid of funds provided by the Minister for Agriculture, milk is now distributed to school-children in 367 French centres spread over thirty-two *départements*.

In Oslo, school-children whose parents so desire receive breakfast free of charge at school (Professor Schiøtz's "Oslo breakfast"¹.) Several of the local authorities in Norway have followed Oslo's example.

In the Netherlands, food and clothing are distributed to elementary-school children by the communes and voluntary institutions. The expenditure by communal administrations for this purpose has increased considerably each year and reached the sum of 2 million florins in 1935.

Certain communes have organised the distribution of milk to children of the unemployed and the poor, and more than a million litres of milk were distributed by municipalities and other institutions in 1937. Milk for such distribution may be sold at a lower price than that fixed for ordinary sales. Efforts are being made to extend the distribution of milk to all children, and it has been proposed to introduce the system in over forty communes, including the main urban centres and several provincial towns.

¹ Consisting of one-third of a litre of milk, butter, wholemeal bread, cheese, half an orange, half an apple or a raw carrot, and cod-liver oil from September to March.

In Belgium, measures to facilitate the distribution of milk in certain schools are contemplated in various parts of the country. The National Committee, however, is not certain that these measures represent the best that can be done in the matter. It has suggested a comparative study, based on somatometric investigations, of the beneficial effects to be expected from the proposed arrangements and from the introduction of "the Oslo breakfast". The Pro Juventute Foundation, which is an organisation officially recognised as being of public utility and which aims at the improvement of the health and mental and moral development of the rising generation in Belgium, has decided to set on foot these enquiries, with the co-operation of certain schools in the Brussels area.

The school kitchens of the Red Cross Society in Yugoslavia provided 49,000 meals during the year 1937.

In Latvia, on March 1st, 1938, the number of elementary schools operating the system of school meals was 91.9% of the total number of such schools, and 57.5% of the total number of elementary school pupils benefited by the meals. A special instructress visits the schools, in order to organise and supervise their preparation. In the Riga schools, the price is only 16 to 17 centimes for a hot lunch. Poor pupils receive free lunches.

In March 1937, the New Zealand Government instituted a scheme whereby half-a-pint of milk a day is distributed to children attending public and private schools. The milk is pasteurised and delivered in bottles complete with straw.

MOTHERS AND YOUNG CHILDREN

A discussion regarding methods of improving the state of nutrition of infants and young children took place in the course of the meeting of representatives of National Nutrition Committees. It was clear that great importance was attached in the countries represented to the problem of improving the nutrition of the very young. As one delegate said, from a physiological point of view, the future health of the adult depends upon the health of the child during its early years, and this fact explains the attention given in many countries to expectant and nursing mothers and young children.

As an example of this attention, the following quotation from the report of the United Kingdom is of interest:

“ Maternity and child welfare authorities have power to arrange, subject to the sanction of the Ministry of Health, for providing extra nourishment for expectant and nursing mothers, and for children under the age of 5 years who are not being educated in schools recognised by the Board of Education. From April 1930, local authorities who had undertaken this service on the Minister’s approval were given a free hand to extend any arrangements then in operation to such an extent and in such manner as they might think desirable. There has, since that date, been a large expansion in the attendances at maternity and child welfare centres and ante-natal clinics.

“ Nearly every maternity and child welfare authority supplies milk free or at less than cost price to expectant and nursing mothers and to children under 5. A large proportion also supply foods other than milk, and some make arrangements for the supply of meals to the same groups. Health visitors are available to give advice to mothers on the feeding of children, and instruction is also given at maternity and child welfare clinics individually and collectively.

“ A circular was issued, on April 1st, 1937, to all maternity and child welfare authorities in the country, drawing attention to the First Report of the Advisory Committee on Nutrition and asking them to review at an early date their arrangements under the Maternity and Child Welfare Act for the supply of milk and other foods, in view of the importance of securing that the diet of pregnant and nursing mothers contains the proper constituents and that the consumption of milk, especially by young children, is increased. Suggestions were also made for the removal of various limitations—*e.g.*, by the relaxation of restrictions of the amount of milk and other food supplied, and by the amendment of the income scales adopted in connection with their arrangements for the supply of milk and food free or at less than cost price, to ensure that they were so framed as not to make it difficult for any who need help to take advantage of the arrangements.

“ The response to this circular has been most satisfactory, and the majority of the authorities whose arrangements fell in one respect or another below a desirable standard have taken the opportunity of reconsidering and improving them.”

As regards Scotland, which, in these matters, is administered separately from England and Wales, it is stated that, following on the First Report of the Advisory Committee on Nutrition, the Scottish Departments of Health and Education also issued a joint memorandum to local authorities. This memorandum directed the attention of the latter to the Committee's recommendations, and urged, in particular, that adequate provision should be made for the feeding of mothers and children.

The replies received from local authorities to the memorandum indicate, in the main, that adequate provision is already made in their health services for the prevention of malnutrition, or that instructions have been given to medical officers of health to exercise a wider discretion in the granting of extra milk and other nourishment in necessitous cases. Other measures proposed by local authorities include the development of instruction in cookery and dietetics, revision of the income scale used as a basis for the consideration of applications for additional food, and the provision of cooked midday meals to expectant and nursing mothers in selected cases.

An important contribution to the rational feeding of children in France is made by the milk dispensaries (“ Goutte de lait ”), which distribute, free of cost, food rations appropriate to the age and state of health of infants. At the present time, 212 such dispensaries are in existence.

Regulations issued in September 1938, concerning the welfare of infants, lay down conditions for the keeping of “ records of growth ” (“ carnets de croissance ”), with which every child up to the age of 3 who is under the supervision of the Government must be provided. The diet of the child must be set out in detail on his record-card. Definite instructions regarding the dietetic principles to be followed will be issued.

The subsidies paid by French social insurance funds to canteens, holiday camps and similar institutions for children are increasing steadily. In the last two years (July 1936-July 1938), the funds have paid 15 million francs in subsidies to holiday camps.

As regards Australia, the delegate of that country at the meeting of representatives of National Nutrition Committees said it had been realised that there was a gap in the Health Services at the pre-school stage, and the kindergarten movement, which had hitherto reached only a small proportion of the population—in the big towns—was to be subsidised in future by the Commonwealth Government, the aim being to establish a model clinic or kindergarten centre in every city; the movement was not concerned with the educational side of kindergarten work.

The National Institute of Comparative Anatomy at Canberra has been taken over to provide central offices for the nutrition investigation. The investigational work will be concerned chiefly with the relation of diet to growth and health of children. Dr. Clements has been made Director and has urged the importance of constant medical supervision over children in kindergarten centres and baby clinics. The formal recommendation reads:

“ This need for intense medical supervision could be supplied by a team of young, specially trained medical men, who would visit the centres regularly on a roster. These medical officers should, for preference, be young, recent graduates, with experience in a children’s hospital. In addition, before commencing duties, they would be required to undergo a special course in dietetics, infant-feeding and infant deficiency diseases. To complete this course of instruction, it would be necessary to have access to clinical material. This could be obtained from a specially built ward at a children’s hospital, which would serve the dual purposes of teaching and research. Much yet requires to be known upon infant metabolism and infant-feeding and the deficiency diseases of infancy; for this purpose, the cases need to be hospitalised. The graduates under training would act as special residents, under the instruction of a full-time teacher and research workers.”

This programme represents an attempt to get away from the traditional conception of the sick child as the basis for medical study; children brought to the kindergarten centres are not generally ill, but may be found to be suffering from nutritional troubles at some stage of their development.

Other countries have taken steps to provide suitable nourishment for mothers and young children. In Uruguay, free meals are provided for mothers and children in three centres in Montevideo, in each of which 400 meals are served daily. In addition, the Uruguayan Children's Council has six centres, in which 150 school-children are fed.

