A HISTORICAL STUDY OF TRENDS IN THE METHODOLOGY AND CONTENT OF ADULT EDUCATION PROGRAMS IN NUTRITION IN THE UNITED STATES

Thesis for the Degree of Ph. D.

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Shirley T. Moore

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This is to certify that the

thesis entitled

A HISTORICAL STUDY OF TRENDS IN THE METHODOLOGY
AND CONTENT OF ADULT EDUCATION PROGRAMS
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Shirley T. Moore

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Major professor

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A B S T R A C T

A HISTORICAL STUDY OF TRENDS IN THE METHODOLOGY AND CONTENT OF ADULT EDUCATION PROGRAMS IN NUTRITION IN THE UNITED STATES

By Shirley T. Moore

The history of adult education in nutrition provides a case study in adult education.

A selected sample of active programs provided coverage for the period between 1894 and 1965. These programs were carried out by government, educational, professional, philanthropic, health, religious, and commercial agencies. Three great networks of American organizations have shared the major responsibility. These are the federal and state Cooperative Extension Services, the public health organizations at federal, state, and local levels, and the National Red Cross with its local chapters. In addition, a variety of organizations have made contributions on a local or national scale.

One organization, the United States Department of Agriculture, has worked continuously throughout the entire period to provide nutrition education to the American public.

In the period since 1894 nutritional knowledge has progressed from the recognition of four nutrients -- protein, carbohydrate, fat,

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ash -- to a knowledge of approximately fifty nutrients essential to human nutrition. In the same period teaching attitudes have ranged from simple insistence that the public be told what it should eat to a recognition of the existence of those social, psychological, and emotional factors which create so much difficulty in changing food habits.

At the turn of the century writers were urging economy upon Americans. The food which would provide the largest amount of protein and energy at the least cost was considered the most economical, and this opinion formed the basis of much of the teaching.

The newer knowledge of nutrition completely changed this viewpoint.

Trends in content and methods of nutrition education programs for adults can be divided into three groups: (1) trends bought about through the level of scientific knowledge; (2) trends brought about by changes in physical structures and facilities; (3) trends caused by contemporary values, beliefs, and social conditions.

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By

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A Thesis

Submitted to

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1965

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A C K N O W L E D G M E N T S

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TABLE OF CONTENTS

CHAPTER I

A STUDY OF ADULT EDUCATION PROGRAMS IN NUTRITION -- THE PROBLEM

In the middle of the nineteenth century a British writer described America as "a country where it can truly be said that in no other are there so few men of great learning, and so few men of great ignorance."

"The stock of American knowledge," he continued,"is small, but it is spread through all the classes" (56: 174).

The present extent of the stock of American knowledge does not alter the reasonableness of the premise behind this evaluation.

"In a great and comprehensive view," declared this writer,

> The changes in any civilized people are in the aggregate, dependent solely on three things: First on the amount of knowledge possessed by their ablest men; secondly, on the direction which that knowledge takes, that is to say, the sort of subject to which it refers; thirdly, and above all, on the extent to which the knowledge is diffused, and the freedom with which it pervades all classes of society (56: 162).

Significance of the Study

In the history of American adult education in nutrition there appears to be the making of a case study in the development and diffusion of knowledge "through all the classes."

Grattan points out the following fact:

> It is exceedingly uncommon to find adult education in any country at any time concentrated in one or a few well-established and firmly structured institutions, as is ordinarily the case with public-school and higher education. Rather it is at best a matter of a few "core" institutions surrounded by a miscellany of enterprises -- not coordinated with one another or with the "core" -- which can be variously described. Under the conditions of life in modern democracies, where almost any kind of voluntary educational organization is permitted, adult education enterprises are usually so numerous that they tend to confuse the observer (139: 122).

A preliminary search of the literature revealed no study concerned specifically with nutrition education programs in the historic adult education movement in the United States.

Purpose of the Study

The purpose of this study was to determine the following two sets of facts:

(1) What methods have been used to extend to lay men and women the knowledge of nutrition facts and principles resulting from decades of human, animal, and microbiological experimentation?

(2) What areas of nutrition information have been emphasized against the changing background of scientific knowledge and of social, political, economic, and religious conditions in the United States?

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Hypothesis

The following hypothesis will be tested. Adult education in nutrition in the United States has developed through the use of methods and materials supplied by a few core organizations connected with, or a part of, the United States government, and a variety of activities of other organizations -- social, religious, philanthropic, or educational -- not coordinated with each other or with the core organizations.

Assumptions

The following assumptions are basic to the study:

(1) That the knowledge of nutrition found among adults in the United States today is due in part to adult education.

(2) That a study of successful adult education programs of the past and present will add a measure of useful information to the total body of information about adult education today.

Procedure and Methodology

The following basic procedures, which will be discussed in detail in Chapter 3, were determined at the beginning of the study. They included:

(1) A study of the literature to determine from a historical standpoint the organizations in the United States which have conducted, or are now conducting, educational programs for lay groups, with the purpose of raising the

nutritional status of these groups.

(2) A study of statistical and other records of nutrition education programs carried out on a large scale by government or voluntary health organizations.

(3) An analysis of the above programs in relation to purpose, such as wartime problems of food production and conservation.

Definitions and Delimitations

The following definitions apply to the title of the study:

(1) Adult education programs in nutrition: Any organized series of acts concerned with instruction in human nutrition, applied to one or more lay groups of adults whose primary occupation is not the acquiring of knowledge.

(2) Trends in methodology and content: The general course or courses followed in

(a) the means used to educate lay groups, and

(b) the types of nutritional subject matter presented to these groups.

The comparatively recent development of an extensive body of nutrition information limits this study to a period of about seventy-five years, from approximately 1890 to the present.

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Synopsis

Chapter 2 -- Review of Literature

In Chapter 2 certain literature pertinent to the study was reviewed. This literature was divided into two groups:

(1) that dealing with the history of nutrition, and (2) that dealing with the diffusion of nutritional knowledge.

Chapter 3 -- Plan of Research

In Chapter 3 the methods and procedures used in the study are described in detail.

Chapter 4 -- Introduction to Part II

Chapters 4 through 13 include the main body of the study. Chapter 4 describes the rapid development of nutrition knowledge during the first half of the twentieth century. This development provided a swiftly expanding base for nutrition teaching.

Chapter 5 -- Early Foundations

To evaluate a developing program one must know the resources available at the moment of origin.

Under "Early Foundations" are briefly reviewed some of the educational activities, often philanthropic in nature, which preceded the development and use of the large body of nutrition information known today. There was a slow but stimulating growth of literature for the use of the homemaker during this period.

This foundation period closes with the beginning of federal activities in the field of human nutrition which occurred early in the 1890's.

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Chapter 6 -- Nutrition and Agriculture

Chapter 6 is concerned primarily with the early activities of the United States Department of Agriculture and affiliated state programs. The period covers approximately two decades preceding the establishment of the Federal Extension Service in 1914.

Chapter 7 -- The New Science of the Home

From the early 1800's an increasing number of people were actively and vocally concerned with the problems of the home, particularly as these problems affected the physical and social welfare of the children. In Chapter 7 are covered a sampling of the organizations and the techniques used to reach, directly or through the press, the American housewife at the beginning of the twentieth century.

Chapter 8 -- The Federal Extension Service

Chapter 8 describes the origin and nutritional activities of the Cooperative Extension Service from its founding in 1914 until the entrance of the United States into World War I.

Chapter 9 -- Food Conservation

World War I found the nutrition-oriented scientist with a limited store of authentic information but with an ever expanding universe of possibilities awaiting his search. First, however, the farmer and the farmer's wife, along with all the country's food producers and processors -- large scale growers, cattlemen and meat packers, dairymen, millers and bakers, manufacturers, canners, cooks, and even the humble housewife -- must be taught to conserve food for the army and

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This nation-wide educational effort is discussed in Chapter 9.

Chapter 10 -- The "Newer Knowledge of Nutrition"

In the decades immediately following World War I much nutrition information, particularly concerned with vitamin discoveries was available through the nation's laboratories.

In Chapter 10 typical adult education programs of the period between the two wars are described.

Chapter 11 -- Nutrition for America and the World

With the outbreak of World War II there was an increasing governmental concern with nutrition. Chapter 11 provides a description of some of the efforts of federal and other agencies to instruct every housewife in the United States with the facts of nutrition as they concerned her daily food purchasing and preparation.

Chapter 12 -- Food and the Education of Adults

Chapter 12 describes the present complicated situation in which nutrition information is pitted against misinformation, even as new governmental and non-governmental organizations take up the problem.

Chapter 13 -- Trends in the Teaching of Nutrition to Adults -- Summary and Conclusions

Because of the continuing interaction throughout this thesis of ongoing activities with successive time periods, there are no summaries

within the chapters of the main body of the text.

The activities of the entire period under study are summarized in Chapter 13. Definite trends are pointed out.

CHAPTER II

REVIEW OF LITERATURE

A study of the progress of education in a given field is dependent upon the history of the development of knowledge in that field.

Olson summarizes the history of nutrition research in four periods which he likens to the four acts of a drama:

(1) The period of the single nutrient -- food -- from Hippocrates, 400 B. C., to the work of Mulder and Liebig, about 1840.

(2) The period of four nutrients -- fat, carbohydrate, protein, ash -- from Mulder and Liebig to Hopkins, in 1912.

(3) The period of multiple nutrients -- minerals, vitamins, amino acids, fatty acids, carbohydrates, water -- from 1912 to mid-century.

(4) The period of nutrient interrelationships -- the present era of research into the living cell and the functions, at cell level, of the approximately fifty nutrients now known (255).

Classics in Nutrition

E. Neige Todhunter conducted a search for books of the past and present which are worthy of the rating of classics in nutrition. Her

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definition of a classic in this case is: "A book of authority and excellence that has presented results of nutritional investigations, new ideas, or new interpretations of older concepts, and that has had, or now has, an influence on the trend of thought and developments in the field of nutrition and dietetics." (Italics in the original.)

Todhunter's suggested list of classics follows:

Lind, A Treatise of the Scurvy, Edinburgh, 1753.

Beaumont, Experiments and Observations on the Gastric Juices and the Physiology of Digestion, Plattsburgh, New York, 1833.

Pereira, Treatise on Food and Diet, London, 1843.

Lusk, The Elements of the Science of Nutrition, Philadelphia, 1906.

Chittenden, The Nutrition of Man, New York, 1907.

Rose, Feeding the Family, New York, 1916.

McCollum, The Newer Knowledge of Nutrition, New York, 1918.

Hess, Scurvy Past and Present, Philadelphia, 1920.

McCarrison, Studies in Deficiency Diseases, London, 1921.

Mendel, Nutrition: The Chemistry of Life, New Haven, 1923.

Roberts, Nutrition Work with Children, Chicago, 1927.

Medical Research Council, Vitamins: A Survey of Present Knowledge, London, 1932.

Lusk, Nutrition, New York, 1933.

Orr, Food, Health and Income, London, 1936.

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League of Nations, Relation of Nutrition to Health, Agriculture and Economic Policy, Geneva, 1939.

Drummond and Wilbraham, The Englishman's Food -- A History of Five Centuries of English Diet, London, 1939.

Schoenheimer, The Dynamic State of Body Constituents, Cambridge, 1942.

Sherman, The Nutritional Improvement of Life, New York, 1950 (325).

It will be noted that only three of these volumes precede the twentieth century.

McCollum's History of Nutrition

In 1957 McCollum published a history of nutrition, covering the approximately two hundred year period between the mid-eighteenth and mid-twentieth centuries.

On the opening page McCollum refers to the "belief of physiologists as late as the year 1900 that it did not matter much what kind of food people ate so long as the diet supplied enough protein and available energy" (202: 1).

At the beginning of the twentieth century, according to McCollum,

> We were almost blind to the relation of foods to health. From the generally accepted belief that only protein, carbohydrate, fats, and an ill defined supply of inorganic salts were all that needed consideration in assessing quality in a diet, knowledge had advanced in forty years to the triumph of understanding that such great human scourges as beriberi, scurvy, pellagra, rickets, goiter, and several types of anemia, were caused by specific defects in the food supply. These defects were identified, and the knowledge gained made

practicable the prevention of the diseases.

> Before the emergence of the science of nutrition many millions of people in every generation, from ignorance led lives blighted by malnutrition. Inferiority and suffering of domestic animals, and consequent economic loss, was even more widespread throughout the world. The new knowledge brought about improvement of health and its attendant elevation of the status of human life above the sordid, to a degree scarcely equalled by any other agency concerned with the prevention or cure of disease. Implicit in physiological well-being is the prospect for betterment of courage, ideals, purposes, and achievement. Viewed from this standpoint, the rise of the science of nutrition is one of the greatest events in human history (202: 421).

Other Historical Summaries

Todhunter has summarized the development of knowledge of nutrition (322) and the growth of nutritional concepts (323).

Sherman, in The Nutritional Improvement of Life, declares that "nutrition is everyone's adventure" (295: 9).

Everyman's adventure in nutrition is the basis of Sherman's keen interest in the development of nutritional knowledge in the United States from the 1890's through World War II.

Sherman explains how

> the newer knowledge of nutrition now includes the results of much research directly with human beings as well as with many hundreds of carefully controlled experimental animals often studied throughout entire natural lifetimes and successive generations. While these results "reveal much more than had been foreseen" they are the findings of many laboratories and of several years of continuous, objective, and statistically convincing scientific work. Thus research has carried the science of nutrition through the stage of opinion into the realm of established facts and principles (295: 216).

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Other Sources of Information

There are innumerable descriptions throughout the literature of episodes of nutrition research and discovery. Some of these partial histories are quoted in the following pages.

The Diffusion of Nutritional Knowledge

In 1953 Sebrell wrote in Nutrition Reviews:

> The improved American diet is undoubtedly a result of several factors, including social and economic changes. Nevertheless, the gains in national health, vigor, stature, and longevity must be attributed, in part at least, to food, science, technology, and education .... (287).

Burney, then Surgeon General of the U. S. Public Health Service, wrote in 1958: "In sum, the high nutritional level of the American people is due to the fortunate interplay of medical science, food technology, education, and the national economy (58).

On the other side of the picture, Maynard believes that:

> At all income levels a lack of appreciation of the vital role of a good diet in the health and vigor of the individual and the nation, and a lack of knowledge as to how to select such a diet continue to be important causes of malnutrition (214).

"Much of the malnutrition which exists in the United States today," says Wells, "is a matter of food choice or preference rather than an income problem" (361).

The homemaker's tendency to be guided by food preferences rather than by health consideration showed up in a ratio of 5:2 in a diet survey in Berkeley, California (292).

Plausible misinformation is frequently more influential than nutrition facts (137).

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Leverton believes that communications media in the United States have convinced the individual of the importance of his nutritional status. The same media have failed, often deliberately, to point out the importance of good eating habits as opposed to the indiscriminate purchase and consumption of vitamin and mineral concentrates (192).

Recent studies of the nutritional beliefs of segments of the population indicate inadequate knowledge of the most commonly stressed nutrition information.

A three-year study of low income families living in or near Washington, D. C. revealed that over half the group were unaware of the four food groups currently promoted by nutritionists. Only one group -- vegetables and fruits -- was recalled by more than 50 per cent of those questioned (87).

It is of interest to note that a large percentage of the respondents "agreed" with an item which, perhaps unknown to the investigators, was once taught to homemakers by the nation's leading home economists.[1]

---

[1]Over 85 per cent of respondents agreed that "canned foods should be removed from the can immediately after the can is opened."

A correspondence course conducted by the American School of Home Economics in the early 1900's stressed that "special care should be taken in using canned fish to remove it immediately from the can after it is opened."

See Alice Peloubet Norton, Food and Dietetics, Chicago: American School of Home Economics, 1907.

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In a study of the habits of homemakers living in the two cities of Syracuse and Rochester, New York, in 1953, one-half or more of the respondents gave no evidence of possessing any nutritional knowledge. Those homemakers who said they had "studied" nutrition in school or elsewhere had considerably more knowledge than those who had not.

Of those who had taken nutrition courses, relatively few had done so in adult education programs. Most had obtained their knowledge in formal schooling. There was little difference in the amount of knowledge demonstrated by the two "educated" groups.

Among sources of information listed by the women as a whole were relatives, physicians, mass media, and clubs, i.e. Home Bureau, P. T. A., church, social (372).

Previous studies in Groton, New York, indicated that more than one-half of the Groton homemakers had had no instruction in nutrition (371).

A study of rural New York housewives indicated more nutritional knowledge than was shown by the urban groups. A Virginia study indicated the opposite trend between rural and urban women (371).

Much of the concern over nutrition education has to do with its quality, depth, and coordination.

The World War II program has been described as a "shotgun" or "blunderbuss" approach. It is said to have been carried out without adequate concern for the particular needs of the groups involved (261).

There is a need, frequently expressed, for long range planning.

> A primary goal at home and abroad is a much higher level of health that can be reached as a result of improved food

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> practices. These advances also make possible higher standards of living in a very broad sense of economic stability and cultural progress. The rate of advance is dependent upon the twin requirements of research and education.
>
> The only reasonable goal in nutrition is a lifetime concept of good food habits (187).

Maynard, who sees the need for very active programs geared to emergency needs, also emphasizes a long-term, planned program.

> There is an especial need for an expanded nutrition program to reach city people. The agricultural extension service has done a remarkable job in covering rural areas, but comparatively few urban people, the groups which make up by far the larger majority of our population, are effectively reached.
>
> An over-all program of nutrition education must do more than teach the individual good eating habits. It should also develop a public consciousness of the importance of good nutrition and of sound food policies for the promotion of our national vigor and stability. Ill-fed people do not make good citizens. Employers need a greater appreciation of how good nutrition increases work efficiency and cuts down absenteeism. Taxpayers need to realize that good nutrition decreases public expenditures for medical care and for the support of those unable to earn their own living (214).

Sipple, after calling attention to the excellent work being done by government, medical, public health, and professional nutrition organizations, suggests increased coordination among these and other agencies.

"A team approach to responsibility and action for reaching the maximum potential for nutrition education could achieve outstanding results" (298).

Summary

The impression one receives from studying the literature is decidedly in favor of nutrition education at all levels -- elementary, secondary and adult. That applied science and the national prosperity also play a part in upgrading the nutritional level of the nation is obvious.

Faith in nutrition education as a means of promoting health and national welfare is expressed by writers whether they commend past progress, criticize present methods, or seek to direct thought toward improved future programs.

Adult education programs in nutrition are inadequate. They need both coordination and improvement. Nevertheless, they have been effective.

CHAPTER III

METHODS AND PROCEDURE

A preliminary survey of literature in education, medicine, dietetics, nursing, and public health resulted in the discovery of a large number of organizations which are now conducting, or have conducted, adult education programs in nutrition. These organizations can be classified as follows:

Educational, Philanthropic, Governmental, Professional, Religious, Voluntary Health, Commercial - Industrial.

Hypothesis

As previously stated in Chapter I, the hypothesis to be tested by this study has to do with the variety and relationships of the many agencies conducting nutrition teaching programs for adults in the United States, and the methods and materials used by these agencies.

Definitions

To accomplish this purpose, considerable latitude was necessary in the definition of both groups and programs. Early in the study it became obvious that interesting and apparently effective programs, dependent as they are upon the customs and conditions of the period, were to be found in the popular press, in individual instruction of group members, in teaching subject matter so closely related to nutri-

tion as to become, at times, a part of it, and through a variety of indirect service activities.

Therefore the following criteria were used to determine the inclusion or exclusion of a program.

(1) Instruction must be given to adults, i.e., homemakers, the parents of infants, 4-H Club leaders.

(2) These adults must be members of a group. A loose definition of group is employed, i.e., subscribers to a given publication, parents of child patients attending a nutrition clinic.

(3) Basic nutrition information, rather than modified diet material is presented, i.e., weight control (but not ulcer therapy), the systematic need for essential nutrients (but not high iron-protein-Vitamin C therapy for nutritional anemia).

(4) The underlying purpose of the program is to raise the nutritional status of the group.

An adult is considered to be any individual of sixteen years or older.

Although, in general, the propagation of quackery is excluded, no effort has been made to separate valid concepts from incomplete theories and/or inaccurate conclusions. To do so would be to obliterate much of the record.

Sources

The following materials were used in the study:

Published Materials

Books

- Encyclopaedia Britannica
- Textbooks
  - Nutrition
  - Home Economics
  - Nursing
  - Social Work
- Histories
  - Nutrition
  - Professional Associations concerned with Nutrition Information
  - Government and Other Agencies and Organizations
  - Agricultural Education and Research
  - Adult Education
  - Food Habits
- Homemaker's Sources of Information on Nutrition
- Cookbooks

Periodicals

- Professional Journals concerned with Nutrition
- Educational Journals
- Farm Journals
- Publications of Voluntary Health Agencies
- Religious Periodicals
- Popular Health Magazines
- Home and Family Magazines
- Newspaper Files

Government Documents

- Annual Reports
- Yearbooks
- Circulars and Bulletins
- Public Health Reports
- Charts
- Leaflets

Miscellaneous

- Bulletins of Educational Institutions
- Health Education Materials for Free Distribution

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Unpublished Materials

Annual Reports

Federal Extension Service (includes microfilmed reports)
Office of Education
The Grange

Correspondence

Government Files
Personal

In addition, twenty-eight conferences were held with persons working directly or indirectly with the education of adults in nutrition. Another fifteen were held with persons who provided information about current or past programs leading to source materials.

Published and unpublished materials were used for the following purposes:

(1) Background material essential to an understanding of programs (histories and nutrition texts are in this category).

(2) Past programs (textbooks on home economics, nursing, and social work, and most homemakers' sources, periodicals, government documents, and unpublished materials are in this category).

(3) Current programs (health education materials and recent periodicals, documents, and unpublished materials, are in this category).

Interviews were for the purpose of obtaining information about current programs although occasionally a person was interviewed for information about past programs in which he had participated or of which

he had knowledge.

Although the entire seventy-five year period from 1890 to 1965 is included in the study, the following time periods received particular attention:

(1) The early years of federal activity in nutrition research, 1894 to 1914.

(2) The years of World War I involvement, 1917 and 1918.

(3) The period of the Great Depression, approximately 1930 to 1939.

(4) World War II, 1941 to 1945.

(5) The current period, the 1950's and 1960's.

Major Sources of Information

The following cities and organizations were included in the search for information:

Battle Creek, Michigan
- Battle Creek Health Center
- Battle Creek Public Library

Boulder, Colorado
- University of Colorado Library

Boston, Massachusetts
- Boston Chapter, American Red Cross
- Boston Public Library
- Diabetes Society of Greater Boston
- Frances Stern Food Clinic
- Harvard School of Public Health
- Massachusetts Department of Public Health
- Massachusetts General Hospital Nutrition Clinic
- New England Dairy and Food Council
- Simmons College
- Young Women's christian Association

Chautauqua, New York
- Chautauqua Institute

Chicago, Illinois
- American Dietetic Association
- American Medical Association
- Chicago Board of Health
- Cook County Department of Public Health

Denver, Colorado
- Colorado Department of Public Health
- Colorado State Department of Vocational Education
- State of Colorado Dairy Council

East Lansing, Michigan
- Michigan State University Library, including Rare Book Collection
- Michigan State University Home Economics Extension Service

New York, New York
- Community Service Association of New York
- New York City Health Department
- New York State Cooperative Extension Service, Food Marketing Information for Consumers
- Nutrition Foundation, Inc.
- Young Women's Christian Association

Rochester, New York
- Eastman Kodak Company

Washington, D. C.
- American Home Economics Association
- American National Red Cross
- General Conference of Seventh-day Adventists
- National Grange
- Office of Economic Opportunity
- United Planning Organization
- United States Department of Agriculture
  - Agricultural Research Service
  - Federal Extension Service
  - National Agricultural Library
- United States Department of Health, Education, and Welfare
  - Children's Bureau
  - Public Health Service
    - Division of Chronic Disease
    - Division of Indian Health
- United States Government General Services Administration
  - National Archives

Research in the Federal Extension Service

Because of the extensive adult education program conducted by the Cooperative Extension Service, more time was spent on research in this organization than in any other single unit.

In the Federal Extension Service, unpublished annual reports were available from 1945 through 1964. With the exception of the three years, 1945, 1963, and 1964, these records were brought into the Washington headquarters of the United States Department of Agriculture, on request of Extension Service personnel.

Annual reports from 1963 and 1964, with the exception of unreceived reports for 1964, are on file in the department's South Building in Washington. Annual reports for 1945 are filed in the National Archives.

Reports covering the period from 1920 through 1944 are preserved on microfilm in the National Archives.

Many of these reports are based on narrative accounts of the work as planned and finally accomplished county by county. Descriptions of the problems encountered and the methods used are frequently included. Quite obviously, some sampling method must be determined.

Since the desired information involved the content and methods of programs conducted by the Extension Service, and since some statistical information on a national basis was available in the Research and Training Branch, no effort was made to obtain a true random sample of all 50 states. Rather, the effort was to sample selectively among those states known to have carried on active programs in the past and just

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Final selection of states was made on the basis of information from two sources. Mrs. Evelyn Spindler, nutrition specialist for the Federal Extension Service, is well acquainted with recent and current programs in all the states, and partly on the basis of her recommendations, the four states of Colorado, Connecticut, Iowa, and Kentucky were selected to represent various sections of the country.

A fifth state was selected in order to obtain as much information as possible about the programs conducted in a state having had a considerable incidence of pellagra in the years when pellagra was common in the southern states. On the basis of the second source of information, excerpts from unpublished reports in the early 1930's, Louisiana was chosen to represent the pellagrous area. A sixth state, Alabama, was selected for additional study for a two-year period during the pellagra scourge.

For further research prior to 1946, the state of Missouri was selected. This state, somewhat centrally located in the nation, was considered by Mrs. Spindler to provide illustrative materials generally typical of State Extension Service programs.

With the exception of the year 1964 (see below) all states and years included in the study are shown in the table in Appendix A.

To obtain an accurate picture of the work currently conducted by the Extension Service, all of the available state reports, thirty-eight in number, for the year 1964 were included for study. Excerpts from these 1964 reports appear in Appendix A.

Other Methods Used to Obtain Information

To obtain information on community college programs in nutrition education, letters were sent to twenty-five selected institutions.

Selection was made on the basis of the following information:

Size and location[1, 2]
Inclusion of Home Economics in curricula[3]
Inclusion of Adult Education programs[4]

All letters were original copies and were addressed to the person indicated in one of the sources of information. Information was received from twenty-three institutions. A copy of the letter and the names and locations of the colleges to which it was sent is included in Appendix B, with the list of colleges receiving letters and those finally included in the study.

Letters were written to two state health departments, Hawaii and Louisiana, requesting information on nutrition activities.[5] These letters are reproduced in Appendix C.

Summary

A study was made of adult education programs in nutrition, covering the seventy-five year period from 1890 to 1965. Particular attention was given to five sub-periods. The methods used included interviews, correspondence, and a study of published and unpublished records and accounts.

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[1]Institutions with one hundred or more students were selected to represent all sections of the United States.

[2]From American Association of Junior Colleges, Junior College Directory, Washington: American Association of Junior Colleges, 1964.

[3]From Gleazer, Edmund J., Jr., ed., American Junior Colleges, 6th ed., Washington: American Council on Education, 1963.

[4]Ibid.

[5]No information was received from Hawaii.

CHAPTER IV

INTRODUCTION

The beginnings of adult education in any country must arise out of need. This is certainly true of nutrition education. As long as the availability of food depends upon a gun, a fish pole or net, and a laboriously prepared plot of ground, there is little concern over food selection.

In his History of Nutrition, McCollum tells us that throughout most of human history and over most of the globe

> the most pressing problem of mankind was securing food to satisfy hunger. Whatever was edible was eaten without any thought of nutritive values. What was available depended on geographic environment, climate, proximity to rivers or oceans, and the nature of vegetation, whether forest, grassland, or semi-desert (202: 1).

With the availability of many foods and the necessity of choice comes discrimination and a beginning sense of values.

Stare describes the history of the science of nutrition as "that of finding that food consists of more than one nutrient and that these nutrients have specific physiologic jobs to do" (306).

McCollum points out the fact that

> from the earliest application of chemical methods to the study of nutrition the two most important objectives were to learn what a diet must provide to supply the physiologic needs of the body and to find analytic procedures for assessing the nutritive values of foods (200).

Hippocrates' single-nutrient concept of food,

> was still held in the early 1830's by such eminent research men as Dr. William Beaumont, the great American physiologist of that time. But in about 1834 the English chemist Prout discovered that foods could be separated into three nutrients -- carbohydrate, fat, and protein -- and hence, food was thought of as furnishing three nutrients, not one single universal nutrient. About the time of the Civil War it was recognized that the ash or mineral matter of foods was an important part of the nutritive value of foods, and that the ash contained a number of minerals (306).

It is a long way from this second great act of the drama described by Olson to the discussions of the 1950's and 60's concerning the problems of human nutrition in outer space.

How little was actually known about nutrition at the beginning of the present century is indicated not only by historical sketches, but also by the claims made during that period by non-science writers.

In The Woman's Book, Vol. I, published in 1894, an author assures her reader that:

> Ignorance cannot be pleaded in our days. The laboratories of the world are at the service of the housekeeper; governments think it a part of their duty to discover how the people may be well fed at the least cost.
>
> Not only are these investigations carried on to discover food values, but the principles of cooking are considered worthy of the attention of the scientist ... for the education of the housekeeper, that she may purchase and cook her food, securing the best results with the least expenditure of time and money.
>
> The catering for a family involves more than the tickling of the palate or the pleasing of the artistic sense. It means securing the family health, increasing the working force. This cannot be done unless there is knowledge of the value of foods, their strength and heat-giving qualities (44: 111-115).

In the famous laboratories of Europe, leading chemists and physiologists concerned themselves with the "strength-and-heat-giving qualities of food."

Sherman summarizes the narrowness of nutritional interpretation at the close of the nineteenth century as follows:

(1) The body was considered to function much like a machine.

(2) Energy and protein requirements (the strength and heat-giving qualities) received most of the attention devoted to foods.

(3) Opinion rather than experimentation was the basis for the concern over a high protein intake.

(4) There was over-emphasis on pecuniary economy (295: 16).

In Sherman's words:

> The time was ripe for more critical experimental development of the other -- than -- energy aspects of the science of nutrition in itself, as well as for the use of this science in the advancement of human health and well-being (295: 16).

Sherman calls attention to the early limited knowledge of the mineral constituents of the body, and to the increase in knowledge and understanding of these constituents with the development of science in the twentieth century (295: 23).

In spite of the continuing research in food and nutrition at the turn of the century, we have the following statement by McCollum:

> In 1912 the only outstanding new viewpoint which had been expressed in textbooks on nutrition within twenty years was the change of emphasis from protein to amino acids. For half a century protein, estimated by multiplying the nitrogen content of food by a factor, had been assumed to have the same nutritive value regardless of the source (200).

Voit and Rubner in Europe, and Atwater, Lusk, and Chittenden in the United States, were the authors of commonly used texts on animal and human nutrition. Until about 1915 the subjects of greatest interest to most students of nutrition, including these outstanding men, were protein and energy requirements, nitrogen balance, respiration and digestion, and the chemical analysis of foods (200).

With the realization that not all proteins were of equal value a new phase of protein research began. Mitchell considers that the biological evaluation of proteins began in 1872 with Boit's demonstration of the inadequacy of gelatin to support tissue growth (227).

Between 1911 and 1920 Osborne and Mendel conducted the first outstanding investigation of individual protein values in the United States (227).

In 1906 Hopkins of Cambridge University, speaking to a group of food chemists in London, referred to accessory food substances, which he regarded as essential to a diet otherwise consisting of the four nutrients -- protein, fat, carbohydrate, and minerals -- already recognized (295: 30 and 200).

It is always difficult and frequently impossible to pinpoint, in terms of one group or one individual, one year, and one location, a discovery with forerunners extending backward through decades or perhaps even through centuries.

Sherman credits the first announcement to the English-speaking world of the existence of substances later known as vitamins to these remarks of Professor Hopkins and their subsequent publication in The

Analyst[1] (295: 30-32).

Previous clear experimental evidence of these unknown substances had come from a Swiss laboratory in 1881, but had remained buried in the literature (215: 11, 12).

In 1912 Hopkins published the details of his discovery (295: 31), and in the same year Casimir Funk coined the early form of the new common word vitamin (284).

In the following decades research on these infinitesimal but essential substances was carried on by many scientists. The latest vitamin to become well-known to the American public was identified in 1948 and has been commonly referred to as vitamin B_{12}. Stare mentions a later discovery -- B_{12} identified in 1949 (306).

Sherman summarizes the results of the expanding of nutritional concepts early in the twentieth century in the following words:

> With the awakening to the importance of individual amino acids and mineral elements in nutrition and the discovery that natural foods contain, and normal nutrition requires, other substances, the very existence of which was previously either entirely unknown or only dimly apprehended, science arrived at a workable scheme, the clear conception of which was celebrated in the general adoption of the phrase which McCollum, in 1918, made current by use as the title of his book, The Newer Knowledge of Nutrition.
>
> It is worth repeating that this "newer" knowledge supplements and does not supplant the older knowledge of nutrition, and also that the advent of the newer knowledge did not occur all at once. Moreover, to a large extent the second quarter of the twentieth century teaches much the same practical dietetics as did the first quarter; but with increased emphasis because of increased knowledge.

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[1]The Analyst 31: 385, 1906.

> People born into nutrition-conscious families in recent years will have had greater advantages in this respect than those born earlier. But one cannot set any one year, or even any one decade as marking the boundary between the older and the newer era in this field (295: 32).

Stare, writing in 1950, listed 58 nutrients now known to be of nutritional importance to one or more species (306).