The Yugoslav Government this year allocated a special credit of 900,000 dinars for the public assistance and nutrition of children.

It is interesting to note that, in Latvia, in order, *inter alia*, to improve the nutrition of the children of agricultural labourers, the Government, by a recent decision, has allotted family allowances for children below 10 years of age to agricultural labourers permanently employed. The allowance amounts to 4 lats per month.

There are over 1,000 dispensaries in the Netherlands to which children under one year are brought. Mothers are advised what food to give them and advice is also given by the social assistance authorities and by the Green Cross and Yellow and White Cross organisations.

The Danish Nutrition Committee has prepared and distributed to expectant and young mothers instructions regarding their food during the period of pregnancy and breast-feeding. There are a few centres for pregnant women and small children in Norway.

The Latvian Red Cross Society maintains eighty-nine public health stations for the special purpose of giving advice to mothers on the treatment and national nutrition of infants and young children.

In Hungary, there are day nurseries for children from 2 to 6 years of age in the villages. These are supervised by the Health Department and in the charge of Green-cross nurses, trained in Budapest.

During 1937 and 1938, forty wagons of sugar were distributed free in Hungary to infants diagnosed as suffering from carbohydrate deficiency and belonging to poor parents. About 23,000 children received about 35 grammes of sugar daily throughout the year. In 1939, 148 wagons of sugar will be available for free distribution, and the service will be extended to pregnant and nursing women. Distribution is mainly among the rural population.

Much good work is being done in Egypt by the maternity and child welfare centres of the Ministry of Health. Propaganda, education and a free supply of milk to expectant and nursing

mothers have helped to improve the state of nutrition. These centres also take advantage of the existence in certain towns of popular restaurants and give these mothers free tickets to feed there.

The Red Crescent Society in Bagdad, a voluntary organisation which has a child welfare clinic with a European head and trained nurses, distributes milk to the poor and gives instruction in hygiene and the health of young children. There are also various Moslem foundations which have orphanages and distribute food to the poor.

STANDARDS FOR BREAD

In its third report, the Australian Nutrition Council recommended the formulation of standards for bread and pointed out that the legislation of some States of the Commonwealth on the subject was very much out of date. The official heads of the several State Health Departments promised to examine the position in their States. As a result, new standards have been formulated in New South Wales, and it is hoped that the necessary regulations will shortly be proclaimed, while, in Queensland, a completely revised code of standards and regulations relating to bread has been framed.

SUPERVISION OF FOODSTUFFS

A number of decrees providing for the compulsory supervision of foodstuffs have been issued in Yugoslavia. Since the introduction of this compulsory supervision, there has been a noticeable improvement in foodstuffs, particularly in towns where irregularities were common. Particularly striking has been the improvement in the quality of the milk sold in the markets, the distribution and sale of which is very strictly supervised.

In order to improve the quality of flour and wheat, measures have been decreed for the supervision of preparations designed to improve baking-flour, which, since the war, has seriously deteriorated in Yugoslavia.

The Ministry of Agriculture in the same country has undertaken a course of systematic propaganda for the qualitative and quantitative improvement of various vegetable and animal substances

necessary to the nutrition of man and beast. In this connection, the Ministry is promoting the distribution of a better quality of wheat, with which better bread can be made and which will not require any artificial improvement of the baking-flour.

The statement received from the Netherlands describes in some detail the provisions of the legislation in force since 1919 regarding the inspection of meat and other foodstuffs in that country. The regulations dealing with the cleanliness and purity of milk are very strict.

Among recent measures taken in France to improve the sanitary condition of foodstuffs, mention may be made of certain provisions of the Standard Sanitary Regulations proposed to local authorities by the Ministry of Public Health. The Ministry was also responsible for a circular of 1937, urging prefects to consider irradiated foods as drugs and to supervise the sale of such products.

In the feeding of their patients, all hospitals supervised by public authorities in France have to follow detailed instructions issued, and kept up to date, by the Ministry of Public Health. Similarly, the diets of patients in curative and preventive institutions approved by the Government are supervised by the health authorities.

The Food Inspection Section of the Ministry of Health in Egypt was stated by the Egyptian delegate at the meeting of representatives of National Nutrition Committees to have been very active recently, and it appears that laws regulating the production and sale of foods, the manufacture and use of artificial colouring materials and the protection of cows and buffaloes against tuberculosis are now passing through their final stages. The sale of milk has also been put under rigorous control. Both milkmen and the milk are now under constant supervision and the quality of this food has, as a result of these measures, greatly improved.

ADVICE REGARDING DIETS

In some cases, diet schedules have been drawn up and supervised by National Nutrition Committees on behalf of public institutions in which food is provided by the authorities. Thus, the Executive Committee of the Swedish body undertook in 1937 to draw up a diet schedule for the Umeå Infirmity. A preliminary draft of

this diet was approved and despatched by the Executive Committee in September. The Committee further undertook to draw up diets for the Västerås and the Hässleholm infirmaries, to supervise the diet at the Jämtland County Central Hospital and to compile a proposal for a special diet at the St. Erik's hospital in Stockholm.

In the United Kingdom, certain recommendations regarding diets have been brought to the notice of public assistance authorities.

The Hungarian Committee has worked out the principles of correct feeding in hospitals, day nurseries, factories and boarding-schools and menus for poor children, and it has described the food requirements of men and women of different ages, of babies and children and of pregnant women.

In Belgium, a publication intended for the medical profession was drawn up by Dr. E. J. Bigwood on "L'Alimentation rationnelle de l'homme normal en Belgique". It was published under the auspices of the Public Health Ministry in 1937, after having been approved by a Committee of the Belgian Royal Academy of Medicine.

The Norwegian Nutrition Council has considered: (1) draft proposals for the dietary scale on Norwegian ships, (2) dietary lists for recipients of public relief in Rennebu, (3) dietary in the navy, (4) dietary in boarding-schools in Finnmark.

In New Zealand, orphanages under the control of the Education Department are being supplied with a varied and balanced diet in accordance with a menu drawn up in the Health Department.

In Iraq, the diets of various institutions under Government control, including the army, hospitals, State orphanages, educational institutions and prisons, are being studied. The Iraqi Committee has been asked to draw up, and advise upon, hospital diets for specific diseases such as diabetes, nephritis, etc.

In the course of the meeting of representatives of National Nutrition Committees in October 1938, it was suggested that the Technical Commission might usefully draw up lists of twelve to fifteen foods which could be recommended for consumption in specific countries or groups of countries, account being taken of such factors as national climatic conditions, available food resources and the relative prices of different foods.

ACCURACY IN ADVERTISING

In Sweden, the National Committee is endeavouring, with the co-operation and good-will of important advertising concerns and publicity associations, to ensure greater accuracy in the publicity given to foodstuffs. In 1937, its Executive Committee considered a proposal from the Allmänna Annonsbyrån A.-B. regarding the possibility of ensuring greater accuracy in food products publicity, and decided to undertake an examination of the arguments regarding nutritive value used in publicity constituting collective propaganda for foodstuffs. In September 1937, it examined and approved drafts for collective publicity for butter, milk and cheese, and also for bread.¹

In December 1937, it was authorised, as a trial and at the date the Committee might deem advisable, to extend the examination to advertisements and publicity other than collective publicity.

¹ This work has brought in to the Nutrition Council the sum of 2,000 kronor in fees.

Chapter VII.

SOME ECONOMIC ASPECTS OF THE NUTRITION PROBLEM

The majority of National Nutrition Committees are at present devoting their attention mainly to making those preliminary surveys of the state of nutrition in their respective countries which are essential for the formulation of any national nutrition policy. In consequence, the statements received from Governments and the discussions which took place in Geneva in October last do not deal to any considerable extent with economic problems.

But ultimately the problem is largely an economic one, and all the surveys so far completed have shown the importance of the economic factor in determining the diet of the individual families; all show that families in the lower income-groups are unable to purchase sufficient food of the right kind.

Nor are the economic issues confined to the relationship between incomes and nutritional standards in individual families. Wider questions of economic and agricultural policy are also involved.

Much has been done by relief, but measures of public assistance only touch the fringe of the problem. In Hungary, for example, total consumption of milk amounts to about 10 million quintals annually. It is hoped to distribute free 155,560 quintals—*i.e.*, about 1.6% of total consumption. But the population as a whole is estimated to need 13 million quintals more than is consumed at present if physiological requirements are to be met.

It is impossible to make deficiencies of this order good by relief measures alone. For this reason, reference was made in the report on nutrition of the last Assembly to the desirability of attention being "given to the need for information on methods of making

good the nutritional deficiencies in individual areas in the most efficient and economic manner".¹

Apart from relief measures, the means for achieving this end are various. In agricultural countries, one of the most obvious is that of the diversification of agriculture, and the National Committee in Hungary has already begun to work out a plan for the reorganisation of agricultural production. In France, moreover, agriculturists have expressed their willingness to act on the suggestions of the National Nutrition Committee when it is in a position to show what changes in agriculture are required for improving the nutrition of the people. In one country, an important bank is stated to have undertaken in certain instances to provide further credits to farmers whose position is seriously overdrawn, on condition that such credits are used by the farmer to improve the nutritional conditions of his family—*e.g.*, by buying cattle, producing more milk, etc.

In French West Africa, the native peasants who formerly cultivated only peanuts for export, and whose diet was very poor as a result, have been taught to grow their own food supply. An attempt was made to introduce a similar policy in the Belgian Congo, but the scheme is said to have failed because the native was doing a full day's work on the growing of cash crops and had not adequate time to grow food for his own consumption.

But diversification of agriculture is only one of the means, even in agricultural countries, by which the nutritional deficiencies may be made good. In certain cases, the solution may have to be sought in tariff or in transport policy and, indeed, measures have already been adopted in both these fields in certain countries. Thus, the Estonian Government has reduced the duties on fresh fruit for the purpose of improving national nutritional conditions,² and, in July 1938, the Government of India amended the duty on dried skim-milk on the recommendation of the Indian

¹ Joint Report on Nutrition and Housing submitted to the Assembly by the Second and Seventh Committees (document A.59.1938.III).

² In February 1937, the Estonian duties on fruit were reduced and, in addition, imports effected between February 10th and May 31st, 1937 (*i.e.*, the period when domestic fruit is short), were declared free of duty. The latter measure was repeated in a more restricted form in 1938: between March 15th and May 16th, imports were granted a 50% reduction of duty.

Committee.¹ It may be recalled in this connection that the Mixed Committee on Nutrition urged Governments to give due weight to considerations of a nutritional order in framing their commercial and general economic policy.²

Distribution Problems.

There are marked differences in the production of foodstuffs in different parts of the same country and at different seasons of the year (vegetables, fruits, etc.). The Norwegian delegate at the meeting of representatives of National Nutrition Committees emphasised this factor in regard to his country. He pointed out, for example, that there is an abundance of fish in the northern and western coastal districts of Norway. Even in those regions, however, fish is available only during the fishing season. Further inland, fish consumption is low, as the railway communications on that part of the coast are poor and transport is generally by boat. Thus, in a survey of the diet of 301 poor families carried out in 1933, it was found that 10% of the families used no fish at all during the four-week investigation, while 71% of them used less than 50 grammes per man value per day.

As the Mixed Committee on Nutrition pointed out: "an improvement in the efficiency of the distribution of foodstuffs must be a primary element in nutrition policy."³ This is particularly true in large countries such as Australia where the problem of transporting fresh foods to outlying country districts is of considerable importance.

In some cases, facilities are provided for the cheap and rapid transport of foods of special nutritive value from the source of production to the place of consumption. The Latvian Ministry of Agriculture, for example, has organised transport of fish from the sea-fishing centres to inland places by State-owned lorries, in order to enable the whole population to consume this valuable food.

In Queensland, an attempt is being made to solve the problem of transporting foodstuffs to the outlying country districts by charging

¹ The Committee recommended that milk powder containing not more than 4% of fat should be exempted from Customs duty. In July 1938, the Government removed the whole of the preferential duty on this article and limited the standard rate to 10% *ad valorem*.

² Final Report (document A.13.1937.II.A), page 225.

³ *Ibid.*, page 239.

no freight on fruit and vegetables on the railways for a minimum distance of 200 miles.

In September 1937, the Food Council in Great Britain issued a report on costs and profits of retail milk distribution. Reports of this kind, based as they are on an exhaustive and impartial examination of the facts governing a particular situation, provide an invaluable basis for future policy. The report concludes that important reductions in the average distributive margin (and therefore in the retail price) could be brought about by measures designed to effect some rationalisation of the industry.

Internal Dumping.

It has been indicated in Chapter VI that certain countries have adopted the practice of distributing milk and other foods free or at reduced prices to particular categories of persons, with the object of improving nutritional standards.

An extension of this policy is now being discussed in a number of countries. The recent advance in knowledge regarding the extent of malnutrition has thrown into sharp relief the disadvantages of dumping surplus farm produce on foreign markets at uneconomic prices. In the case of Norway, for example, according to the delegate of that country at the October meeting in Geneva, butter was dumped abroad, and this cost the country about 1 krone per kilogramme, representing about a third of the total price. Thus the paradoxical situation had arisen that Norway was spending about a million kroner each year in order that foreign buyers might obtain cheap butter, while her own population was consuming insufficient quantities of this valuable foodstuff.

Similar situations have also arisen elsewhere, and have led to the advocacy of a policy of "internal dumping", by which surplus¹ farm products would be sold at reduced rates to the poorer classes in the country of production.

The advocates of such a policy appear to have made most progress in Sweden and the United States of America. In the former country, a proposal has been put forward for the "internal dumping" of butter. The proposal has not yet been considered by the Swedish Government, but the following outline may be of interest:

¹ "Surplus" in the sense of being unsaleable at current market prices.

Families with three or more children under 16 years of age and with an annual income of less than 3,000 kronor would receive a rebate on the price of butter. Other poor families might also benefit, provided they were not producers of butter for sale.

The amount of the rebate per kilogramme would be fixed to correspond approximately with the difference between the prices of butter and margarine. The quantity on which rebate was granted would vary with the size of the family.

Rebate cards would be obtainable on application from the Child Welfare Board, the period of validity of the card being restricted to four weeks, mainly in order to prevent abuse of the system.

On the rebate card would be indicated the places at which the card could be used for purchases. Used coupons would be payable monthly by the local authorities, which would receive a State grant for the purpose.

The amount of the State grant might be as much as 100% in particularly hard cases.

The State would finance the scheme with funds derived from the excise duties on margarine.

In the United States, the policy is referred to as the "two-price system", since it would involve differential prices according to the economic position of the purchaser. The United States Secretary of Agriculture was recently reported to have stated that his Department had under study a plan for a two-price system under which certain agricultural commodities and products manufactured from them would be offered to families on relief and other low-income groups at prices below those prevailing on the market, the resulting losses to be borne by the Government.

Chapter VIII.