Thus closes the third act of Olson's four-act drama, the discovery period of multiple nutrients -- minerals, vitamins, amino acids, fatty acids, and carbohydrates.

CHAPTER V

EARLY FOUNDATIONS

Although McCollum credits the famous French scientist Lavoisier with introducing the modern era of nutritional science (204: 41), little practical information was available to the American housewife until late in the nineteenth century.

Progress had been made since the days when, according to Thomas Dick, scurvy spots on the old men of Salem were considered evidence of Satanic possession (99: 22).

Early household customs sometimes were the result of experience; at other times they were accepted from previous generations as a part of the family's social heritage (43: 2).

Private observations, current social standards, religious conviction, superstition, and tradition were all influential in directing nutritional opinion.

Here and there a few strong voices were heard crying in the wilderness of prevailing ignorance, and occasionally a forerunner of today's laboratory based information reached the interested feminine reader.

Cummings says that authors writing before the days of scientific nutrition frequently "damaged their cause by making up with enthusiasm what they lacked in knowledge" (90: 50).

American Publications

Although many of the works found on bookstore shelves in the United States were imported or reprinted English editions, an occasional book wholly American in origin was published.

In 1838 William Alcott, uncle of Louisa May Alcott, produced a book called The Young Housekeeper or Thoughts on Food and Cookery.

Early chapters stressed "Dignity of the Housekeeper," "Having a Plan," "Keeping Accounts," and "Keeping a Journal."

Later chapters discussed particular foods, farinaceous, animal, dairy, vegetables such as the turnip, onion, radish, tomato, squash, and pumpkin, and fruits.

Final chapters included "Cookery As It Is," "Cookery As It Should Be," "How to Begin the Work of Reformation," and "Recipes for Plain Cooking" (7).

Alcott, who was an ardent vegetarian, was probably one of the authors referred to by Cummings whose enthusiasm exceeded his knowledge. However, the book must have sold well, since it went through twenty stereotype editions in thirteen years.

Catherine Beecher, known today as the founder of the home economics movement, wrote two textbooks for use in the contemporary "female seminaries." They may also have found their way into a number of homes.

In a Treatise on Domestic Economy, 1841, Miss Beecher expressed her conviction that "the person who decides what shall be the food and drink of a family, and the modes of preparation, is the one who decides,

to a greater or lesser extent, what shall be the health of that family" (39: 70).

In her Domestic Receipt Book, 1846, Miss Beecher summarized for young lady students[1] the basic nutritional science of the day.

> It is true, that every portion of the body may be resolved to a few simple elements, of which oxygen, hydrogen, carbon, and nitrogen are the chief. But the bodily organs have not the powers of forming all the various animal tissues from these simple elements. Instead of this, they must be introduced into the body in various complex and different combinations, as they exist in the forms of gluten, fibrine, albumine, caseine and other animal and vegetable compounds.
>
> Thus the sugar, starch, and oils, found in certain kinds of food, supply the carbon which sustains the combustion ever carried on in the lungs by the process of breathing, and which is the grand source of animal heat. On the contrary, the blood, muscles, skin, cartilages, and other parts of the body, are daily nourished and renewed, some by the gluten contained in wheat, others by the albumine of eggs, others by the caseine of milk, and others by the fibrine of animals. All these are found in a great variety of articles used as food" (38:3).

In 1869 Catherine Beecher and her sister, Harriet Beecher Stowe, were co-authors of the 500 page volume, The American Woman's Home.

The publisher declared that this book, subtitled A Guide to the Formation and Maintenance of Economical, Healthful, Beautiful, and Christian Homes, should be in every home in the land.

The book contained one chapter on "Healthful Food," one on "Healthful Drinks," and one on "Good Cooking."

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[1]Although written for students rather than for adults, this passage is quoted because it is such an excellent example of the mid-nineteenth century nutritional knowledge available to homemakers.

The chapter on foods reflects the increased knowledge of minerals which had come into existence almost within the decade.

The knowledge and opinions of the day regarding food are presented thus:

> It is found that the simple elements will not nourish the body in their natural state, but only when organized, either as vegetable or animal food, and to the dismay of the grahamite or vegetarian school, it is now established by chemists that animal and vegetable food contain the same elements, and in nearly the same proportions.
>
> Thus, in animal food carbon predominates in fats, while in vegetable food it shows itself in sugar, starch, and vegetable oils. Nitrogen is found in animal food in the albumen, fibrin, and caseine, while in vegetables it is in gluten, albumen, and caseine.
>
> . . . . . .
>
> Experiments on animals prove that fine flour alone ... will not sustain life more than a month, while unbolted flour furnishes all that is needed for every part of the body. There are cases where persons cannot use such coarse bread, on account of its irritating action on inflamed coats of the stomach. For such, a kind of wheaten grit is provided, containing all the kernel of the wheat, except the outside woody fibre.
>
> When the body requires a given kind of diet, specially demanded by brain, lungs, or muscles, the appetite will crave food for it until the necessary amount of this article is secured. If, then, the food in which the needed aliment abounds is not supplied, other food will be taken in larger quantities than needed until that amount is gained. For all kinds of food have supplies for every want of the body, though in different proportions. Thus, for example, if the muscles are worked a great deal, food in which nitrogen abounds is required, and the appetite will continue until the requisite amount of nitrogen is secured. If, then, food is taken which has not the requisite quantity, the consequence is, that more is taken than the system can use, while the vital powers are needlessly taxed to throw off the excess.
>
> . . . . . .

The articles containing most of the three articles needed generally in the body are as follows: for fat and heat-making -- butter, lard, sugar, and molasses; for muscle-making -- lean meat, cheese, peas, beans, and lean fishes; for brain and nerves -- shell-fish, lean meats, peas, beans, and very active birds and fishes who live chiefly on food in which phosphorus abounds. In a meat diet, the fat supplies carbon for the capillaries and the lean furnishes nutriment for muscle, brain, and nerves. Green vegetables, fruits, and berries furnish the acid and water needed.

. . . . . .

In cold weather, carbonaceous food, such as butter, fats, sugar, molasses, etc., can be used more safely than in warm weather, and they can be used more safely by those who exercise in the open air than by those of confined and sedentary habits.

Students who need food with little carbon, and women who live in the house, should always seek coarse bread, fruits, and lean meats, and avoid butter, oils, sugar, and molasses, and articles containing them.

. . . . . .

The general rule, then, is, that three hours be given to the stomach for labor, and two for rest, and in obedience to this, five hours, at least, ought to elapse between every two meals.

. . . . . .

Persons who have a strong constitution, and take much exercise, may eat almost anything with apparent impunity, but young children who are forming their constitutions, and persons who are delicate, and who take but little exercise, are very dependent for health on a proper selection of food.

. . . . . .

They [medical men] all agree that, in America, far too large a portion of the diet consists of animal food. As a nation, the Americans are proverbial for the gross and luxuriant diet with which they load their tables, and there can be no doubt that the general health of the nation would be increased by a change in our customs in this respect. To take meat but once a day, and this in small quantities, ... is a rule, the observance of which would probably greatly reduce the amount of fevers, eruptions, headaches, bilious attacks, and the many other ailments which are produced or aggravated by too gross a diet.

. . . . . .

> The most unhealthful kinds of food are those which are made so by bad cooking; .... (40: 122-133).

The authors approach the subject of healthful drinks by way of "the great principles of science, common sense, and religion ...." (40: 142).

The virtues of pure water, milk and fruit juices are discussed, and compared with the dangers in alcoholic beverages. St. Paul's admonition to do nothing to "make my brother to offend"[1] is quoted.

Then the authors continue:

> This Christian principle also applies to the common drinks ... tea and coffee.
>
> It has been shown that the great end for which Jesus Christ came, and for which he instituted the family state, is the training of our whole race to virtue and happiness, with chief reference to an immortal existence. In this mission, of which woman is chief minister, ... the distinctive feature is self-sacrifice of the wiser and stronger members to save and to elevate the weaker ones. The children and the servants are these weaker members, ...
>
> These drinks are a most extensive cause of much of the nervous debility and suffering endured by American women; and relinquishing them would save an immense amount of such suffering.
>
> . . . . . .
>
> Although there is little hope of banishing these drinks, there is still a chance that something may be gained in attempts to regulate their use by the rules of temperance. If, then, a housekeeper cannot banish tea and coffee entirely, she may use her influence to prevent excess .... (40: 142-144).

There were other pleas for reformed standards of food and drink.

"Why is not dyspepsia disgraceful, like delirium tremens?" asked Mrs. Horace Mann in the preface of A Physiological Cook Book sub-

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[1] I Corinthians 8: 13.

titled Christianity in the Kitchen, and published in 1860.

> The object of this little manual is to show how healthful, nutritious, and even luscious food can be prepared, without the admixture of injurious ingredients.
>
> . . . . . .
>
> There is no more prolific, -- indeed, there is no such prolific cause of bad morals as abuse of diet, -- not merely by excessive drinking of injurious beverages, but by excessive eating, and by eating unhealthful food. Compounds, like wedding cake, suet plum puddings, and rich turtle soup are masses of indigestible material, which should never find their way to any Christian table. It looks ominous to see a bridal party celebrating nuptials by taking poison" (213: 1, 2).

The three laws to observe in eating, according to Mrs. Mann, had to do with time (of eating), quality, and quantity (213: 4).

A relationship between eating and morals was assumed by many writers on food and diet.

There was much concern over the food habits of the poor (26, 27, 142, 278).

In the 1840's New York City's Association for Improving the Condition of the Poor produced and ultimately distributed 10,000 copies of "Plain Directions About Food and Drink with the Best Modes of preparation." The pamphlet was published for the purpose of providing New York's poorer classes with usable information about diet. This organization later expanded its activities in nutrition education by the formation of a Bureau of Food Supply. In 1892 the Annual Report stated that "this department .... endeavors in every practical way to spread among the people information with respect to the selection, purchase, and preparation of food" (73).

When Juliet Corson published for free distribution 50,000 copies of a forty-page tract, "Fifteen-Cent Dinners for Working Men's Families, Popular Science Monthly declared that "it would be an act of humanity to aid in circulating the book among the class who have need of the information it contains."[1]

Farmers' wives were not entirely without help.

Solon Robinson, agricultural editor of the New York Tribune, edited a huge collection of writings on the farm and farm home, which he called Facts for Farmers; also for the Family Circle. Chapter IV, "Domestic Economy," contains information for the farm home. Much of the information is from other authors whose names are sometimes but not usually given (281: 351-460).

On the question of amounts of food needed for a hard working man, Robinson quotes the amounts consumed by British sailors, an English prizefighter, and by natives of other areas who ate enormous meals. Robinson concludes that probably in temperate climates about three pounds of solid food is consumed daily by hard working men.

Man craves -- and needs -- a variety of food because no one food will supply all needs. The three laws of food consumption involve time, quality and quantity.

At least five hours should elapse between meals for adults, and the more simply the food is cooked the more easily it will be digested. Children's food should differ from adults; it should contain more

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[1]"Literary Notices," Popular Science Monthly, 12: 244 (December, 1877).

substances with "starch, gum, and sugar."

> One of the great mistakes of many families is in not adapting the food to the season, the climate and circumstances. A hard-working Negro slave may eat fat, bacon and cornbread in August, and bask in the sun in Mississippi. It would not be good diet for a sedentary white man.
>
> Fruit is an essential article of food for the preservation of health, in bilious localities. It seems particularly adapted by nature to that end.
>
> A sensible man always adapts his eating to his labor" (281: 356).

Robinson reproduces Liebig's figures on the relationship of heat-producing to flesh producing substances, using the figure 10 to represent flesh-producing power. On this basis cow's milk is equal to 30 in heat-producing (energy) material, lentils to 21, peas to 23, fat mutton to 27, fat pork to 30, beef to 17, hare to 2, veal to 1, oatmeal to 50, white potatoes to 86, buckwheat to 130, etc. (281: 360).

> This table gives a sufficient explanation of the reason why buckwheat is always used as winter food. The reason is still more apparent when we know that butter and syrup, which are eaten with buckwheat cakes, are also producers of heat. It shows that veal is a very fit food for children and very unfit for aged people. In cold climates, particularly, where men are much in the open air, they instinctively crave fat meat. At the tropics, instinct teaches man to consume an abundance of fruits and vegetables" (281: 361).

Robinson includes many pages of instruction for the farmer's wife on food preparation, and heartily recommends Youman's Handbook of Household Science, from which Robinson draws some of his material, for her use (281: 359, 360).

Vegetarianism

There was considerable promotion of vegetarianism during the nineteenth century, although it was never popular with the majority of Americans. A few physicians were said to be in favor of it (39: 77).

Although modern vegetarianism dates back to the early years of the nineteenth century in England, McCollum believes Sylvester Graham (1794-1851) was the first to recommend it as a health measure in the United States. Graham was an ardent advocate of reform in dietary habits (198).

The Boston Medical and Surgical Journal in November, 1835, referred to proponents of vegetarianism as "alimentary radicals" (51), and it is certain that the movement gained relatively few adherents.

Nevertheless, one finds numerous references to it in the literature. Among its most ardent promotors were Dr. William Alcott, Dr. John Harvey Kellogg, and the Seventh-day Adventists.

One of Dr. Alcott's books was entitled Vegetable Diet: as Sanctioned by Medical Men, and by Experience in All Ages, Including a System of Vegetable Cookery (6).

Philosophical Nature of Discussion

Subjects on which there is a wealth of information today were of necessity discussed by early writers, if discussed at all, in terms of "nature," "the bountiful gifts of God," or other philosophical foundations.

Both vegetarians and non-vegetarians defended their eating habits on the basis of the bountiful gifts of nature, or of the Creator, to mankind. In one long sentence in The Young Housekeeper, William Alcott, perhaps unintentionally and certainly with considerable bias, presents both sides of the argument:

> Let us then hear no more of the nakedness or baldness of the vegetable system; of the want of variety which it involves, and of our slighting the good gifts of God; especially from those who, by making everything smell or taste of pepper, butter, vinegar, salt, etc., reduce all things to a strong sameness -- and who, by cooking everything in such a way as to destroy its natural taste, if not its natural properties, do in natural taste, if not its natural properties, do in reality set aside nearly all the Creator's gifts, to substitute inventions of their own, and introduce thereby ten thousand forms of disease, from simple flatulence and heart-burn to consumption and cholera, and cause ten thousand premature deaths for one which is according to nature or the intentions of nature's God (7: 389, 390).

Catherine Beecher had called upon the Christian homemaker to curtail the use of tea and coffee. In the June, 1883, issue of The Chautauquan, an unnamed author discusses the probable virtues of theine, a constituent of tea.

> God, in his own sublime language, says to the Chinese soil, and atmosphere, and sunshine, 'Let the white powder of the tea plant be,' and there it is.
>
> In a world so overflowing with perfect contrivance as this one, which serves as man's dwelling place, it is not at all likely that this curious white powder is made by the tea plant in such abundance ... without having some very good work appointed it to do.
>
> The white powdery ingredient of coffee and tea is most probably a rich and strong nerve-food, provided for the support of the nervous structure and brain, rather than for the nourishment of the flesh; it is nerve-making substance rather than flesh-making substance; and it exerts some mysterious and very extraordinary influence of lessening

> the waste of wear and tear in the structures of the living frame, without stopping their useful activity in the same degree (170).

Relationship of Diet to Disease

One of the interesting findings in early publications is the confusion over dietary cause and effect with which the modern American's nineteenth century ancester was surrounded. A comparable situation today, in kind if not in extent, is the unresolved problem of the relation of diet to common degenerative diseases.

The editor of Mrs. Mann's little volume inserted a footnote underneath a discussion of vegetables explaining that "sailors affected with scurvy, from eating salt meat, are sometimes cured by eating a raw turnip" (213: 40).

Florence Nightingale, in Notes on Nursing, complains that "scorbutic sores have been actually known to appear among sick persons living in the midst of plenty in England,[1] which could be traced to no other source than this, "viz.: that the nurse, depending on meat alone, had allowed the patient to be without vegetables for a considerable time, these latter being so badly cooked that he always left them untouched" (247: 70).

Dr. Danelson, in a book written for both physicians and homemakers, listed among the "dietic" diseases scurvy, rickets, goiter,

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[1]This statement is taken from an American edition of Miss Nightingale's book, written for women everywhere who will someday, in the family or elsewhere, be called upon to care for a sick person.

alcohol-disease, delirium tremens, and the opium-eating habit.

Treatment for scurvy "is simple and consists mainly in supplying deficiencies and in better hygienic regulations. The vegetable acids, such as vinegar and lemon juice, are necessary, also green vegetables, fresh air, warmth in clothing and in climate, if possible, and cleanliness."

Rickets are the fate of "children of scrofulous parents," but the disease may also result from "innutritious food, impure air and the want of hygienic surroundings" (94: 293).

"Leanness," said Mrs. E. C. Blakeslee in her Compendium of Cookery and Reliable Recipes, "is caused generally by lack of power in the digestive organs to digest and assimilate the fat-producing elements of food. First restore digestion, take plenty of sleep, drink all the water the stomach will bear in the morning on rising, take moderate exercise in the open air, eat oatmeal, cracked wheat, graham mush, baked sweet apples, roasted and broiled beef, cultivate jolly people, and bathe daily" (45: 273).