EDUCATION AND PUBLICITY

The average diet in most countries appears to be ill-balanced and inadequate. In many predominantly agricultural countries, such as Hungary,¹ Poland and Yugoslavia, surpluses of agricultural products are produced for export, yet there is a great deal of under-nutrition among the rural population. Even in the wealthier countries, such as the United States and the United Kingdom, a large proportion of the people is inadequately fed, either through lack of means to purchase the right kind of food or because of ignorance. It is surprisingly common to find relatively well-to-do sections of the population living on poor diets when, for an expenditure within their means, they could, by the wise choice of food-stuffs, obtain all the constituents of a good diet in sufficient quantities.

Much can be accomplished by means of education and publicity. In many countries, the problem of improving nutritional levels has been approached from this angle and a great deal of useful work has been done by the dissemination of information with the object of inculcating a better and more widespread knowledge of the principles and practice of rational nutrition.

The need for education is illustrated by the results of enquiries which are being carried out in an advanced country like Belgium. The Belgian Child Welfare Association is investigating the main causes of destitution, with special reference to the part played by

¹ The Hungarian delegate to the meeting of representatives of National Nutrition Committees instanced a case where the population of two Hungarian villages, which were similar in every way except that one had 83 and the other 2,000 cows, had both suffered from the same food deficiencies because neither of them consumed enough milk. The actual cause was, however, different in the two cases: one village had too few cows; the other, though producing enough milk, sent it to Budapest. Professor Beznak emphasised the importance of a *local* solution in such cases.

the factor of incompetence of the housewife. In the provinces, enquiries were made in 419 households in twenty-three different places in all parts of the country. In 166 cases, the housewife was found to be definitely incompetent (39.6% of the cases). The Social Service files of the National Child Welfare Association include, from January 1st, 1938, to October 15th, 1938, 9,711 cases, out of which 880 cases of marked incompetence on the part of the housewife were observed. Among them were 260 households living under slum conditions, the main cause of which was neglect.

Broadcast talks, public meetings, films, posters, exhibitions and articles in periodicals are among the many methods which have been used to reach the general public.

One of the methods most widely adopted has been the educational courses in domestic economy and nutrition which are now provided in certain countries. In Norway, the State has appointed twenty itinerant teachers of household science. That country also has school kitchen courses in the higher classes for girls in the elementary and "youth" schools in some districts.

The statement furnished to the League by the United Kingdom contains the following information:

In a circular of December 8th, 1937, the Board of Education invited the co-operation of local education authorities in a special effort to draw attention to the importance of household catering and cooking as a factor in maintaining good health, and to extend the facilities available for assisting housewives in this branch of their work.

The Board is itself holding, in the summer of 1938, a short course on nutrition and cooking for teachers in rural districts, more especially for those working in women's institutes.

It should also be mentioned that a Departmental Committee on Domestic Subjects in Public Elementary Schools has recently been set up by the Board of Education. The Committee will be concerned particularly with the arrangements for instruction in cookery.

In France, the recommendations of the Educational Commission of the National Nutrition Committee have received the attention of the Minister of Public Health and the Social Hygiene Board. A

prominent place will be reserved for nutrition in the new programmes of teaching which are now being prepared for the use of social assistants and nurses. In addition, a proposal to give a specialist's diploma to social assistants and nurses who have received advanced theoretical and practical instruction and passed a special examination is being considered.

Acting on a suggestion of the National Committee, the Minister for the Colonies has ruled that colonial administrators are to be given special instruction in the conditions governing nutrition in the colonies.

The lecturers appointed by the French National Committee for the Prevention of Tuberculosis include the rudiments of nutritional hygiene among the subjects dealt with in their public lectures and school talks. School canteens and domestic schools have been discussed on several occasions in the Committee's review *La Vie Saine*. In support of the efforts of the Milk Propaganda Committee, it distributes the former's leaflets and posters, as well as a special poster about milk issued by the Ministry of Agriculture. The Committee has also made a film, "Savoir se nourrir".

The French statement to the League mentions a campaign undertaken by the National Fruit Office to stimulate the consumption of fruit.

In the series of elementary lessons in child-rearing published in France by the National Childhood Committee for the use of small girls, four lessons are devoted to various methods of feeding infants. Pupils are urged to copy these lessons into a book, which is shown to the family and preserved. In this way, the Childhood Committee is increasing the proportion of the population reached by its teaching of the nutritional hygiene of infants. A publication entitled "Conseils aux Mères", issued by the same Committee, includes advice on methods of feeding infants and the use of fresh and preserved milk. The Childhood Committee is further responsible for the publication of a study of nutrition from infancy to maturity.

In the same country, the association called "Sauvons les Mères et les Bébés" devotes attention to the nursing of infants by the mother, mixed feeding, and bottle-feeding, in its propaganda publications. It has published a pamphlet on nutrition to be used by young and inexperienced mothers and by those who have not had time to make a thorough study of the proper feeding of children.

In Belgium, propaganda work has been mainly entrusted to the Belgian Red Cross, which has considerable experience in the matter. This body has produced various articles in its publication entitled *Mieux Vivre*, which has a very wide circulation. It has also organised "national health crusades" in various provinces, one area being dealt with at a time each year.

A large proportion of the female population of the Netherlands is now receiving some form of instruction in nutrition and methods of food preparation. Training in nutritional science was given in 1937 in 235 subsidised schools, attended by about 30,000 girls, while in addition over 10,000 pupils attended classes in nutrition, cooking and related subjects. Most of the girls belonged to the poorer sections of the community. This training is available to all, since school fees vary according to financial circumstances.

In addition to the vocational training schools, the Committee for Educational Propaganda instructs mothers in towns on methods of feeding their families at low cost. It organises cookery classes, demonstrations and exhibitions, distributes simple recipes and publishes a monthly review on household management, which has a circulation of 26,000 copies. The work is in the hands of domestic science teachers and, whenever possible, is carried out in the vocational schools. In 1937, there were 190 cookery classes attended by over 2,500 pupils. A propaganda film has been prepared and shown many times by the Committee.

In the rural areas in the Netherlands, the work of education is carried out by the agricultural household training establishments and the Domestic Educational Propaganda Foundation. As regards the first, lectures are given in schools attended by the pupils twice or three times a week for a period of years, and also in full-time schools, in some of which the pupils are boarders. Instruction is given in cookery, nutrition and certain aspects of agriculture. The object is to teach the pupils how to obtain a satisfactory diet with the means at their disposal. At the same time, they are taught how to grow products of special nutritive value. Some schools have demonstration plots, while the boarding-schools generally have a farm where instruction is given.

In 1937, the Rural Domestic Educational Propaganda Foundation gave 518 courses in cookery, consisting of six lessons each, attended by nearly 11,000 women. Women are taught how to prepare meals

and are given some notion of the feeding of children and invalids. The Foundation also publishes simple recipes. In order to ensure that its advice in regard to diet is accurate, the Committee employs a woman doctor.

The Dutch Rural Smallholdings Department is considering a scheme of household training in rural districts in which nutrition would play a large part. It is thought that the smallholders' diet could be greatly improved by a more rational use of the products of the holding itself. A beginning has been made by the appointment of eleven women teachers who have been attached to the Department since the middle of 1938.

Women's associations in both the rural and urban districts of the Netherlands also play a part in educating their members on nutrition problems.

The progress made in Yugoslavia is indicated by the following extract from the statement furnished by the Yugoslav Government to the League:

“ To assist the rational utilisation of agricultural and animal products, there are numerous schools for adults, schools for young women and girls (*i.e.*, for the village housewives of the future) and schools for the village young men (*i.e.*, for the future heads of households). The purpose of these schools is not merely to educate peasants and peasant women, but to teach them how to manage their households in a rational manner. Their programme is much wider. These schools develop good housewives, good mothers and conscientious citizens. At these housewives' classes, illiterate peasant women learn how to read and write, and how to cook and prepare provisions for the winter. They also learn the elements of personal hygiene, how to keep their houses clean, how to take care of children, how to raise and look after live-stock, especially those animals that produce milk, how to perform various manual tasks and everything a village housewife ought to know about the feeding of men and beasts. These courses are directed, not only by State institutions, but also by numerous village co-operative societies and a number of private individuals.

“ The first thing taught at the courses of agriculture for peasants is the rational cultivation of the soil. Various essential

handicrafts are also taught. In connection with the culture of the soil and household management, the question arises how the future head of the household is to adapt his life to the slender resources available to him.

“ Attention is directed, on the one hand, to rational methods of employing the supplies at hand and, on the other, to the search for fresh possibilities of increasing the household resources. The next item studied is the minimum subsistence requirements of a family. Another important item in the programme of these courses is instruction in how to live a clean and healthy life. In order to bring home to the men their responsibilities in the public life of the village, special emphasis is laid on the importance to village prosperity of roads, springs, public wells, school buildings, water-closets, etc. Another subject stressed is the transmission of infectious diseases.

“ The Union of Health Co-operatives has a varied programme of education for young village people of both sexes. During the year 1937/38, this union held the following courses:

“ 486 people attended 23 winter courses;

“ 65 people attended 3 carpentry courses;

“ 175 people attended 5 housekeeping courses.

“ During the same year, the union gave:

“ 288 lectures on various branches of agriculture to 7,748 listeners;

“ 32 lectures on veterinary subjects to 565 listeners;

“ 58 lectures on domestic hygiene, the care of the sick and children, and nutrition, to 214 women.

“ The film ‘Agriculture in Denmark’ was shown 74 times to a total of 7,748 persons.

“ Housekeeping courses to the number of 38 in 1936 were also given by various other institutions.”

The Latvian statement contains the following account of educational work in that country:

“ Special attention is being devoted, more particularly by the Chamber of Agriculture, to improving nutritional conditions in the countryside. A special Domestic Economy Section attached to the Chamber of Agriculture conducts a publicity

campaign designed to give a practical stimulus to the cause of better nutrition. For this purpose, it has at its disposal forty-seven domestic economy experts who operate throughout the whole country. To encourage the consumption of fruit and vegetables, special courses are organised in country districts for the purpose of teaching the various methods of preserving and transforming such produce.

“A new method of disseminating domestic economy teaching has recently become popular—namely, cookery competitions, which are organised more particularly in country districts by domestic economy teachers.

“Domestic economy is also taught in the ‘Rural Youth’ movement, a very large organisation whose members are drawn mainly from the young country population.

“Instruction in the science of nutrition is given by the Domestic Economy Institute, a secondary school for housewifery and eight housewifery schools of a lower grade, and also in special tuition courses. The Domestic Economy Institute has a three-year course of study, and is intended mainly for the training of domestic economy teachers; it admits only pupils who have already completed a secondary school course. At the Agricultural Faculty of the University of Latvia there is a domestic economy specialist in charge of a special nutrition course. Instruction in domestic economy is compulsory, not only at agricultural schools, but also at all secondary and elementary schools. In addition to the housewifery courses organised by the Chamber of Agriculture, similar courses are organised privately in towns. In 1937, the Chamber of Agriculture published three text-books on the preparation of meals based on the latest rules of the science of nutrition.

“A special Bureau of Hygiene and Housewifery is attached to the Chamber of Labour, where several domestic economy teachers organise special courses to teach working-class women rational methods of cooking.

“The Chamber of Handicrafts also organises such courses, which are given at artisans’ clubs.”

In Hungary, there are various kinds of cooking courses. In the first place, there are the kitchen outfits, eleven in all, of the

Home Office. A kitchen technician, trained in the Institute of Dietetics in Budapest University, takes one of these outfits to the villages which apply for a course to be held there, and gives courses of four weeks' duration, attended by not more than thirty persons—small farmers' wives and their daughters. The Ministry of Agriculture gives similar courses with seven kitchen outfits.

Twelve nutrition experts from Budapest University are sent out into each province to assist the chief medical officer by organising courses, giving advice, lecturing, etc. These men are doctors and report regularly each month to the Central Office.

Finally, various social associations hold such courses in Budapest and the villages.

It is stated that these courses are extremely popular, the applications for them being very numerous.

The United States delegate at the meeting of representatives of National Nutrition Committees gave an account of educational work in her country.

Under the nutrition programme which has followed the Social Security Act, nutrition specialists are being added to State Health Services.

Under the Farm Security Act, loans are made to farmers in difficulties on the understanding that they will follow the instructions of the Farm Security Administration, which is prepared to help individual farmers to plan a food budget of home-grown products adequate to meet family needs. Representatives of the administration visit the farm and plan the budget with the farmer and his wife.

A radio service, intended mainly for the rural population, is sponsored by the Department of Agriculture. This includes talks on nutrition. There is also a service of nutrition "chats".

Motion pictures are prepared in the Department of Agriculture and loaned to those interested in education on nutritional problems.

The Agricultural Adjustment Administration issues a consumers' guide twice monthly, which includes items on food or nutrition.

The Canadian delegate referred to the work of the women's institutes in Canada. These institutes held semi-annual meetings lasting from three to five days, and members met in the country towns for the period of the programme. The Provincial Govern-

ment arranged for the free transport and maintenance of speakers whom it delegated to discuss the various subjects on the agenda.—food, dressmaking, the care of farm products, attractive marketing, strains of good-laying poultry, etc. The women's institutes were very popular and most women in rural areas joined one.

In Canadian schools, domestic science courses were provided for girls, and there was usually a university-trained dietician on the staff. Gardening plots were used to illustrate the teaching.

Educational work was also carried on by various voluntary organisations.

Dr. Kennedy explained to the meeting in October some of the difficulties experienced in devising suitable methods of propaganda in Iraq. Although rapid progress has been made in that country, there is still a lack of trained personnel.

The Education Department has started domestic economy classes for girls in the high schools, but these are attended almost exclusively by the *effendi* class—the children of officials and merchants—and there is nothing of the kind for the poorer classes.

Some Iraqi medical students have been sent to the social service school run by the American University at Beirut in the Lebanon. It is hoped that, after studying the system in that country, they will be able to work out schemes suitable for Iraq.

Weekly radio broadcasts in Arabic on hygiene are transmitted from Bagdad, but the transmitter is not strong enough to reach the whole country. The Health Director has spoken on the wireless, and it is hoped to extend the programme of nutrition broadcasts during the winter months.

In certain countries, it will be some time before education by the written word will touch the people. Even the radio only reaches a small proportion of the population in the poorer countries. It was accordingly suggested at the meeting of representatives of National Nutrition Committees that the cinema should be used as much as possible for spreading knowledge about nutrition in such cases, and that travelling cinemas, such as existed for anti-malarial propaganda in Egypt, might be employed.

The delegate who made this suggestion thought that the Health Organisation of the League might usefully consider the possibility

of constituting a library of suitable films on nutrition problems and of arranging for their distribution in different countries. In reply to this point, it was stated, on behalf of the Health Organisation, that the Secretariat would gladly arrange for any films which might be sent to Geneva by National Nutrition Committees to be made available through the appropriate channels to similar Committees in other countries.

ANNEX I

LIST OF COUNTRIES FROM WHICH REPLIES REGARDING
THE PROGRESS OF NUTRITION WORK HAVE BEEN
RECEIVED IN THE SECRETARIAT OF THE LEAGUE

[*Note.* — Some of the reports contain little or no information in view of the fact that certain National Nutrition Committees have only recently been set up and have therefore not had time to carry out any extensive investigation.]