Half-cooked vegetables produced great gastric distress and frequently predisposed to cholera (45:8).

Dr. Beard believed that a taste for specific foods was hereditary.

> It is more than probable, he said, "that twenty-five years hence children will love tomatoes as naturally as they now love peaches or potatoes.
>
> Not only taste but probably also distaste is hereditary. With enlarged resources and refined cookery, enlightened man has gradually abandoned articles of food that were once

> his favorites, and has lost his love for them, and it is surely not irrational to infer that this dislike has been inherited, so that we now almost tremble at the thought of sitting down at the tables of our ancestors (36: 71-73).

The number of known chemical elements in the world was sixty-two, and fourteen[1] of these were considered essential for the human body (36: 12).

Early Organizations

Catherine Beecher and others had urged the teaching of household arts and science in schools, and later land-grant colleges were to make this work a part of their programs. In the meantime a few individuals, along with religious and charitable organizations, took up the task.

The A. I. C. P.[2] in New York City has been mentioned. This organization continued to do excellent work in nutrition for the homemakers of New York City, especially the foreign-born, for many decades.

The Young Women's Christian Association

The Young Women's Christian Association dates back to 1855 in London and to 1858 in New York City. It was the Boston organization, however, begun in 1866, which pioneered in health education (297: 1-3, 141-152).

The Boston working girls who were unable to live at home faced a precarious, as well as a lonely existence. Often they were found living "in attic rooms of lodging houses, with the lower stories occupied

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[1]Oxygen, hydrogen, nitrogen, carbon, phosphorus, calcium, sulphur, florine, sodium, chlorine, iron, potassium, magnesium, silicon.

[2]Association for Improving the Condition of the Poor.

chiefly by young men, many boarding themselves, and struggling with poverty, loneliness, and isolation; neglected in sickness, helpless when out of work, and subject to chance acquaintances from among the lower strata of society" (157).

It was the churches, in the middle of the nineteenth century, who were considered responsible for helping such girls; therefore, appeals for non-sectarian assistance fell on deaf ears. In the end, however, money was contributed for the purchase of a home, which was to maintain a Christian atmosphere, and which would soon become self-supporting (157).

The Thirteenth Annual Report of the Association in 1879 describes a new attempt in helping young women to help themselves.

> The Association, after much reflection, sure of the approbation and aid of the community in an object so important, have rented the house No. 66 Warrenton Street, for the purpose of making it a Bureau of Instruction, and hope to have it ready for occupancy in the early spring. The plan is to combine a boarding-house, adapted in its prices and arrangements to girls of small means, with a training-school, to meet the great want indicated. Board may be earned by giving their time while acquiring a knowledge of cooking, laundry work, etc. (153).

Within a year seventeen girls had received training in family cooking and laundry, and a cooking school under the direction of an accomplished teacher was in operation (357).

Later a Normal School of Domestic Science was opened. The primary aim of this school was to train young women in homemaking; a secondary object was to provide teachers of domestic science.

Subjects concerned with foods included experimental chemistry, scientific cooking, botany of grains, fruits, and vegetables, and history

of foods (60).

The Seventh-day Adventists

In Battle Creek, Michigan, the Seventh-day Adventists, who had organized their church under that name in the early 1860's (302: 265-283), were striving to accomplish a much needed program of health education among their membership. Handicapped by ailing workers, some of them in key positions (302: 308-309), the church opened the Western Health Reform Institute in a remodeled farm house in 1866 (355: 73). By their own statement they possessed more reserves of faith than of physical or financial resources.[1] Nevertheless, they were determined, not only to provide treatment for the already ill, but at the same time to conduct an educational program aimed at the prevention of disease.[2]

Walton and Jensen point out that, in the light of present knowledge, their ministers were often more scientific than their physicians (355: 45-46).

Spalding, the church's leading historian, summarizes the Adventists' teachings on diet as follows:

> Swine's flesh was specifically condemned, and finally all flesh food, as also inclusion in the diet of rich pastries, grease-filled foods, and condiments. In their place (was) recommended 'a plain, wholesome diet,' the essentials of which were ground whole grains, legumes, vegetables, fruits, and nuts, with milk products and eggs gradually, or in the

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[1]Dores Eugene Robinson, The Story of Our Health Message, The Origin, Character, and Development of Health Education in the Seventh-day Adventist Church (Nashville, Tennessee: Southern Publishing Association, 1943) p. 132, quoting Medical Missionary, January, 1894.

[2]Loc. cit., pp. 131, 132, quoting Review and Herald, Aug. 14, 1866.

> future, to be discarded. Two meals a day instead of three were advocated to relieve the alimentary system during sleep (302: 315).

The use of tea and coffee had been generally discontinued some time before (302: 307-308).

As early as 1865 a committee of twelve women was appointed to undertake the provision of recipes for the use of converts to the church's new dietary system. After looking over three "hygienic" cookbooks of the day the committee came up with nineteen pages of recipes, including some of their own creation, and a call to the "friends of health reform" for additional ideas and recipes, which they promised to publish (76). At this time the membership of the entire church throughout the country and the world was 3500 (364).

Almost immediately the Seventh-day Adventists began spreading their new beliefs by setting tables for the serving of meals and/or demonstrating the preparation of certain foods at large public outdoor gatherings in Battle Creek. At the state fair in 1864 they carried several cookstoves onto the fair grounds and "demonstrated how good meals might be prepared without the use of flesh meat. We were told that we set the best table on the ground" (366).

On holidays the members took stoves to the grounds and there demonstrated the making of certain breads. Lectures and entertainments were given, accompanied by the serving of food prepared to show "those present that our diet, even though it was in accordance with the principles of health reform, was far from being a meager one" (365).

A month before the opening of the Western Health Reform Institute the Adventists began publication of their first health magazine, The Health Reformer. On the first page of the first issue[1] was an article entitled "Digestion," by J. H. Ginley, M. D.

It was the ambition of the Seventh-day Adventist leaders in Battle Creek to reach, through their health publications, every adult Adventist member in the country and large numbers of non-Adventists as well.

Diet was only one part of their health education; they were equally ardent preachers of the virtues of fresh air, cleanliness, and mental health.

Cooking Schools

> Public interest in the application of science to all phases of everyday living gave rise to the cooking school movement in the last two decades of the nineteenth century (57: 11).

Historical writers differ as to when the French expert in matters of the cuisine, Pierre Blat, came to America to conduct cooking schools in the eastern cities. Barber, in The History of the American Dietetic Association (33: 13), declares his arrival to be in the 1870's, Craig, in The History of Home Economics, states that he came "about 1860" (88: 5).

American women, following in the footsteps of Catherine Beecher, were becoming concerned over the lack of training of homemakers.

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[1]August, 1866.

The Annual Report of the United States Commissioner of Education in 1879 gives a brief account of cooking schools conducted by Maria Parloa and Juliet Carson in Boston, New York, Washington, Indianapolis, and Peoria, Illinois.

"The attendance of ladies of worth and culture upon these classes is a hopeful symptom," the commissioner wrote, "as their example will exercise a powerful influence against that contempt for homely industries which threatens to become a serious evil among the poorer classes in America" (330: ccxvi).

In Boston a cooking school was also conducted by a committee of the Women's Educational Association, while in Raleigh, North Carolina, a class for the benefit of students of a Peace Institute was opened to the public (330: ccxvi). Although little was known about nutrition, there was general agreement that food was important to health, and that the proper preparation of food was a vital link in the relationship. Nevertheless, many writers throughout this period stress the lack of understanding and even of interest shown by the average homemaker in the healthful preparation of meals.

"Two things," declared the editor of Popular Science Monthly in 1878, "are much and justly complained of in this country -- the everlasting multiplication of new cookbooks and the general badness of cookery. Publication of every form and variety abound upon this subject, with no corresponding improvement in the art by which food is prepared" (277: 625-628).

Cummings, in The American and His Food, quotes nineteenth century authors on the generally poor quality of American food (90: 10-12).

A writer in The Chautauquan in 1890 declared that "we raise more vegetables and in greater variety than any other people; have better and cheaper fruits than can be procured in any other market upon the globe; our waters teem with fish (unsalted) that may be had for the catching, yet our national cuisine -- take it from east to west and from north to south -- is the narrowest as to range, the worst as to preparation, and the least wholesome of any country that claims an enlightened civilization" (150).

Around the country the meat was ill-cooked, the bread was sour, the vegetables were improperly treated, and the soup looked anything but appetizing (Adams).

Possibly one reason for the lack of concern and the absence of skill was the arduous task faced by cooks.

Maria Parloa, in her New Cook Book and Marketing Guide, 1880, suggests the following breakfast menus:

I

	Fruit Oatmeal & Cream	
Baked Potatoes	Mutton Chops	Rye Muffins
	Hominy Griddle-Cakes Coffee, Tea or Chocolate	

II

	Fruit Oatmeal	
Broiled Ham	Graham Muffins Toast	Omelet
	Griddle-Cakes Coffee or Tea	

III

Fruit

Escaloped Meat — Dropped Eggs
Raised Muffins — Drinks — Corn Cake
(259: 403, 404)

A decade later Mrs. Emma P. Ewing, writing in The Chautauquan, called for a reform among Christian people, the discontinuing of "gluttony and bibulousness."

> For the guidance of young housekeepers and novices in the art of entertaining, a specimen bill of fare, suitable for a breakfast, dinner, and supper for a small company, in the early winter months, is appended:
>
> Breakfast
>
> Fruit
> Oatmeal with Cream
> Broiled Steak, Plain Omelet,
> Creamed Potatoes, Vienna Bread
> Griddle Cakes, Syrup
> Coffee
>
> **
>
> Dinner
>
> Raw Oysters
> Cream of Celery Soup
> Roast Turkey, Giblet Gravy, Celery,
> Mashed Potato, Browned Sweet Potato,
> Cranberry Sauce.
> Sweet Bread Patties, Olives.
> Endive Salad, Cheese Straws,
> Bavarian Cream
> Fruit. — Nuts — Coffee.
>
> **
>
> Supper
>
> Scalloped Oysters, — Cold Sliced Ham,
> Cabbage Salad, — French Rolls
> Caramel Cake, Canned Pears
> Tea — Coffee (109)

Early cooking schools did little to shorten the bill of fare,[1] except among the poor, but they did stress a high level of skill in preparation, and such nutritional facts and principles as were known at the time.

The New York Cooking School, conducted by Miss Juliet Carson, was so successful that Miss Carson published a textbook and manual for the benefit of other institutions.

The following method was used for the first class, which had an attendance of approximately 200, in 1874-75:

> The pupils assembled in the lecture room to listen to a brief analysis of the various articles of food to be cooked during the lesson and the effect which they would have upon the system after they were eaten; directions were then given for choosing and buying them and for preserving them fresh and untainted. After Miss Carson had fully elucidated these points and assured herself that her hearers clearly comprehended them, she took her class to the kitchen, where they watched the preparation of the bill of fare and the serving of the dishes after they were cooked (330: 269-270).

In large public classes the teaching was done by lecture and demonstration; in private classes students participated in food preparation. Although pupils paying for private lessons were allowed to choose the foods which they would prepare, they were encouraged to select nourishing dishes rather than pastries and other desserts.

To provide cooking classes for the women of working-men's households, poor children of the city, and girls who might wish to go into domestic service, cash donations were accepted from interested persons.

Miss Carson wished to expand the school to include all classes of New Yorkers, and to train women to teach others, as well as to direct

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[1]A sample menu of the New York Cooking School, 1876, contained soup, fish, poultry, beef, three vegetables, salad, and dessert. See U. S., Bureau of Education, "Training Schools of Cookery," Circular of Information, No. 4, 1879, p. 270.

institutional food services.

In 1879 ninety-six mission teachers attended classes and over 600 other women were present at various public and private lessons. In the meantime a few public lectures were given for the benefit of working men and women of New York, and 5000 persons attended Miss Carson's lectures at Cooper Institute (330: 270-279).

In Boston Miss Parloa lectured at Tremont Temple and conducted cooking classes on Tremont Street. One of her private classes was composed of young unmarried ladies of Boston who gave a dinner at the close of the class to their young men friends. In the flowery newspaper language of the day, it was predicted that the young ladies would carry their newly acquired skills into future homes, and "happy will be that man who is called upon to supply their larders" (330: 280-281).

In the neighboring state of New York, the Chautauqua directors invited Miss Parloa to conduct a cooking class on the Chautauqua grounds before the opening of the regular Annual Assembly.

The June, 1879, issue of the Chautauqua Assembly Herald bore the following announcement:

> A unique but practical exercise at Chautauqua this year ... will be a series of lectures on cookery with practical illustrations by Miss Parloa of Boston, who has made such a sensation in Massachusetts, by her sound sense and skill in teaching classes of ladies in this important practical department (75).

The following month almost a full column on page one was devoted to a second announcement:

> Among the many good things which Chautauqua has done, none is more commendable than the employment of Miss Parloa to give lectures and lessons in the art of cooking.

. . . . . .

Miss Parloa comes recommended by the press everywhere. Her methods of instruction are of the highest order, being none other than object lessons.

She cooks in the presence of her audience and explains every step and gives opportunity to all of testing the work.

. . . . . .

Chautauqua gives the opportunity for every woman who attends, to avail herself of much knowledge in this direction (224).

Progress of Science

As the science of nutrition made headway in the laboratories of Europe, information which would bear the test of time and scientific inquiry became more common.

Popular Science Monthly was published for the purpose of spreading "current scientific thought in simplified form among the people" (112: iii and iv). The first issue appeared in May, 1872. In it was an article on "The Causes of Dyspepsia" (191). In the months following there were frequent abstracts of reports by Voit. The first, "On the Digestibility of Vegetable and Animal Foods," appeared in the July issue. In August "The Nutritive Salts of Food" came out, and in October "Physiological Influence of Condiments."

Later issues carried articles on foods and nutrition by noted authors, reports on the work of the American scientist W. O. Atwater, a long series on "The Chemistry of Cooking by W. Mattieu Williams, reviews of books, most of them published first in England, and information on the values of certain foods (265).

Cookbooks received attention, and often high praise, in the monthly columns of "Literary Notices."

The nutritional opinions of the day were evaluated.

When Suzannah Dodd's Health in the Household, or Hygienic Cookery was reviewed, the editor first explained that by hygienic cooking the author meant a predominantly vegetarian system, excluding even milk, as well as salt, spices, and grease. However, the author also includes "compromise dishes" not wholly in accordance with her radical ideas, and the editor considers these a redeeming feature of the book (276).

In the January, 1884, issue, in an article reproduced from Lancet, strong criticism was expressed of "indiscrete persons /who/ are objecting to the use of salt and propose to do without it. Nothing could be more absurd" (345).

Mrs. Mary Hinman Abel's Practical Sanitary and Economic Cooking Adapted to Persons of Moderate and Small Means was commended as "thoroughly scientific" and "not above the comprehension of an ordinary intelligent woman."[1]

Readers of the September, 1885 issue were told that "The 'Lancet' regards the increased use of fruit in ordinary diet as one of the most salutary tendencies of domestic management in our day."[2]

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[1]In "Literary Notices," Popular Science Monthly, 38: 126, 127 (November, 1890).

[2]In "Popular Miscellany," Popular Science Monthly, 27: 715, 716 (September, 1885).

The possibility of loss of minerals in the boiling of meats and vegetables was pointed out, along with the advantage of using raw salads and vegetables to some extent.[1]

On the disputed question of tea and coffee drinking, both advocates and non-advocates were praised by a writer in January, 1882.

> Notwithstanding the adoption of theine-containing beverages by mankind at large, we can not hesitate to commend that robust habit which discards all dependence on adventitious food, even on so mild a stimulus as that of the teacup, ... And probably there was never a time when there were so many persons as now who are disposed, by conviction and by a desire for a stalwart physical independence, to refuse to fix any habit that holds the nervous system.
>
> But taking the world and its discomforts as we find them, it must be granted that the thraldom of tea is comparative physical freedom, and we can gladly give voice to those who praise these comfortable beverages (266).

Thus Popular Science Monthly made its contribution to the education of the American housewife.

Poole's Index to Periodical Literature lists only ten articles on "Foods," between 1887 and 1891. At least seven of these articles were by W. O. Atwater and were published in The Century Magazine.

Of the remaining three, two articles were on adulteration of foods, and the third, by B. Richardson, was entitled "A Comparison of Animal and Vegetable Foods."

Atwater's series on "The Chemistry of Foods and Nutrition" in The Century Magazine is typical of the educational materials beginning to emerge from the American laboratories.

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[1] In "Popular Miscellany," Popular Science Monthly, 32: 860-861 (April, 1888).

Atwater was deeply concerned over the lack of economy in meal planning and food buying and preparation.