Union of South Africa	Iraq
Australia	Latvia
Belgium	Netherlands
United Kingdom	Norway
Bulgaria	Panama
Burma	Roumania
Canada	Siam
Denmark	Sweden
Egypt	Switzerland
Estonia	Turkey
Finland	Uruguay
Hungary	Venezuela
India	Yugoslavia

ANNEX II

NOTE REGARDING THE COMPOSITION, PROCEDURE AND THE TERMS OF REFERENCE OF NATIONAL NUTRITION COMMITTEES ¹

Australia.

In February 1936, the Government of the Commonwealth of Australia appointed a Commonwealth Advisory Council on Nutrition to furnish it with authoritative advice generally and in particular on:

- (a) The present state of nutrition of the Australian people;
- (b) The nature of any evidence that the Australian people are in any degree undernourished, or that their diet is improperly balanced or improperly prepared.

This Advisory Council included:

The Director-General of Health of the Commonwealth Department of Health (*Chairman*);

The Chief Executive Officer of the Commonwealth Council for Scientific and Industrial Research;

The Professor of Agriculture in the University of Melbourne;

The Director of the School of Public Health and Tropical Medicine, University of Sydney;

Representatives of the four university medical schools;

Representatives of the British Medical Association and the Australian Dental Association.

Subsequently, Mr. F. L. McDougall (Economic Adviser, Australia House, London) was appointed a Corresponding Member of the Council.

In its Fifth Report, the Council recommended the appointment of a central co-ordinating committee to foster:

- (a) The general health of the rising generation;
- (b) The correction of faulty dietary in a general sense by the publication of sound propaganda and dietary advice from time to time;
- (c) The investigation and rectification of specialised local defects, both physical and nutritional, by co-ordinated effort.

¹ As regards Chile, *vide* pages 353 and 354 of the *Bulletin of the Health Organisation*, VI, 3, 1937.

The recommendation concluded by pointing out the advantages of continuing the Advisory Council on Nutrition, reconstituted as necessary. Such a body, it suggested, might be a Committee of the National Health and Medical Research Council.

This recommendation was endorsed by the National Health and Medical Research Council in May 1938, thus ensuring the appointment of a Committee with functions which will ensure that the work of the now disbanded Advisory Council on Nutrition will be continued.

Belgium.

The National Nutrition Committee was set up in Belgium by Ministerial Decree of May 20th, 1937.

Its task is to draft the main lines of a national nutrition policy from the points of view of health, education and social amelioration. The Committee will co-operate with national and international institutions working to the same end.

The Committee has appointed, either from its members or from outside, four Commissions to take charge, the first of biological and medical surveys, the second of social and statistical surveys, the third of questions relating to the inspection of foodstuffs, and the fourth of education and propaganda and their practical application to the nutrition of the people.

All the questions laid before the National Committee are first of all submitted to the first Commission, which consists of scientists. It then divides the questions which it proposes to study among the other three Commissions.

The Presidents and Secretaries of these four Commissions, together with the President and the Secretary-General of the National Committee and the members responsible for maintaining contact with the committees set up by other Ministerial departments, form a Co-ordinating Committee to ensure the continuity of the National Committee's work.

The Committee consists of twenty-one members, including several university professors, doctors, economists, sociologists, administrative officials and businessmen. It is an advisory body, no credits being allocated to it to undertake research work itself. It is called upon, not only to give technical advice when requested to do so, but also to take the initiative in this matter whenever it thinks fit.

United Kingdom.

The Advisory Committee on Nutrition was appointed by the Minister of Health and the Secretary of State for Scotland on May 30th, 1935, with the following terms of reference: "To enquire into the facts, quantitative and qualitative, in relation to the diet of the people and to report as to any changes therein which appear desirable in the light of modern advances in the knowledge of nutrition".

It superseded a small scientific body which had been appointed in 1931 to advise the Minister on the practical application of modern advances in the knowledge of nutrition.

The Committee numbers twenty members, under the chairmanship of Lord Luke, and includes some of the foremost physiologists, together with represent-

atives of the Ministries of Agriculture, Labour and Health, the Unemployment Assistance Board, the Board of Education and the Board of Trade. The Committee includes two ladies, one a member of the Women's Co-operative Guild and the other a dietician at Edinburgh Infirmary.

The enquiry covers England, Wales and Scotland, and the Committee is a standing body whose term of office was renewed on July 31st, 1938, retiring members being eligible for re-appointment. The Committee has no research functions or executive powers.

Three standing Sub-Committees have been set up—statistical, economic and social and physiological.

Canada.

The Minister of Pensions and National Health took steps in November 1937 to set up a national committee on nutrition under the chairmanship of the Deputy Minister of Pensions and National Health. This body, which is called the Canadian Council on Nutrition, is composed of scientists, economists, representatives of consumers and an agricultural expert.

The functions of the Council include the following:

- (1) To study the nutritional status and food-consuming habits of the population in Canada;
- (2) To outline standard methods of collecting data in surveys of food consumption;
- (3) To set up a nutritional standard for Canada;
- (4) To interpret this nutritional standard in terms of specific foods;
- (5) To collect information on the nutritional value of Canadian foods;
- (6) To collect information regarding, and to co-ordinate, studies and research pertaining to nutrition carried out in Canada;
- (7) To assemble information on dietary research carried out in other countries and to investigate the necessity and feasibility of applying the results in Canada;
- (8) When sufficient information is available, to conduct educational and publicity campaigns, and by other means to remedy unsatisfactory conditions in the dietary habits of Canadians;
- (9) To collaborate in the work of the Mixed Committee on Nutrition of the League of Nations.

As regards procedure, two bodies have been organised:

- (1) An Executive Committee which includes members of a Sub-Committee on Nutrition of the Dominion Council of Health and a Scientific Advisory Committee on Nutrition to the Dominion Council of Health. The members of this Committee have met from time to time for the purpose of discussing particular problems which are to be presented to the Council. Special committees have been appointed charged with the duties of drawing up recommendations and reports for submission to the Council. The Committee is composed of men with medical or other scientific qualifications.

(2) The Council meets from time to time and considers reports and recommendations submitted by the Executive Committee. The Council may adopt or amend these reports and recommendations. It is concerned with the dissemination of information collected by dietary surveys or by other means and will consider and suggest ways and means of improving dietary conditions in Canada. It will organise educational campaigns and hold public meetings for this purpose; collect, through its members, information regarding the nutritional and economic status of Canadians and consider other problems of a like nature brought up by its members. It will interpret dietary standards in terms of specific foods.

Denmark.

On December 13th, 1935, the Ministry of the Interior appointed a Nutrition Committee under the Public Health Administration to investigate the possibilities of remedying the defects in national nutrition disclosed by scientific work in recent years.

Further, in 1935, the Ministry of the Interior formed the State Domestic Economy Council with the duty of co-operating with institutions and organisations working with substances of interest for domestic economy from the nutritional, hygienic, technical and economic aspects, and of causing investigations to be made either in co-operation with the institutions and organisations concerned or in its own laboratory, should such a laboratory be established. The Council may also, if this is thought advisable, cause investigations to be made at other laboratories which it may select. The Council publishes any results of its co-operation with institutions and organisations, after agreement with them, together with the results of the work carried out by the Council itself.

The Public Health Administration is represented on this Council, more particularly in order to look after its health work, which relates especially to nutrition problems.

Egypt.

A Permanent Advisory Committee for the consideration of questions relating to foodstuffs was set up at the Ministry of Public Health by Ministerial Decree of January 5th, 1937.