In "Pecuniary Economy of Food," in The Century Magazine of January, 1888, Atwater notes the probability that the majority of non-agricultural families in the United States lived on wages not exceeding $500 annually, of which more than half must be paid out for food. For these and other families it was imperative to provide information on the relation of nutritive value to cost of food.

For this purpose Atwater prepared diagrams showing the food materials available at retail markets in New York City and Middletown, Connecticut, for 25 cents, the proteins, fats, and carbohydrates contained in them, and their comparisons with the daily needs of an average man engaged in moderately hard muscular labor.

The food waste common in American families, Atwater warned, would result in loss of national prosperity and "fearful falling away rather than improvement in our morals." The remedy lay in educating Americans in an elementary knowledge of foods and nutrition and in propagation of the doctrine that "economy is respectable."

"Of the many worthy ways in which the charity that we call Christian is being exercised," Atwater wrote, "none seems to me more worthy of that appellation than the movement in industrial education, of which teaching the daughters of working people how to do housework and how to select food and cook it forms a part."

"If Christianity is to defend society against socialism must it not make such homely, non-theological teachings as these part of its gospel?"

This teaching, which once in print would gradually work its way down to the classes most in need of it, was, Atwater declared, "the following of the precept and the example of the great Teacher, who made His doctrine dear to men by His deeds of love, and a part of whose work on earth was to feed the hungry and to heal the sick" (27).

There was much interest in calories and in the nitrogenous and carbonaceous constitutents of foods, along with the matter of digestibility. The man who read Popular Science Monthly would be equally interested in Edward Smith's treatise entitled Foods, in which he told his readers that "ten grains of raw lean beef, when burnt in the body, produces heat sufficient to raise 3.66 lbs. of water one degree F., which is equal to raising 2,829 lbs. one foot high.

"Dr. Beaumont proved that it required 2 3/4 to 3 hours for the digestion of beef" (300: 49-50).

Smith divided the contents of his book as follows:

Part I Solid Foods

Section I - Animal Foods
a. Nitrogenous
b. Non-nitrogenous

Section II - Vegetable Foods
a. Nitrogenous
b. Non-nitrogenous

Part II Liquids

Part III Gaseous Foods (air and ventilation: oxygen, etc.)

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The editor of Popular Science Monthly, who had arranged for the writing of Foods as a part of the International Scientific Series in the 1870's, believed the book was qualified to take the place of Periera's treatise,[1] then out of date because of advances in knowledge.

Foods, declared the editor, was "emphatically a book for the people; ... a summary of facts and principles for those who desire to understand the subject."[2]

There were a number of household magazines in the late 1800's,[3] and Cummings notes the increasing amount of newspaper space devoted to foods and meal planning (88:10), (90).

Interest in the relationship of foods to health, though by no means universal, was rising, and the time had come for the United States Government to take a hand.

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[1]See Todhunter's list of classics, Chapter II.

[2]In "Literary Notices," Popular Science Monthly, 3: 647, 648 (September, 1873).

[3]Good Housekeeping, still popular today, began publication in 1885.

CHAPTER VI

NUTRITION AND AGRICULTURE

In the midst of the Civil War President Lincoln signed into law several bills with potentially vast and far-reaching consequences for the health of Americans.

On May 15, 1862, he approved the bill creating the United States Department of Agriculture out of the old agricultural section of the United States Government Patent Office (326: 127).

Seven weeks later he gave final approval to the Morrill Land-Grant Act which provided for the beginning of the nation's system of land-grant agricultural colleges (326: 106).

Congress and later presidents continued the trend. In 1887 the Hatch Act was passed (326: 209), creating a system of federally subsidized state agricultural experiment stations. The following year the Office of Experiment Stations was established in the United States Department of Agriculture, with W. O. Atwater, professor of chemistry at Wesleyan University, its first director (327: 131-132), (295: 11).

A few states had already provided for agricultural experiment stations before the passage of the Hatch Act, and Atwater had established the first of these in 1875 at Wesleyan University in Middletown, Connecticut (326: 128).

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In Germany, where he had studied under Voit (216: 27), Atwater had become interested in the study of workingmen's dietaries. He was active in promoting this type of research in the United States, along with his work on the chemical analyses of American foods (295: 11).

Farmers' Institutes

In the early years of the Department of Agriculture a new rural educational venture came into being. According to True the first Farmers' Institutes were held in Kansas in 1868 (326: 9, 119). By 1890 they had become a well established institution in a number of states (326: 14).

In the years 1890 to 1895 Minnesota and Wisconsin introduced cooking schools as a part of the women's meetings at these institutes. Here not only demonstrations in food preparation were carried on, but information on a balanced diet and the nutritive values of foods was presented (326: 18-19), (91: 577-578).

Reports from a number of states mention women's meetings without providing information as to subject matter.

Some states issued annual institute reports in the form of agricultural handbooks reaching many thousands of farmers and their families. Some of these handbooks carried additional information not a part of the institute program (141: 3).

In the Household Department of the 1891 Minnesota Farmers' Institute report is an article by Miss Juanita L. Shepherd on "Butter, Cream, and Milk in Our Diet."

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The use of cream and butter is urged on the basis of nourishment, digestibility, and the added flavor which increases the palatability and digestibility of foods. The use of cream instead of milk may result in a better balanced diet. Milk is, nevertheless, a valuable food, containing much nutriment, easily digested, and in many cases stimulating "the vital processes of nutrition."

Bread is the staff of life, but becomes a perfect food only when it contains milk (141: 265-268).

The 1896 report carries a long article by Miss Mary C. Thomson, instructor in domestic science, Minnesota Farmers' Institute (142: 249-270). In spite of the contemporary nutritional terminology, the absence of any mention of vitamins and the assertion that muscular exercise is accomplished at the expense of the protein supply, this article has a very modern sound.

> For our purpose, we must not think of our food as meat, potatoes, bread, corn, etc., but as consisting of various compounds, each capable of performing a different function in the human economy. In one food there may be several compounds.
>
> Every muscular act of the body is performed at the expense of some protein compound. The wear and tear on the protein of the human body must be made up by a sufficient amount of protein in our food. It is this protein that is usually the most deficient in our food materials.
>
> The fuel and energy-giving foods are known as carbonaceous compounds. 'A pound of starch, when it is fully digested by the body, produces the same amount of heat as if it were burned in the stove.'
>
> Starch and sugar may also be used for the formation of fat in the body. If you wish to reduce your obesity, you must cut off the starches and sugars from your diet.

Should eat more fat (a heating food) in winter than in summer.

Most of our food contains phosphate of lime and potash as well as the other mineral substances necessary, but some foods contain them in a greater quantity than others.

Potash is found in green vegetables. Phosphate of lime which is essential to the bones and teeth ... is contained in seeds, such as oats, wheat, rye, etc., etc., also in fruits. The absence of these is one reason for the early decay of the teeth.

The mineral substances serve other purposes than that of bone formation, consequently adults, as well as children, must have it. Its presence seems necessary to the changes /sic/ that are essential to life, for if it is eliminated from the food, death eventually follows.

.... in order to nourish the body perfectly, each day's rations must contain some protein food, some starch and sugar, fat and mineral matter, and that it should be so proportioned that each demand of the system, as well as each demand that is made upon the system, is met by a corresponding supply.

If the body is supplied with more of one kind of food than it can use, it will be obliged to remove it from the system at an expense of its energy.

On the other hand, if one kind of food is wanting, the system is hampered in its work.

.... nature is able to adapt herself to the varying conditions that are imposed upon her. Nevertheless, it is a strain that she cannot endure indefinitely and so men and women break down in the prime of life (142: 251-253).

The following year the same instructor, now Mrs. Mary Thomson Hoverstad, cautioned her readers that "as vegetables contain so small a proportion of nutrients, they must not be permitted to take the place of foods rich in nitrogenous compounds, viz.: eggs, meat, cheese, etc., nor of food containing starch, as the grains" (162: 293).

There is, however, a danger in the opposite direction.

> Unless we have a variety of vegetables, the individual will eat more meat and the foods rich in nitrogenous elements than is necessary for perfect alimentation. Vegetables will satisfy the appetite, and there will be a corresponding decrease in the quantity of the higher priced foods eaten. This has an advantage other than cost. The excess of nutritious elements that the system cannot utilize must be eliminated, and the organs that have to do with this class of foods may become inflamed and diseased from overuse (162: 293).

The chief value of vegetables lies in their "mineral salts and organic fluids," but they also provide bulk, "thereby promoting digestion and giving a healthy action to the bowels (162: 283).

The 1896 institute report carried the notice of a summer school course for women. Although the course was primarily for the mothers, wives, and daughters of Minnesota, women from other areas would be admitted. Sewing, cooking, and dairying were to receive major attention, but English, science, and applied arts (poultry, horticulture, and hygiene) would be included in the curriculum.

The chemistry lectures would include material on foods and water, and nutrition, including the physiology of digestion, was a part of the hygiene course (142: 27-31).

The importance of cooking was emphasized strongly in the Wisconsin Farmers' Institutes. One speaker in 1899 was Nellie S. Kedzie.

"A pound of beefsteak will give 175 to 180 grams of nitrogen," she told her audience, "but how much nitrogen you will get out of it depends upon how it is prepared. You may select as carefully as you will, but unless the food is properly cooked there is no assimilation" (176).

Of the moral influence of food, Miss Kedzie declared that a carefully chosen diet would eliminate much drinking and smoking as well as much of the problem to become known in the twentieth century as juvenile delinquency (176).

Not later than 1895 such topics as "A Knowledge of Cooking and Its Relation to Happiness," "Hygienic Cooking," and "Economic Cooking," were being presented by lecture and demonstration to the Michigan women who attended institute sections for farm wives (219).

An Illinois report in 1903 records the talk on foods presented at the women's section by Mrs. Nellie Kedzie Jones.

Mrs. Jones called for the exercise of intelligence in feeding one's family, since not all persons thrive on the same foods. She referred to the basic requirements of water, protein for muscle building, sugar and fats, and minerals for the bones and some other parts of the body. Variety in foods, she told her audience, would provide sufficient minerals, but water, she warned them, was seldom used in sufficient quantities.

Following her lecture, the women asked questions and recounted their own experiences in feeding households (22: 229-233).

Of the topics covered in Farmers' Institute Cooking Schools one woman wrote:

> At our Institute Cooking Schools[1] we also discuss the selection of food as regards economy and food value -- also

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> the proper combinations of foods to make a well balanced diet. Some time is spent on food for invalids and children and how best to maintain general good health. ...
>
> The discussions brought out at these lessons prove very helpful. Questions asked and experiences exchanged bring all on a friendly footing and old prejudices are often unconsciously broken down.
>
> Women begin to realize the reason for the things they do, and knowing the reason, the doing is more intelligent (24).

Sometimes the work of the women's sections of the Farmers' Institutes was continued locally through the formation of clubs and neighborhood organizations (22), (24).

Some states also maintained traveling libraries for farmers, which included works on domestic science for the farmers' wives. In Illinois these libraries were a part of the activities of the State Farmers' Institutes (140).

With the passage of the Smith-Lever Act in 1914 and the Smith-Hughes Act in 1917, the farmers' institute declined in importance as a means of education for the farmer and his wife (328: 41-42). The Cooperative Extension Service presently assumed much of the educational responsibility for the improvement of conditions in the farm home.

Agricultural Research and Education in Human Nutrition

When Mrs. J. W. Bates addressed the Ohio State Farmers' Institute in Columbus, on January 12, 1904, she declared:

> For several years I have attended Farmers' Institutes, and have associated with some of our best agricultural students, who have presented charts of food rations for the swine, horse and cow; some show their experience with certain foods to produce the largest number of pounds of beef in the least time; others, experience /sic/ show the kinds of food for the

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> dairy animal to produce the largest yield of milk and largest percent of butter fat but I have yet to find a practical food chart that will give a home maker an idea how to feed the growing child to produce the best in him, physically and mentally (34).

For years prior to 1894 public interest had been mounting in the nutrition investigations being carried on with funds supplied by various agencies and individuals. Efforts were made as early as 1890 to interest Congress, and in 1894 that legislative body made its first appropriation of $10,000 for experiment station work in human nutrition. Professor Atwater was put in charge (329).

A year later Atwater's 222 page bulletin, Methods and Results of Investigations on the Chemistry and Economy of Food, was published by the Office of Experiment Stations.

Here Atwater discusses the composition of American foods, the vital parts played by the only nutrients then known -- protein, fats, carbohydrates, and a few minerals—and the uses to which these nutrients are put in the human body. Atwater defines food as "material which, when taken into the body, serves to form tissue or yield energy, or both" (28: 16).

He includes material on the digestibility of foods, metabolism, studies of and standards for human dietaries, and economy vs. waste and extravagance in American kitchens. He describes the fundamental principles of food economy as the provision, at minimum cost, of needed nutrients in the amount and proportions required by the body (28: 11). Again and again in his writings Atwater comes back to this theme.

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> The cheapest food is that which supplies the most nutrient for the least money. The most economical food is that which is the cheapest and at the same time best adapted to the wants of the user (28: 137).

Based on Connecticut retail food prices then current, "a quarter of a dollar invested in the sirloin of beef at 22 cents per pound pays for 1 1/7 pounds of the meat with three-eighths of a pound of actually nutritive material. This would contain one-sixth of a pound of protein and one-fifth of a pound of fat, and supply 1,120 calories of energy. The same amount of money paid for oysters at the rate of 50 cents per quart brings 2 ounces of actual nutrients, an ounce of protein, and 230 calories of energy. But in buying wheat flour at $7 a barrel the 25 cents pays for 6 1/4 pounds of nutrients with eight-tenths of a pound of protein and 11,755 calories of energy" (28: 137).

However, the more expensive animal foods, if wisely and economically purchased, have an advantage. Where combined with foods of vegetable origin, they not only satisfy the palate, but they provide protein and fats not easily obtainable from non-animal sources (28: 137).

In the following year, 1896, the office of Experiment Stations published Bulletin No. 28, by Atwater and Charles D. Woods. The analyses of all foods previously studied by Atwater, except dairy products, were published as percentages of refuse, water, protein, fat, carbohydrates, ash, and calories (30).

This bulletin was the first of its kind, for human dietaries, to be published in the United States (324).

In 1899 True and Milner could report that the information acquired through their investigations was already widely sought and that "the

interest of economists, educators, and housewives in the results is constantly increasing" (329).

In the first twelve years of Congressional appropriations the experiment stations, in cooperation with agricultural colleges and other institutions, carried out nearly two thousand nutrition investigations. The various publications, many of them Farmers' Bulletins, in which these investigations were reported, were the basis for much of the nutrition teaching which took place throughout the country at that time. Langworthy mentions high schools, colleges, universities and medical schools among the educational institutions using Experiment Station publications on foods and nutrition (190).

The National Grange of the Patrons of Husbandry

In 1867 a new rural organization, the Grange, came into existence. It was founded for social and educational purposes; it is credited by one of its modern historians with becoming an important agency in the accomplishments of Omnipotent Providence. Its long record of service, "even in the face of seemingly overwhelming obstacles," says Gardner, "reinforces this condition" (126: 5).

In addition to material objectives its founders saw in it possibilities for aiding the nation in the great struggle known as reconstruction, following the Civil War.

In its nineteenth century heyday, about 1875, the Grange attracted approximately one million members.

It was fortunate for the rural home that a niece of Oliver Hudson Kelley, one of the founders of the movement, convinced her uncle that

women should be included in the membership (326: 123-125).

In 1910 a Committee on Home Economics was appointed to promote the homemaking education of Grange wives. In 1915 a Grange spokesman declared that they were the "best organized body of farmers for promoting home economics" (238: 127-129). In time home economics committees under varying titles came to function in the individual state Granges (243: 133-134). Annual handbooks were issued for a number of years. In these were program outlines, suggestions, and source materials (126: 204-206). The discussion of the nutritive qualities of foods, the importance of thrift in meal planning, or the proper care and feeding of infants and children became relatively common features of Grange programs.[1] Suggestions for reading materials were made (237: 129-131).

Along with its adult education programs in nutrition and other phases of home economics, the Grange joined forces with other organizations in the promotion of home economics in the public schools (236: 139-141). After the passage of the Smith-Lever Act, it cooperated wholeheartedly with the Extension Service in bringing homemaking education to rural women, but was disappointed that its own organized efforts in that direction had not been recognized sooner (240), (239: 154-156), (240: 195-197).

The Grange continued to sponsor nutrition education activities through World War II.[2]

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[1]See The National Grange Monthly, 1911 to 1945.

[2]See Chapters IX and XI.

Extension of Nutritional Knowledge

During the two decades following 1890 the first genuine American textbooks on foods and nutrition were produced by two outstanding men, Graham Lusk (211: 16) and Henry C. Sherman (33: 16).

With the publication, in 1906, of Lusk's The Elements of the Science of Nutrition, advanced students were no longer wholly dependent upon Department of Agriculture publications, as important as those sources continued to be.

In 1911 Sherman published the first edition of Chemistry of Food and Nutrition, a work which he kept up-to-date by frequent revisions for four decades.

One of the aims of Chemistry of Food and Nutrition was an evaluation of "the criteria by which we should judge the nutritive value and economy of articles of food" (293: 3).

Sherman suggested a total intake of protein lower than that recommended by Atwater, but above the figures proposed a few years before by Chittenden (293: 228).

His conception of economy does not differ essentially from Atwater's, but he places strong emphasis upon the need for considering phosphorus, iron, and calcium as necessary building materials along with nitrogen. This need justified the purchase of "certain foods which would appear expensive if considered simply as sources of proteins, fats, and carbohydrates, ..." (293: 314-316).

During this period of 1890 to 1914 there was a change of emphasis in discussion of tissue building food. Variations in the quality of

protein began to be realized.

In addition, Russell Chittenden, director of the Sheffield Scientific School at Yale, became interested in the quantity of the human protein requirement. This interest was, in part, the result of Chittenden's observation of Horace Fletcher, whose custom of chewing all food until it liquified and was swallowed involuntarily[1] resulted in a greatly reduced food intake (68), (205: 11-12).

After experimentation on himself, other Yale faculty men, Yale athletes, and finally a group of soldiers, he came to the firm conclusion that Americans consumed far too much protein. He recommended a drastic decrease in the daily consumption (66: 227), (67: 474-476).

In spite of the increase in scientific tools, one still finds many ideas advanced. Vegetarianism was still vigorously promoted and stoutly refuted (351). A few persons went so far as to exclude all animal products and to live wholly upon fruits and nuts or other combinations of strictly vegetarian products. Strong claims were made for the social and economic good which would result (133), (143). An increased use of uncooked foods of plant origin was advocated by one physician as an answer to the problem of cancer (42).

On the other side of the picture, extravagant claims were made for the use of animal foods by the Doctors Cutter. Beef, they claimed, had cured "grave diseases" brought on by "vegetable foods," had transformed bad blood into good within forty-eight hours, and had prevented

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[1]For Fletcher's theories see Horace Fletcher, The A. B. - Z. of Our Own Nutrition, New York: Frederick A. Stokes Company, 1903.

leprosy among beef-eating nations (92). Clams and swordfish, as well as whole wheat, would strengthen the heart muscle, and soft clams and swordfish would be good for the insane. A high carbohydrate diet predisposed to insanity (93).

The person with a good diet and a very healthy digestion would not contract smallpox (363).

Meanwhile many persons ate as they pleased, believing that medicine, electrical therapy, or massage would deliver them from the consequences (163).

There is no evidence that many persons were victimized by the more extreme notions. The majority of Americans were within reach of the United States Department of Agriculture and its publications. Information from the department was obtained through most of the educational organizations of the day -- colleges and public schools, correspondence schools, rural organizations such as the Grange and the Farmers' Institutes, women's clubs, and the publishers of farm journals and women's magazines.

CHAPTER VII

THE NEW SCIENCE OF THE HOME

"The adult home woman who has not received training in household science knows her needs and she has been increasingly aware of them in the last two generations" (20: 15).

Craig, in her History of Home Economics, names the decade of 1880 to 1890 as the period in which domestic science courses began to multiply in the public schools (88: 7).

In 1893 the Household Economics Association was founded for the express purpose of furthering the education of homemakers (129).

An important part of the program was the promotion of homemaking education in the public school system.

At the 1898 biennial meeting of the General Federation of Women's Clubs the members were urged to make the study of household economics one of their projects. The chemistry of cooking, said one of the speakers, was "more fascinating and far more necessary than Browning" (124).

In 1903 the Household Economics Association disbanded, recognizing that the General Federation was carrying out its purpose in an effective way (129).

The homemaker who had already grown to womanhood without receiving domestic training in school was still dependent upon cooking schools, voluntary organizations, and the press for her education.

Much skill and tact were necessary to help the woman too ignorant or too poor to understand the possibility of improvement.

Teachers of the nineteenth century kitchen gardens[1] saw a possibility that women and older girls in the family would be drawn to accept new ideas through helping the young children with their lessons (189: 18-20).

In Boston the New England Kitchen was established to experiment with the production of inexpensive food of uniform high quality, which was then sold. Its originators hoped that it would become "a silent teacher of cleanliness, intelligent methods, and a uniform and good result in cooking. This, it is hoped, will slowly influence the cooking in the home by raising the standard as to freshness, flavor, and nutriment of the food" (3).

Three other organizations were patterning work after the plan of the New England Kitchen. They were Hull House in Chicago, College Settlement in Philadelphia, and a Boston settlement house (3).

New books were coming out to enrich the homemaker's library: Mary Hinman Abel's Practical Sanitary and Economic Cooking, published by

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[1]Informal schools where young children were taught household skills through songs, games, and play.

the American Public Health Association in 1890, Sarah Tyson Rorer's New Cookbook[1] in 1902, and the writings of Ellen H. Richards.

Mrs. Richards found the general attitude of the American public toward nutrition a discouraging one. Few, she thought, realized how many unnecessary deaths were due to foolhardy eating patterns.

"Every effort to inculcate saner ideals is met with scoffing, with unproven assertions, and with a demand for freedom and unrestrained choice as a mark of American liberty" (278: 6-7).

Food combinations were important, said Mrs. Rorer. In the first chapter of her New Cookbook she discusses the chemistry of food:

> For instance, it would be folly to substitute potatoes for meat, or any succulent vegetable for meat; peas, beans, and lentils, the pulse tribe, alone will give the necessary amount of nitrogenous ... foods. We have followed the practice -- perhaps without knowing exactly why -- of serving pork, which is a heat producing food, with our beans, muscle-making food. Then on the other hand, we serve potatoes with beef. Such combinations are wise. It would be foolish, indeed, to serve pork and potatoes. The vegetarian selects beans and potatoes, and thereby gets a greater amount of nitrogen, a larger proportion of muscle-making food, than from beef and potatoes. The out-door laborer, with an abundance of pure air, would in all wisdom select beans rather than beef. To the indoor laborer, however, beef would be preferable. It would suit his sluggish digestive apparatus much better; he could without doubt get a far greater amount of nitrogen with less expenditure of energy from the beef (282: 136).

There was continued emphasis upon economy. Richards published suggested dietaries at ten to fifteen cents per person per day (278: 98-111). Atkinson estimated that

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[1]Sarah Tyson Rorer, Mrs. Rorer's New Cookbook, A Manual of House keeping, Philadelphia: Arnold and Company, 1902.

> at seven cents a day the measure of our waste of energy in converting good food into bad feeding and upon liquor and tobacco at less than half their cost, amounts in each year to $1,660,750,000. If this waste of misdirected energy were converted into better methods of providing shelter, it would enable each family of five persons to spend $127 75/100 a year more for their dwelling places than they do now (25).

A decade and a half later Andrews declared,

> we have come nationally to a time of economic pressure. Our free lands are gone, the exploiting of wealth from the soil is over; and national conservation, efficiency in production, and thrift in the household are the new watchwords. Progress for the average family group will turn now on the wise household use of resources more than upon increase of wealth (20: 20).

Nutrition Programs

Persons living in Boston in 1907 could hear Professor Chittenden lecture at the Lowell Institute on physiological economy and the nutrition of man (66: v). They could also attend the series of free public lectures at the Harvard Medical School, where Harvard faculty members discussed "Public Milk Supplies," "The Adulteration of Food and Drugs," "Some Facts the Public Should Know Concerning the Feeding of Infants," and "Food in Health and Disease" (49).

The Chautauqua

Persons attending the Chautauqua could benefit from lectures or classes conducted by outstanding women in the new science of homemaking: Mrs. Ellen H. Richards, Mrs. Mary Hinman Abel, Miss Anna Barrons, Mrs. Alice P. Norton, Mrs. Emma P. Ewing.

Atwater had lectured there one season; G. Stanley Hall sometimes discussed nutrition in connection with child development; Dr. John Harvey Kellogg lectured on "The Gospel of Health."

Topics ranged from "The Chemistry of Food," "How Shall We Feed Hungry Body Cells," and "The Influence of Food, Exercise, and Baths on Mental Development," through "Choice Food at Cheap Rates" and "Choice Food for $1.50 per Week," to "The Cookery of the Future," "Cookery and Culture," and "Cookery and Christianity."

Cooking schools continued at the original Chautauqua Assembly where Miss Parloa had conducted the first school, and in several local Chautauqua in other parts of the country.[1]

In 1899 the Chautauqua Assembly celebrated its twenty-fifth anniversary.[2]

That summer a new School of Domestic Science was inaugurated, with a six week session under the direction of Mrs. Alice Peloubet Norton. Four subjects, domestic science, bacteriology, physics and botany of food, were taught.

The following year the school developed its two year program. Chemistry, physiology, cooking, and administration of institutions and

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[1]The Chautauquan, 1880 to 1902.

[2]Chautauqua Assembly Herald, Advance Number, Vol. 24, Season, 1899.

pedagogy were added.[1]

Homemakers, as well as teachers and institutional housekeepers, were admitted.[2]

By 1902 a course in food and dietetics had been added to the curriculum.[3] In future seasons teachers, food service managers, housemaids, brides-to-be, and housewives would make up the student body.[4]

Between Chautauqua seasons there were the reading courses and the articles for general reading in The Chautauquan, official journal of the Chautauqua organization.

The Battle Creek Sanitarium

For the man or woman who could travel to Battle Creek there was the Sanitarium with an atmosphere similar in some ways to that of the Chautauqua. A new employee describes it thus:

> In many ways the atmosphere of the Sanitarium is similar to that of Chautauqua. The people are here to rest and learn and they go about it with a tremendous earnestness that makes you pause and take notice. The evening march, which to me is the most humorous event at the Sanitarium is appalling in its seriousness. Seeing old men, angular women, boys, fat women, scrawny men, society dames, ex-athletes, retired coal-heavers all entering into the exercise with the determination to do all they can to get back their health makes one think a little deeper.

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[1]The Chautauquan, 31: 417 (July, 1900).

[2]The Chautauqua Summer Schools, Announcements for the Summer of 1900, July and August, 1900.

[3]The Chautauqua Quarterly, Vol. 2, No. 3 (May, 1902).

[4]Alice P. Norton, "'Scientific' Domesticity," The Chautauquan, 71: 267 (Aug. 30, 1913).

> Everything is planned. The patient's day is scheduled in hour lengths and he is expected to keep them.
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> . . . . . .
>
> The Sanitarium has its own picture plant and 'movies' are turned out as desired. Track events of the School of Physical Education, swimming races, X-ray moving pictures, are all taken and finished by home talent (318).

On Monday evenings Dr. Kellogg himself conducted a question box lecture. On Wednesday evenings a member of the Sanitarium staff lectured. On Thursday evening Dr. Kellogg again talked, sometimes using moving pictures or the stereoptican by way of illustration.

At five o'clock each afternoon a School of Health was conducted by one of the dietitians or other team members.

Cooks, housekeepers and dietitians were trained in the School of Home Economics. A cooking school was also conducted.

Extension work in the form of a correspondence course, as well as clubs, carried the work beyond the geographic limits of Battle Creek (127: 380-386).

For the subject matter of the nutrition education conducted by the Battle Creek Sanitarium, one must turn to Dr. Kellogg's writings, to Science in the Kitchen, compiled by Mrs. Kellogg, who conducted the Sanitarium Cooking School, and to accounts of patients and former employees.

Kellogg taught the use of "natural foods" (178: 5-10) eliminating meat (179: 116-125), (177: 389-416), (174), (225); condiments, including the unrestricted use of salt and sugar (180: 477), (178: 5-10), (177: 29-30); tea and coffee (178: 5-10) and tobacco (183).

A liberal use of fruits, vegetables and nuts, with a moderate use of grains and milk, was urged (178: 5-10), (180: 374-377). Certain foods, including potatoes and yogurt were highly regarded by Dr. Kellogg. Yogurt and lactose he considered aids to a healthy intestinal flora (183). Some raw foods and foods containing roughage should be eaten daily (178: 5-10), (180: 258, 275).

Weight control was very important. For this reason much attention was paid to calories; the printed Sanitarium menus included the caloric value of each food served, and one finds frequent mention in homemaker's and other literature of Dr. Kellogg's calorie tables (178: 5-10), (180: 237), (116), (248: 219).

The importance of minerals was recognized (180: 6), (225), and when vitamins became known they were frequent topics at the Sanitarium lectures (225).

Like Fletcher, Kellogg urged his patients to chew food thoroughly, and a "chewing song" was written to stimulate interest (114: 60-61).

The Sanitarium meals reflected Sanitarium teaching.

"The first experience of the patient here," wrote a contemporary, "is an amusing and novel one. He surveys his menu card much in the same manner he would a Chinese puzzle, but with the aid of the waitress and some of the other patients, he manages to get along for a day or two, or until he solves the mystery, and himself becomes authority and guide to the newly arrived guest" (35).

Not all Kellogg's employees and few of his colleagues agreed with his views on vegetarianism (174), (225). Kellogg himself, toward

the end of his life, expressed disappointment that he had not succeeded in converting the American public to his own ideal of the meatless meal (183).

Much of the general information which the Sanitarium staff passed on to students, patients, employees, and the community of Battle Creek was obtained from impeccable sources and is today standard dietary practice. In the preface of his The New Dietetics, Kellogg wrote:

> Thanks to the painstaking researches of Pavlov, Rubner, Atwater, Benedict, Chittenden, Mendel, Osborne, McCollum and other investigators perhaps equally worthy of mention, we now possess knowledge instead of assumptions, facts instead of fancies, scientific standards in place of empirical though time-honored notions and sanctions.
>
> There is perhaps no place in the world where the successive steps of scientific progress in the knowledge of nutrition and dietetics have been watched with greater care and interest than at the Battle Creek Sanitarium. For more than forty years this institution has been a great clinical laboratory in which an intensive study of foodstuffs and of their effects upon the human body has been continuously carried on by the writer and his associates. As new discoveries have been made in the nutrition laboratories of this country and Europe, the results have been carefully scrutinized and tested in actual clinical practice. It is not claimed that complete knowledge has yet been attained.
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> . . . . . .
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> The constant aim of the author has been to present known facts relating to human nutrition in such a way as to be of greatest service to the physician, the trained nurse, the intelligent housewife, and to every student of nutrition, as well as to the professional dietition. To this end numerous tables have been prepared by the use of which the dietary may be balanced not only for protein, fats, and carbohydrates, but also for cellulose, lime and iron and even acids and bases. These tables are based upon the data supplied by the tables of Atwater, Bunge, Gautier, Konig, and Sherman. They have been in constant use at the Battle Creek Sanitarium and elsewhere for several years (180: 5-6).

That the Battle Creek Sanitarium was popular all accounts clearly indicate. At the height of its success in the twenties it cared for thirteen to fourteen hundred health seekers at a time. In the days of the private railway car, as many as five of these cars stood on a siding while their owners partook of the Sanitarium food and care (174). From fifty to one hundred persons -- patients, employees, students, townspeople -- listened to the evening parlor lectures by Dr. Kellogg and the other physicians (183), (225).

Its huge size could not survive the depression. Some of its luxurious suites were rented as apartments while a few patients occupied a small portion of the building. During World War II it became a government hospital. The Sanitarium moved into a smaller building which had once belonged to Battle Creek College, and where, as the Battle Creek Health Center, it continues to maintain the Sanitarium tradition (183), (174).

Correspondence and Reading Courses

For the many women who must remain at home there were the new correspondence courses.

The American School of Home Economics in Chicago was chartered as a correspondence school by the State of Illinois in the early years of the twentieth century. Home study courses for teachers, social workers, institution managers and homemakers were conducted (21: 172).

One of the courses, called foods and dietetics, emphasized

> a knowledge not only of the cost and nutritive value of food materials, their composition and digestibility; but of the balanced ration, the proportion of different food principles

> necessary for perfect nourishment, and of the way in which this proportion should be varied to suit the needs of the child or of the aged, of the laborer, or of the student. An understanding of the principles involved in the preparation of food is demanded as well as a knowledge of food adulterations that will insure pure food materials (248: 4).

Under "favorable circumstances" one person might be able to live on a raw food cost of eight to ten cents a day; fifteen cents would require very careful management and the denial of all luxuries; for forty cents one could live well (248: 9-10).

The increasingly popular custom of purchasing ready-to-eat cereals was questioned:

> There seems to be a tendency in our modern life to depend too largely upon predigested foods, particularly in the case of children. This means a tendency toward the lessening of the power to digest. It is certainly a question whether it is not best to take our starch undigested but in such a form that it can be easily acted upon by the digestive juices, rather than to have the work done outside the body (248: 105).

White bread was pronounced equal or superior to whole wheat on the basis of the higher proportion of digestible grain which it contained (248: 111-112).

"The whole subject of standard dietaries," wrote Maurice Le Bosquet, director of the school, "is in a somewhat chaotic state at present."

The work of Chittenden and Folin had unsettled the convictions of the need for a high level of dietary protein. It was still too early to judge the adequacy of the drastically reduced intake. In the meantime the need for a "balanced ration" remained, but this need had become an individual problem to be determined by experience based on

knowledge and educated judgment (248: 194-195).