This Committee consists of:

- The Health Expert at the Ministry of Public Health;
- The Director of Laboratories at the Ministry of Public Health;
- The Health Inspector of the City of Cairo;
- The Director of Health Services of the Municipality of Alexandria;
- The Director of the Department of Sanitation at the Ministry of Public Health;
- The Director of the Technical Department at the Ministry of Public Health;
- The Director of the Food Inspection Department at the Ministry of Public Health;
- The Chief Chemist at the Laboratories of the Ministry of Public Health;

A representative of the Veterinary Department at the Ministry of Agriculture;

A representative of the Egyptian Chamber of Commerce of the City of Cairo;

A representative of the Ministry of Trade and Industry.

The Under-Secretary of State for Medical Affairs nominates the Chairman and the Secretary from amongst its members.

Decisions of the Committee take effect only after approval by the Under-Secretary of State for Medical Affairs.

Finland.

In the spring of 1936, the Council of State set up a Committee to study the nutrition of the Finnish people and to suggest improvements therein.

The Committee includes scientists, agricultural experts, and representatives of other organisations and institutions.

France.

The National Committee for the Study of Nutrition, constituted on the recommendation of the League Council and on the initiative of M. Paul-Boncour, formerly permanent delegate of France to the League of Nations, first met in April 1936.

It is composed of representatives of the Prime Minister's Department, of the Ministries concerned (Public Health, Agriculture, Trade, National Education, War, Navy, Colonies, Labour, Finance, Foreign Affairs, and Public Works), and of the leading scientific, agricultural, labour, commercial and other organisations particularly interested in the nutrition problem.

The Committee's functions are to co-operate with the League of Nations and to lay down the main lines of a national nutrition policy. Four Commissions have been set up dealing respectively with scientific research, education, economic problems and the supervision of foodstuffs.

The Committee is under the direction of the Minister of Agriculture, and a Co-ordinating Committee has been set up. Each of the four Commissions has prepared a report on the problems it has to study and the solutions applied or contemplated.

Hungary.

As a result of the recommendation of the League of Nations, the Hungarian National Committee on Nutrition was established by the Minister of Home Affairs. Since its first meeting on July 7th, 1937, it has been working in five Sub-Committees. These deal respectively with the following subjects:

Scientific research to establish minimum and optimum food requirements, with special reference to Hungarian conditions; determination of the physiologically essential components of foodstuffs;

Exact description of food consumption in Hungary;

Economic and financial methods of securing a balance between food production and food consumption, with special reference to exports and the state of agriculture;

Physiological optimum menus at minimum cost for different social or biological groups such as hospitals, day nurseries, children, pregnant women, workmen, etc.;

The part played by teaching and propaganda in improving the standard of cooking technique and nutrition.

Structure of the Committee:

The Minister for Home Affairs (*President*);

The Secretary of State for Health (*Vice-President*);

Representatives of the following Governmental and municipal offices and scientific institutions:

Finance Ministry;

Ministry of Agriculture;

Ministry of Education and Public Worship;

Ministry of Defence;

Ministry of Industry;

Municipal Office for Social Relief at Budapest;

Municipal Office for Public Nutrition at Budapest;

Central State Institute of Statistics;

State Institute of Hygiene;

State Institute of Chemistry;

Professor of Hygiene of Budapest University;

Director of the Institute of Dietetics of Budapest University;

Municipal Institute of Public Health and Bacteriology at Budapest;

Hungarian Institute for Economic Research;

Public Health Society;

Chamber of Agriculture.

In addition, a number of experts have been co-opted to membership.

India.

A Nutrition Advisory Committee has been constituted in India under the auspices of the Indian Research Fund Association. The Government of India states that this Committee fulfils all the functions of a National Nutrition Committee conforming to the type contemplated in the report by the Mixed Committee of the League. It is composed of:

The Public Health Commissioner with the Government of India (*Chairman*)

The Director of Nutrition Research, I.R.F.A. Laboratory, Coonoor (*Secretary*);

The Director-General of the Indian Medical Service;

The Vice-Chairman of the Imperial Council of Agricultural Research;

An animal husbandry expert from the Imperial Council of Agricultural Research;

The Assistant Director of Nutrition Research, I.R.F.A. Laboratory, Coonoor; (Dr. Wilson);

A representative of the School of Tropical Medicine.

There are also nine co-opted members.

Iraq.

The Director-General of the Iraq Health Service appointed a Technical Committee on June 14th, 1937, to investigate the nutrition problems of the country.

The President of the Committee is Dr. W. P. Kennedy (Professor of Physiology, Royal College of Medicine), and there are ten members.

The terms of reference of the Committee are "to investigate and consider the problem of nutrition in Iraq in all its aspects, to report to the Director-General of Health from time to time the progress of investigations, and the Committee's recommendations".

Latvia.

In Latvia, a National Nutrition Committee is attached to the Chamber of Agriculture. Its members, who are appointed by the Ministry of Agriculture, are drawn from institutions whose work is connected with nutrition—viz., the Chamber of Agriculture, the University of Latvia, the Ministries for Foreign Affairs, Finance and Agriculture, and the Government Bureau of Statistics.

The Committee is enlarged, when need arises, by co-opted members, professors at the University of Latvia, who are specialists in nutrition questions, or representatives of other public and private bodies, such as the Department of Public Health, the Ministry of Social Welfare, the Ministry of Public Education, the Ministry of War, the Social Welfare Service of the Riga Municipality, etc.

The National Nutrition Committee has its head office at the Chamber of Agriculture, which defrays the Committee's budget.

The Committee's task is to arrange for improvements in national nutrition in conformity with the recommendations of the League of Nations. The Committee has the services of the specialist staff put at its disposal by the Chamber of Agriculture. Mention should be made of the assistance given to the Committee by the Economic Section of the Chamber, which is consulted in regard to the economic aspect of nutrition, and also by the Domestic Economy Section, which through its specialists and instructors is in a position to give practical encouragement to the cause of better nutrition. On matters which do not come within the sphere of activity of the Chamber of Agriculture, the Committee can consult the competent Governmental and municipal authorities.

Netherlands.

A Nutrition Committee was set up in the Netherlands in 1937, and is known as the "Interdepartmentale Contact-Commissie". The Director-General of Agriculture is Chairman of the Committee, and the other members are agricultural, statistical, health and education experts.

The Committee decided to refrain from direct action, believing that it would be unnecessary and even undesirable. Its aim is to co-ordinate existing activities and to call the attention of the Government to any deficiencies that may be revealed.

Since 1934, there has existed in the Netherlands Indies the Institute for the Scientific Examination of Popular Nutrition and Cognate Problems.

Norway.

By Order-in-Council of April 16th, 1937, it was decreed that there should be established a Nutrition Council.

Its tasks are:

- (1) To furnish the League's Technical Commission with information regarding nutrition in Norway and the efforts which are being made for its improvement;
- (2) To submit views on the proposals put forward by the Technical Commission;
- (3) To prepare measures for improving nutrition and to promote as far as possible the work of theoretical and practical research in the field of nutrition;
- (4) To act as adviser to the Central Administration on these questions.

The Council may obtain information and statements of opinion from other experts and organisations.

The work of the Council is performed voluntarily and the members receive no special remuneration from the authorities.

Poland.

The following information regarding the Polish National Committee on Nutrition was given by the Polish delegate to the meeting of representatives of National Nutrition Committees held in Geneva in October 1938. The delegate said that the Committee had been set up by an Order of September 28th, 1938. It was an advisory body, under the Ministry of Agriculture and Agrarian Reform, and would have the following functions:

- (a) To draw up general rules on questions of nutrition;
- (b) To initiate action on problems of nutrition and population;
- (c) To collaborate closely with the League of Nations;
- (d) To conduct investigations on the recommendation of the Ministry of Agriculture and Agrarian Reform.

The Committee, whose members had not yet been appointed, would consist of several sections. In defining the general functions of the Committee, economic factors affecting nutrition had been borne in mind. The Committee would consist of scientists and experts, including three health and three economic experts, representatives of the five social organisations and of the central authorities.