The American School of Home Economics also offered a condensed domestic science course in which economy of both money and time was continuously stressed.

The following day's ration for one person was proposed:

A Day's Ration

	Ounces
Meat and fish	12 to 16
One egg	2
Butter	1- 2
Milk, 1 gill to 1 pint	4-16
Sugar	2- 3
Dry fruits	1
Legumes	1
Fresh vegetables and fruits . .	6- 8
Potatoes	8-12
Flour and grains	12-16

The homemaker was advised to multiply this ration by thirty to determine the suggested food purchases for a month. In this way it would become a simple task to test the adequacy of the family's food consumption (18: 317-318).

Cornell University instituted a series of Reading Courses for Farmers' Wives.

An early number of this series was published in the "Reading Course for Housewives" in The Chatauquan under the title "Food for the Farmer's Family." References for further reading included government publications and books by Ellen H. Richards and Mary Hinman Abel.

It is an interesting fact that this article lists the following foods as essential for good bones and teeth: milk, meats, cereal products,

and vegetables, especially the leaves.[1] Emphasis on milk and green leaves forms an important part of the nutrition education of a later day.

The Children's Bureau

There are government agencies which give direction to programs furthering the health and welfare of United States citizens of all ages.

The Children's Bureau, United States Department of Health, Education and Welfare, is concerned with health and welfare services of mothers and children. Nutrition is an integral part of these services and programs (296).

The Children's Bureau was established in the Department of Commerce and Labor April 9, 1912 (53).

Because of the high infant mortality rate, one of the first publications undertaken by the Bureau was Prenatal Care, which contained two and one-half pages on food for the expectant mother (341).

It was soon followed by Infant Care. This 87 page booklet attacked the prevailing ignorance and superstition surrounding early child care and, in spite of its pioneering nature, became the federal government's best seller (53). The book covered all aspects of the care of infants, including diet.

Rules for the feeding of older infants are taken from a report of the American Medical Association's Committee on Public Health Education Among Women.

The first solid food was not to be given before the child was ten months old, although one to three tablespoons of strained fruit

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[1] The Chautauquan, 35: 180-185 (1902).

juice should be given at seven or eight months, and squeezed beef juice, beef tea, or chicken or mutton broth at nine months.

The first solid food allowed, at ten months, was part of a soft egg and a soft piece of toast or a crust of bread.

At one year strained cereal was to be given, followed by a teaspoon of rare scraped beef, mutton, or chicken at fifteen months, and one-half of a baked potato and cooked fruit at eighteen months. Fresh fruit juice was permitted after the first year. At two years of age the child could safely be fed well cooked and finely mashed fresh green vegetables (340: 49).

The causes of rickets and scurvy were not well understood, but were thought to be related to poor feeding practices. Fruit juices were recommended for scurvy but they must be "of an amount and kind suited to the child's age ...." (340: 70).

The use of fresh milk rather than canned and the value of orange juice were already recognized as cures for scurvy in children (160: 141-142).

The Visiting Housekeeper

In New York the Association for Improving the Condition of the Poor first employed a dietitian in 1906 (132). This woman went into the tenements and attempted to aid the poverty-stricken mothers many of whom could not properly be called homemakers, to overcome their ignorance and apathy, learn how to handle their tiny incomes, and provide nourishing food for their families. Since the A. I. C. P. provided funds as

well as information for the destitute, the task was not a hopeless one (131).

Early in the instruction program the mother was taught to keep a simple record of her spending, and to compare the articles she purchased with what she could purchase with the same amount of money. Lessons in marketing and food followed. Care was taken to keep instruction within the limits of the available facilities in the home. Occasionally a client would protest that the visiting dietitian's food plan could not be carried out; when this happened, the dietitian herself purchased the food with the sums available to the family, prepared it with the utensils in the home, and served it, thus demonstrating beyond a doubt that it could be done (131), (132).

The immigrant's language barrier provided additional problems, and the visiting dietitian often had to resort to the simplest means of communication (136).

Good food habits were, however, much easier to teach the immigrant than other aspects of homemaking (148).

In 1912, Winifred Gibbs, A. I. C. P. dietitian, published a book called Economical Cooking, Planned for Two or More Persons.[1]

In it she brought out the simple facts of a nourishing diet, one which would build up "tired muscles," calm "overwrought nerves," and overcome "all forms of bodily weakness."

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[1]New York: The New York Book Company, 1912, p. 157.

For convenience, she divided foods into five groups:

1. Proteins, for strength and muscular endurance -- meat, milk, and eggs.
2. Fats, for flesh and heat -- fat of meat, butter and cream, oils.
3. Sugar and starchy foods, for flesh and endurance -- sugar and molasses, breads and cereals.
4. Vegetables and fruits, for good bones and pure blood.
5. Water for keeping the body from wasting away and for cleansing the entire system.

Equal parts of fats and strength foods were essential, and about three times as much starchy and bulky foods.

"To sum up," she wrote, "a 'well fed' person is one whose food contains materials for keeping him warm, for building muscle, for making flesh, for keeping the blood right, for making the bones firm, and in short, for keeping the body in perfect condition."[1]

The grouping of foods to facilitate meal planning was to become one of the effective teaching devices of the future.

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[1]p. 14.

CHAPTER VIII

THE FEDERAL EXTENSION SERVICE

"No other agency of adult education," wrote James Creese in 1941, "reaches so many people so effectively as does agricultural extension. .... Beside this vast organization, reaching 6,000,000 to 7,000,000 people, all other extramural engagements of colleges and universities are overshadowed" (89: 94).

The Smith-Lever Cooperative Extension Act, passed in 1914, provides an annual grant of $10,000 to each state, plus additional funds on a matching basis. With these funds the land-grant colleges and universities conduct educational work in agriculture and home economics through the use of home and field demonstrations, publications, and other methods. Regular campus classes are excluded. Final administrative authority for the program rests with the Secretary of Agriculture (328: 114-115).

Historically, the foundation for this program goes back to the cooperative farm demonstration work originating in the southern states under the direction of Seaman A. Knapp, who has been called the schoolmaster of American agriculture.

A part of this farm demonstration work came to include boys' clubs for growing corn and girls' canning and tomato clubs. Home demonstration work for women was an outgrowth of the girls' clubs. As

the mothers became interested in their daughters' projects, alert demonstrators seized the opportunities to assist the mothers in home improvements, bread and butter making, cooking, and other activities (328: 58-68).

In the 1940's Bailey, biographer of Seaman Knapp (31), called attention to the changes in rural life with automobiles, movies, newspaper delivery, daily crop and stockyard broadcasts, weather forecasts, and international crop estimates replacing the formerly almost complete isolation of the farmer (31: 203-204).

Bailey described the southern farmer in 1904 and 1905 as "closer in attitude and outlook to the Anglo-Saxon churls of Alfred the Great than to the mental world in which their sons live in 1942" (31: 203-204).

Aside from the cooperative demonstration work in the South, land-grant colleges were already doing a vast amount of agricultural extension work, much of it through the farmers' institutes. According to True, the resulting drain on their resources provided the initiative for a demand for federal funds to carry on extension work.

Because of the success of the southern system of cooperative demonstrations, the law, as it was finally approved by President Wilson in May, 1914, encouraged this type of activity. Thus it has been the basis of much of the practical education of both the farmer and the farmers' wife.

At the close of the first year of activity under the new law, the southern states were employing 400 women, including 350 home demonstration agents. In northern and western states 355 short courses

had been conducted by college home economists for the benefit of rural women (328: 72-127). Only a small part of the subject matter of short courses and demonstrations was directly concerned with nutrition.

The report for the year ending June 30, 1915, gives an account of some activities of the first twelve months.

In Georgia "the plan of the home-demonstration work contemplates the study and demonstration of the best methods of cooking, home decoration, dairy, poultry, and garden management" (335: 62).

In South Carolina women and girls attending short courses of three or ten days received instruction in "cooking, sewing, gardening, poultry-raising, and dairying."

Nearly 2000 women enrolled in home demonstration work. They made 840 fireless cookers, 216 iceless refrigerators, 72 wheel trays, and 360 fly traps. In addition, "72 kitchen cabinets and 2697 canning outfits [were] placed in homes and instruction given as to better arrangements of the kitchen, protection of the home against flies, and other sanitary devices" (335: 111).

In Indiana 4422 women attended one day demonstration meetings. Twenty-five of these meetings were held in churches or other public buildings.

> The character of the work in these ... meetings has depended upon the wishes of the women desiring the service. At one time it has been a study of foods, at other times laundering, home sanitation, feeding of children, care of sick, household conveniences, etc. In many cases the demonstrator went into the homes on request (335: 203).

In Kansas an average of thirty-one women attended each of forty-eight extension schools lasting five days. "A half-day session is given

to the selection, preparation, and use of foods and half a day to the selection, use and construction of clothing. These schools are held in church basements, schoolrooms, vacant storerooms, and in large kitchens in residences" (335: 214-215).

In Michigan twelve short courses of three days or one week were held, with an average attendance of forty-two. Subjects included food preparation, kitchen equipment, and other household topics (335: 233).

In Missouri sessions of three to five days were held.

> The subjects receiving most attention were household sanitation, balacing the ration, the convenient house, the selection of vegetables, meat substitutes, cuts of meat and their preparation, home furnishings, feeding babies, canning vegetables, and related topics.

There was a total attendance of 25,456 (335: 242).

In New York thirty-eight farm-home demonstration schools were conducted in twenty-five counties. Only twenty-three of these schools used Smith-Lever extension funds. "Instruction was given mainly in food values, elementary dietetics, and methods and principles of cooking" (335: 272).

In Pennsylvania lectures and demonstrations on cooking, canning, and home nursing were conducted (335: 298).

In Rhode Island study clubs were formed; sixteen courses consisting largely of a study of foods were given to these clubs (335: 301).

In South Dakota food preparation work was given through Farmers' Institutes or short courses (335: 304).

In Wyoming thirty-one demonstrations in cooking and baking were presented by the home economics specialist at separate sessions for

women attending Farmers' Institutes or extension schools (335: 325).

In years to come much emphasis would be placed upon nutrition. These early years were a part of the transition period -- probably imperceptible to the homemaker -- from the old, established concern with protein and energy requirements and easily supplied mineral "salts" to the newer knowledge of nutrition with its rapidly expanding concept of food values.

The Smith-Lever Act had not been passed a month too soon. Within the next three years a strong organization was established in each of the forty-eight states. Then came the entrance of the United States into World War I, and the Cooperative Extension Service found its work multiplying rapidly on all fronts (328: 134).

CHAPTER IX

FOOD CONSERVATION

The United States declared war on Germany in April, 1917. Among the most important food shortages already plaguing the fighting nations were meat and wheat (343). Fat and sugar were soon to be added to the list.

At the time of the outbreak of war in Europe in 1914, the condition of agriculture in the United States was such that, without stinting the American home, a greatly increased European demand for foodstuffs could be supplied (336: 9-10). In the spring of 1917, the situation was more serious (337).

Although the Food Production and Food Control Acts did not become law until August, 1917, Herbert Hoover was authorized in June to promote the work of the Food Administration on the basis of voluntary action throughout the nation.

The number of home demonstration agents working for the Federal Extension Service was increased, and an extensive publicity campaign was begun to convince the American housewife of her importance in the war effort (337).

Within days of the declaration of war, Mrs. Ione Virginia Hill Cowles, president of the General Federation of Women's Clubs, had already a pledge for food conservation which was signed by thousands of

club members prior to the establishment of the Food Administration (360: 34-35).

Church members were urged to join the crusade, and fifteen denominations had representatives in Washington (181: 35).

Classes in food conservation and production were scheduled at the Chautauqua Assembly in the summer of 1917 (61).

"As far as women are concerned, food is the present emergency," Ida M. Tarbell told the Chautauqua Women's Club. "At this time England has only eight weeks' supply of wheat. We must save every loaf of bread" (61).

A Red Cross course in dietetics was scheduled at which particular attention was to be paid to "the caloric values of foods" (61).

In 1918 the home economics division of the Chautauqua Summer School was largely given over to the needs caused by the war. Foods courses included demonstration lectures in cooking and use of wartime foods and a course of lectures and experiments called Food in War and Peace (62).

A national and several state lecture bureaus were organized (181: 35), (328: 138), and newspapers and magazines took up the work. After a surplus of fruits and vegetables had been predicted for the 1917 harvest, 110 articles on the preservation of these products were supplied by the government and printed in the newspapers of twenty-eight states (337).

At the annual Grange meeting in St. Louis in 1917, a call was made to the members to carry out the work of the Food Administration in

Washington (240).

In May, 1917, the National Grange Monthly suggested a program on "Simplified Living, a National Service." The aim of the program should be to send every woman member home determined to feed her family, according to the best nutritional information she could obtain, with a limited number of foods at one meal. The same rule for Grange "feasts" was recommended (243).

Two months later a report on progress in meal simplification was suggested, and in November one of the topics was "How Can We Promote World Democracy by Eating Wisely, Eating Enough and Not Wasting?" (243).

At such programs, and through the promotion of home gardens and instruction in preservation, the women of the Grange were helped to become a part of the home front (243).

When the war ended Grange women were urged to "plan for the return of our boys with the greatest care and study the food that will be required to keep them healthy and strong as their training has made them" (241: 161-163).

They were also urged to study child feeding to avoid a repetition of the poor physical condition found among youth in 1917 (242: 170-172).

Government Publications

A simple device was needed to enable the housewife to plan nourishing meals and at the same time to conserve precious meat, fat, wheat, and sugar.

In the Five Food Groups, prepared by Caroline L. Hunt and Helen W. Atwater, of the Office of Home Economics, United States Department of Agriculture, this need was supplied. The Five Groups, which had been

published in a Farmers' Bulletin in March, 1917, included the following:

Group I -- Fruits and vegetables.

Group II -- Meats and meat substitutes, protein rich foods.

Group III -- Foods high in starch: cereals and potatoes, breads, macaroni, etc.

Group IV -- Sugar and other sweet foods: honey, molasses, and syrup.

Group V -- Foods high in fat: bacon, salt pork, butter, cream, oil, etc.(166).

By the substitution of a plentiful food for a scarce one within the same group, the meal planner would conserve needed foods safely. In the full light of today's knowledge of vitamins, one can see the faults in this grouping of foods. In 1917 it was the key to good nutrition and to patriotic food conservation (352).

Through publications such as the Food Thrift Series, produced by the United States Department of Agriculture, and the Food Leaflets, published by the Food Administration, the Five Food Groups and other pertinent information on nutrition and conservation were made available to Americans everywhere.

Beginning late in 1917, the Food Administration provided librarians with pamphlets called Food News Notes for Public Libraries.[1]

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[1]This series included apt food facts for current emphasis, suggestions for books, pamphlets, state and federal publications, and current magazines to form a food conservation section in the library, recipes, suggestions for exhibits and bulletin boards, menus, lists of Food Administration press releases, and appropriate news notices.

Nutrition Teaching

Although the United States Army objected to extensive milk drinking among its soldiers (232), the use of milk, along with quantities of fruits and vegetables, was urged upon civilians.

"The old idea that meat is especially strengthening has no foundation," they were told (47: 34).

On the other hand, a pint of milk would give as much energy as four eggs, or one-half pound of meat, or several slices of bread. It was rich in calcium and cheaper than either meat or eggs.

Not the least among its food values were the two "vitamins"[1, 2] it contained (47: 51-53).

Vegetables, too bulky and too perishable for foreign shipment, could be used at home as nutritional substitutes for scarce foods. For meat there were peas and beans; for wheat, potatoes; for sugar, sweet fruits; and for fat, fruit jams. "All will improve the health and therefore increase human energies for winning the war" (47: 56).

Persons who must buy all their foodstuff were urged to spend as much money for fruits and vegetables as for meat, fish, and eggs (72: 5).

The chief human dietary requirements were starch and sugar, vegetable acids and fiber, minerals, fat, and protein, and "certain substances necessary for growth and health which have been only recently discovered and for which no simple names have been agreed upon." A

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[1]It was feared that milk drinking would develop weaklings instead of fighting men.

[2]Fat soluble A and water soluble B.

liberal use of fresh fruits and vegetables was not incompatible with these needs (164).

The Food Administration cautioned parents through the pages of American Cookery that a well balanced ration for the child should contain something from each of the five groups daily. Milk, eggs, and butter were among the best of the much needed body building foods, and the child must receive whole, not skim, milk. The fat in whole milk "contained some of that mysterious growth-promoting substance that we are just learning to know" (342).

The Cooperative Extension Service

Urban home demonstration work was authorized by Congress in August, 1917.

Urban home demonstration agents were added to the Cooperative Extension Service staff on an emergency basis. They cooperated with existing agencies in providing technical information, demonstrating food conservation methods, and helping housewives to use new foods. Much was done to help foreign born women, and for this activity special schools were organized, special committees set up, and special literature provided.