Regulations on the organisation of the Committee were being drafted. During the present year, all questions concerning nutrition, except that of health, were

being dealt with by the Ministry of Agriculture and Agrarian Reform. In a country where the majority of consumers lived in rural districts, it would be easier to investigate the nutritional state of the population if the various departments were placed under that Ministry.

Roumania.

The Roumanian Government set up a National Nutrition Committee in 1938. This Committee will include the following:

- The Minister of the Interior or his delegate;
- The Minister of National Economy or his delegate;
- The Minister of Public Works and Communications or his delegate;
- The Minister of Agriculture and Crown Lands or his delegate;
- The Minister of Education or his delegate;
- The Minister of National Defence or his delegate;
- The Minister of Labour, Health and Social Insurance or his delegate;
- The Director of Health;
- A number of professors and doctors.

Sweden.

On December 30th, 1935, a National Nutrition Council was established by a Royal Letter addressed to the Medical Board. It constitutes an expert medical court in matters relating to public nutrition and, in particular, assists the Medical Board and the Health Committee of the League of Nations with investigations and expert opinions.

The work of the Nutrition Council may not involve any costs for the Treasury.

Union of Soviet Socialist Republics.¹

The Statutes approved by the Office of the Medical Council on April 23rd, 1936, of the Nutrition Committee of the Medical Council attached to the People's Commissariat for Public Health are as follows:

" I. The object of the Committee shall be to give scientific consultations on questions concerning physiology and the hygiene of nutrition. It shall accordingly be required to study the following questions:

" (1) Draft laws and administrative orders concerning the hygiene of nutrition, submitted to the Committee by the People's Commissariat for Public Health or the Health Inspectorate;

" (2) All matters concerning the rationalisation of nutrition and diet in sickness;

" (3) Rules for nutrition according to occupation and age;

" (4) Methods to be employed in expert examination of sanitary questions and in analyses of foodstuffs;

¹ Information furnished in 1937.

" (5) The appraisal, from a sanitary and hygienic point of view, of foodstuffs, containers, packing and all matters concerning the preservation of foodstuffs, the combination of foodstuffs, mixtures, colouring matters, metal content, etc.;

" (6) Questions concerning the hygiene of transport of foodstuffs:

" *Note.* — The Committee shall not treat problems of vitaminology as coming within its competence, such problems being within the province of a special Committee for the study of vitamins, attached to the Medical Council.

" II. The Committee shall be the supreme body for carrying out expert examinations of sanitary questions for the Health Commissariat of the Union of Soviet Socialist Republics in all disputes concerning the quality of foodstuffs from the health point of view (products employed in manufacture).

" III. The Committee shall consist of twenty persons. The Chairman, Vice-Chairman and Members of the Committee shall be appointed by the People's Commissar for Public Health.

" The Secretary of the Committee shall be appointed by the Scientific Office of the Medical Council, on the recommendation of the Chairman of the Committee.

" IV. Decisions of the Committee shall come into force after confirmation by the President of the Medical Council or his deputy. The more important decisions of the Committee shall require confirmation by the Office of the Medical Council.

" V. Expenditure on the Committee's activities shall be borne on the budget of the Medical Council."

United States of America.

The United States delegate at the meeting of representatives of National Nutrition Committees held in Geneva in October gave the following information regarding the organisation of nutrition work in the United States:

She said there was no National Nutrition Committee in the United States. She had come to Geneva as representative of the Technical Committee on Food and Nutrition, which formed part of the Interdepartmental Committee to co-ordinate Health and Welfare Activities, set up in 1935 by President Roosevelt after the passing of the Social Security Act. Various Sub-Committees had been appointed by the Technical Committee on Food and Nutrition: the Steering Committee, under which were the Sub-Committees on research, on educational, administrative and developmental programmes, and on dietary policies of public agencies and institutions. The Sub-Committee on Research consisted of sections: (1) the section of biochemical, physiological and psychological studies, (2) the section of economic and social studies of food consumption and (3) the section on studies of food production as related to nutritional needs. The Sub-Committee on educational, administrative and developmental programmes consisted of (1) the section on preparation of educational material, (2) the section on organisation of educational programmes, (3) the section on development of service through grants-in-aid or

other forms of Federal-State co-operation. A fourth section on quality standards and specifications for foods had not yet been appointed. The Sub-Committee on dietary policies of public agencies and institutions was divided up into: (1) the section on diets of children, (2) the section on normal diets of adults, (3) the section on hospital diets.

The Sub-Committee included representatives of twenty-one Governmental bureaux, nine of which were in the Department of Agriculture, which was the department most concerned with nutrition. She read the overall programme of the Technical Committee on Food and Nutrition:

" Nutritive requirements to be arrived at by the section on *biochemical, physiological and psychological studies*; these to be checked against findings on consumption habits (natural preferences, economic limitations, etc.) developed by the section of *economic and social studies of food consumption*; work of both of these sections to enter into calculations by the section on *food production as related to nutritional needs* as to food production in line with nutritive requirements and consumption habits and needs.

" Through the work of the *Sub-Committee on dietary practices of public agencies and institutions*, the above conclusions may be checked against actual Federal practices in dietary applications and, through controlled experiments, further testing of the research findings may be planned.

" Finally, through the work of the *Sub-Committee on educational, administrative and developmental programmes*, educational material on food and nutrition can be kept related to the general conclusions that emerge from the previous considerations. Also developmental programmes can be judged and planned against this background. Through the section on grants-in-aid, the understandings of the full committee can be incorporated in the administrative programmes having their basis in the grants-in-aid system."

Yugoslavia.

By a decision of the Ministry of Social Assistance and Public Health in 1937, a National Committee for the study of nutrition was set up as an advisory body to the Ministry. This Committee is associated with the Central Institute of Hygiene at Belgrade. It is in touch with the Technical Commission of the Health Section of the League of Nations and takes part in its work. The purpose of the Committee is to supervise the study of the question of national nutrition in relation to climatic, soil, agricultural, social, ethnic and sanitary conditions throughout Yugoslavia. With this object in view, it will examine and record, with the assistance of the competent authorities, institutions and organisations:

- (a) Nutrition in the various regions;
- (b) How to prepare meals and provisions for the winter;
- (c) How to select and preserve the foodstuffs necessary for adequate nutrition;
- (d) The minimum and optimum quantities of foodstuffs necessary for the support of different groups of population according to sex, age, profession and local customs;

- (e) The composition and nutritive and hygienic value of foodstuffs;
- (f) The influence of national nutrition on the state of health, the incidence of disease, and the racial and biological value of the people.

The Committee will submit proposals for the rational nutrition of the population, study the standards of nutrition of certain population groups, assist the effect and improve the methods of propaganda for healthy nutrition and collect information relating to agricultural production, including live-stock in certain areas. Representatives of various Ministries and of a number of societies and economic groups will be included in the Committee. Committees for the study of national nutrition have been set up in each banat in association with the Institute of Hygiene.

Note. — The Venezuelan Government has engaged a foreign nutrition expert to take charge of a Special Nutrition Service at the Department of Health and Social Welfare.

In Burma, arrangements have been made for an officer of the Public Health Department to undergo training in nutrition work at the Coonoor research laboratories. Proposals are under consideration whereby this officer would act as nutrition officer for Burma, carrying out surveys of the dietary habits and the state of nutrition of the population and acting as an adviser on nutrition matters to the Public Health Department.

ANNEX III

**NUTRITION REPORTS RELATING TO THE BRITISH
COLONIAL EMPIRE**

Barbados.

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The above reports are on sale by the Crown Agents for the Colonies, 4, Millbank, London, S.W.1.