In addition to the regular activities of farm and home agents, these workers were called upon to assist in the mobilization of military forces, the organization of farm and other labor on the home front, the sale of Liberty Bonds, and the work of federal and state Councils of Defense. They worked with the Food Administration, the Red Cross, the

Public Health Service, and the Children's Bureau.

In some communities demonstration centers were set up, where information could be sought at any time; in others, cooked food centers were established to acquaint the community with new products or new ways of using well-known products (328: 138-147).

Housewives were taught to can, dry, salt, or store fruits, vegetables, and meats, to substitute milk, cottage cheese, and locally grown fruits and vegetables for scarce staples, to provide inexpensive substitutes for scarce and high priced foods, to assist in emergency food measures, and at the same time to safeguard the health and nutrition of their own families (72), (104), (199), (222).

The American National Red Cross

The American Red Cross dates back to a small organization beginning in the District of Columbia in 1881, and granted a charter by Congress in 1900 (263: 12-18).

Although dietetic instruction as a part of nursing education was authorized by the Red Cross in 1908 and again in 1912 (15), it was not until the beginning of the war that the program was developed. At the end of 1915 only one class of thirteen members had completed the course in home dietetics (16).

In 1917 a Bureau of Dietitians' Service was established within the Nursing Service branch. At this time dietitians were recruited by the Red Cross for two purposes: to serve in army hospitals and to teach Red Cross classes (8).

The first textbook was compiled in 1917, previous classes having used typewritten notes (16).

The preparation of various types of foods was taught and additional chapters discussed such topics as hygiene of food, digestion, fuel value and dietary standards, bill-of-fare making, and foods for specific groups -- children and invalids.

The only reference to vitamins is in a statement that ideally a dietary standard would include "mineral requirements and requirements for vitamins [regulating substances] of which minute amounts at least are essential. With present knowledge it is difficult to give such data" (115: 77).

Langworthy is quoted as saying that a mixed diet including the Five Food Groups and supplying at least 3000 calories daily would almost surely supply the needs for protein, minerals, and other constituents (115: 77).

References for additional reading were selected from government publications.

By the end of October, 1917, classes were being conducted in 149 teaching centers. At this time 309 classes, with nearly 3000 graduates, had completed the home dietetics course, and thirty-seven more classes were in operation.

This teaching activity continued throughout the war. In the face of demands for more complete information in nutrition, it was decided, following the war, to revise the course and make it a "large part of the health education program of the future." The Bureau of

Dietitians' Service of the Department of Nursing Service became the Nutrition Service, with independent status, in 1921. In 1919 a system of cooperation with the Federal Extension Service had been provided, so that the two organizations might work together in the promotion of nutrition education (9).

Later, cooperative relationships were to be developed with other national, state, and local organizations.

By the end of the war the public was becoming more aware of the importance of good nutrition. Sherman believes this awareness was due in part to the nationwide problems of food supplies and food conservation which the people of the United States had faced (295: 55).

CHAPTER X

"THE NEWER KNOWLEDGE OF NUTRITION"[1]

In 1918, when the armistice was signed, there was an extensive body of technical literature on nutrition, resulting from the combined methods of chemical and biological research (203: vii, 1-2).

A new term, "deficiency disease," had come into common usage among scientists engaged in the study of nutrition. Beriberi and scurvy were generally considered to be deficiency diseases (294: 310), although as a result of wartime conditions some investigators considered scurvy due to a combination of infection and poor nutrition (294: 316).

Sherman declared the former custom of considering all mineral constituents of the body as one ash substance to be both "illogical and incorrect" (294: 269-270). He called attention to calcium as the mineral seemingly most deficient in American diets (294: 268). Milk and vegetables should be consumed in larger quantities (294: 384-385).

There was a new emphasis on the importance of milk (118), (317).

Seventy-five grams of protein a day, rather than the high figures originally proposed by Atwater and the European scientists, was ample and allowed an adequate margin over actual requirements (294: 380). There was, however, a difference in the values of proteins from different

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[1]Title of book by E. V. McCollum.

sources (294: 224-225), so that the protein of cereals and most legumes could no longer be considered the equivalent of the protein of meat and other animal products. The difference was known to lie in the amino acid composition of the various proteins. McCollum considered this discovery one of the "outstanding results of modern research in nutrition" (203: 131).

It was no longer considered accurate to say that muscular work was done at the expense of protein (294: 226-229).

The adequate diet, according to Sherman, should contain sufficient energy foods, protein containing suitable amino acid combinations, well balanced proportion of several ash constituents, and two recently recognized factors, fat soluble A and water soluble B (294: 335).

It was considered doubtful that, with the new factors to be taken into consideration, dietary standards could ever be made to include all the qualities of a permanently adequate diet (294: 385).

In 1919 McCollum, then a member of the faculty of Johns Hopkins University School of Hygiene and Public Health, published the first edition of The Newer Knowledge of Nutrition. The book, written with the informative needs of the American public in mind, was an interpretation of current literature in the field of nutrition. McCollum, who had done extensive research in nutrition, was a strong advocate of the addition of liberal quantities of milk and the green leaves of plants to the dietaries of mankind. For these two classes of foodstuffs he coined the term "protective foods" (201: 163), (203: 81). This concept of protective foods, plus the recently recognized differences in protein

values, and the importance of the two factors, fat soluble A and water soluble B, formed the bulk of what McCollum referred to as the newer knowledge. Only through biological research with small laboratory animals, whose life spans, under controlled laboratory conditions, were observed through many successive generations, could the mysteries of the adequate diet be solved (203: 130).

Soon the term "newer knowledge of nutrition" was being used to distinguish the new knowledge from earlier concepts based on protein and energy values and digestibility.

Sufficient knowledge was then available, McCollum thought, to "make it possible to select such foods as will make good each other's deficiencies, and to combine them in such proportions as will insure the disappearance of all the diseases of man which are brought on by faulty diets" (203: 115).

In 1922 and again in 1925 McCollum and Simmonds collaborated in preparing a non-technical book to assist the American public in the selection and combination of common foods to assure an adequate dietary (206), (207).

As the country returned to peacetime conditions, new organizations concerned with the health of American citizens were formed; organizations already in existence created new positions for the teaching of nutrition, and agencies already engaged in nutrition activities expanded their efforts.

The American National Red Cross

With the organization of the Nutrition Service in 1921, the Red Cross began its pioneering program of community nutrition through schools, adult groups, and home service. Annual Red Cross nutrition conferences were held at area or national headquarters, and additional training of personnel was arranged through university programs and with the help of medical groups.

Services were geared to community needs, with prenatal, preschool, and adult groups receiving attention. In most communities the school provided a point of origin, and in the typical program all school children received instruction.

In a given school month as many as 15,000 or more persons, men and women, school and preschool children, might receive instruction.[1]

In addition to work in teacher training schools and departments, nutrition classes were conducted for teachers already working.

Through participation in chapter committees, many groups aided the Red Cross in its activities. These groups included school superintendents and principals, home economics teachers, home demonstration agents, medical and paramedical personnel, social service workers, church and civic leaders, and parent group leaders (9).

With the beginning of publication of the Red Cross Courier in 1922, a series of short articles entitled "The A. B. C. of A. R. C." was

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[1]During the school year of 1925-1926, an average of 15,413 persons a month were given nutrition information. See American Red Cross Annual Report for the year ending June 30, 1926, Washington: Government Printing Office, 1926.

published. In the opening article attention was called to the malnutrition found in many homes, not all of them poverty ridden (1).

A recipe for nourishing home prepared meals called for milk in every meal; fruits, vegetables, and home cooked cereals daily; and eggs, even though they must be purchased at the expense of a part of the meat allowance (2). This article was typical of the series.

A pamphlet published in 1924 for use in nutrition classes shows the progress being made in nutrition teaching.

The list of necessary nutrients included protein foods, mineral salts, water, bulk, and energy foods. Fats were to be chosen for their vitamin content. There were three vitamins -- fat soluble A, and water soluble B and C. Four minerals were especially important -- calcium, phosphorus, iron, and iodine (121).

At this time the radio was coming into use to reach large numbers of persons.[1]

With the coming of the depression Red Cross nutritionists and volunteer workers put forth additional efforts to provide information on nourishing low cost dietaries. Since pellagra was a major problem in some southern areas, emphasis was placed on adequate preventive diets. In one pellagra ridden section thousands of diets were distributed to stricken families in packages of yeast.

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[1]A radio audience of 40,000 was estimated to have heard the Director of Nutrition Service of the Southwestern Division as she gave her first radio talk. See "Radio Tells What to Eat," Red Cross Courier, June 17, 1922.

Special pamphlets were prepared for the use of Red Cross nutritionists. Extension workers and home economics teachers of local chapters conducted demonstrations and prepared newspaper articles on low cost foods. In some mothers' classes the group first discussed local food prices and the values of the various foods. Then each woman planned menus suitable for her particular family. In homes having problems which could not be solved in a group, the nutritionist would go into the home.

Better nutrition for the dollar was a watchword during this early period of the depression (9).

Early in 1932 the National Red Cross budget committee recommended as an economy measure the dropping of the Nutrition Service on a national basis. From July 1, 1932, until 1941, when the Nutrition Service was restored (102: 388), a consultant was maintained in the headquarters office to provide assistance to administrators, service heads and local chapters attempting to continue their nutrition activities. The authorization of volunteer instructors was continued and itinerant nutritionists were shared by several chapters. Thus dozens of chapters continued to aid their communities through nutrition education. Some continued to conduct classes (9).

In some communities it was possible to arrange for unemployed home economists to become Red Cross nutrition instructors paid by the local Emergency Relief Administration (32).

Classes ranged from public nurses working among foreign born groups in New York City and members of the New York League for Hard of

Hearing (32), to a group of Negro mothers in Florida who were fascinated by the white mice used in a demonstration (23).

The Cooperative Extension Service

In the depression which followed the war many county agent positions were abolished. The urban home demonstration agents who were professionally qualified women (356) had been active in other areas than canning programs. At the close of the war many of these additional activities were taken over by local organizations (274).

To reduce the financial load 4-H Clubs began to train local volunteer leaders, and this solution was soon adopted by other extension specialists. In the following decades the leader training programs became an important phase of extension work in home economics (356).

Nutrition Education Methods

From early years the Extension Service had used a variety of methods in teaching nutrition. These methods have been classified as follows:

Individual Contacts	Group Contacts	Mass Contacts
Farm and home visits	Method demonstration meetings	Bulletins
Office calls	Work meetings	Leaflets
Telephone calls	Leaders' training meetings	News articles
Personal letters	Lecture meetings	Circular letters
Result demonstrations	Conference and discussion meetings	Radio
	Meetings at result demonstrations meetings	Exhibits
	Tours	Posters
	Schools	

With the coming of television, another means of reaching large numbers of people was added.

Home Demonstration Work in Missouri, 1919 to 1940

Missouri was selected for a detailed study of programs during the period between the two wars.

In 1919 the wartime canning program was still being conducted with the presentation of meats, vegetables and fruits.

The "Children's Year" program was reflected in one city where bad weather hindered a successful campaign. Nevertheless, "the amount of advertising done and the literature distributed could not help having some effect in waking up the people to the need of greater "interest in child welfare."

Six communities had child feeding programs. There were thirteen lectures on child feeding with a total attendance of 240 persons, and three lectures on school lunches with a total of eighty persons attending.

One hundred persons attended one demonstration on food selection.

In Vernon County the influenza epidemic hindered the program but some work was done in cooperation with the Red Cross, Parent-Teacher Association, Chamber of Commerce, schools, clubs, and churches.

Classes were held in foods and nutrition, as well as cooking: food preservation activities continued; the school lunch received attention, and there were window displays on balanced meals, planned by the home demonstration agent and carried out by home economics classes.

In 1920 the following organizations joined with the Extension Service in a state wide program for malnourished school children:

U. S. Public Health Service
Missouri State Board of Health
Missouri Tuberculosis Association
Local Red Cross Chapters, Parent-Teacher Associations, and clubs.

A milk campaign was conducted in Kansas City. There were talks before school children, factory employers, department store employees, Parent-Teacher Associations, and clubs.

In 1925 the major activities involved food selection, improvement of underweight children, correction of adult under and overweight and constipation, hot school lunches, and campaigns to get children to drink milk instead of tea and coffee.

In the 1930 report the state home demonstration agent noted that the majority of women were interested in food preparation projects, and that in 95 per cent of the groups these projects led to requests for more work in nutrition.

A rat feeding demonstration was used to stimulate interest.

Meal planning projects logically followed work in food preparation. Because the introductory meeting on meal planning was considered too difficult for a volunteer leader, a qualified agent presented this topic to the largest possible audience, after which the leaders took charge of the follow-up meetings.

At the first meeting there was a discussion of the relations of food to health, followed by the weighing and measuring of all individuals

present. After filling out a health habit sheet, individuals suffering from abnormal conditions related to nutrition were given opportunity to cooperate in a nutritional rehabilitation program.

When a fruit and vegetable project was adopted by a community, club members listened to a talk on the dietary value of fruits and vegetables, were helped in the planning of garden and canning budgets and in estimating the size of the garden required to produce the needed yearly supply. Women were also shown how to compute their own mineral and vitamin requirements. The third meeting of the project was a canning demonstration, and at the fourth meeting a demonstration was conducted on the uses of the canned products.

In some communities specialists and home demonstration agents conducted these programs, in others they trained leaders to carry on much of the work.

The 1935 report describes conditions resulting from the Great Depression and the drouth. Money was scarce and projects had to be carried out with as little money as possible; nevertheless, there was an increase in the number and enrollment of home demonstration clubs. Increased home problems and the desire for sociability during the period of financial stress stimulated interest in the clubs. In addition to the club members, nearly 20,000 non-members were helped.

There was an increased use of tomatoes, citrus fruits, raw fruits or vegetables, whole grain products and cod liver oil among the club members' families. Garden and canning budgets were continued.

A radio program was conducted, and nutrition related subjects were presented, but there was little response from the public.

The 1940 report mentions cooking schools, work in food preservation, and hot school lunch demonstrations. Work in foods was included in the Live-at-Home programs[1] in several counties.

A program for older youth was carried out, and the report includes a reference to the work of the nutrition specialist in preparing program outlines (86).

Reck reports the extensive work with programs for older youth in the Extension Service (271: 287).

Work in Pellagra Areas

The Extension Service assisted in the fight against pellagra, paticularly in Negro communities in the delta section of Louisiana. Pellagra is rarely found in Louisiana today (173), but from the early 1900's until the discovery of niacin, the pellagra preventive vitamin, it was one of the major health problems of many southern states.

The pellagra preventive diet emphasized by the United States Department of Agriculture in the 1930's recommended the use of milk, lean muscle meat and liver, canned salmon, tomato juice, wheat germ, and yeast (312).

In Louisiana 175 voluntary leaders in one district were trained to present the subject of anemia and pellagra diets at home demonstration

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[1]Farm and home planning programs enabling the farm families to obtain most of their food from the farm and sometimes to supplement their meager incomes with small sales of home produced products.

clubs and other meetings. Two demonstrations were outlined at this meeting, one showing the balanced daily diet, with particular emphasis on pellagra preventive foods, the other pointing out causes and symptoms of pellagra and indicating curative foods. Inexpensive dishes using macaroni, salmon, and dried milk were demonstrated at these meetings.

The same subjects were presented by the state agent for the benefit of the tenant families on large Louisiana plantations.

Literature on pellagra protection was also provided in some communities (84).

In Alabama the importance of raising adequate garden products for good health was stressed. The following canning budget for a family of five was recommended (78):

Vegetables	
Tomatoes	72 quarts
Carrots	12 quarts
Beets	24 quarts
String beans . .	48 quarts
Okra	12 quarts
Kraut	24 quarts
Soup mixture	24 quarts
Corn	24 quarts
English peas . .	24 quarts
Fruits	
Peaches	72 quarts
Pears	24 quarts
Plums	24 quarts
Blackberries . .	72 quarts
Huckleberries .	12 quarts
Fruit juices . .	24 quarts
Meat	100 pints

One of the Alabama leaders proposed to one of her tenant neighbors that she give a demonstration in her home. Eight were present at the first meeting, including two who had pellagra. The leader talked to the group about the necessity for milk and fresh vegetables for the whole family. Upon her return for the second meeting she found the number of tenant farmers' wives almost doubled. Ten of the group had already arranged for pasturage for a cow, and four already possessed the cow. Ten had planted gardens, and several had bought chickens. At least two of these persons had not been present at the previous meeting; they must have been strongly influenced by their neighbors who were present (78).

The Nutritionist as a Social Worker

A staff member of the Mothers' Pension Department of the Chicago Juvenile Court described some of her clients in 1918 as possessing excellent natural ability and anxious to learn everything which would make them better homemakers. Most of them could cook, sew, and clean, but they knew nothing of food values and were unable to choose foods wisely. They would pay high prices for cleverly advertised products. Acute undernourishment was a frequent result (246: 27-28).

The foreign born victim of New York City's poor sections was even less fortunate. Unable to read or write or to communicate in any but her native language, frequently in debt to the grocer or some other creditor, she needed help indeed.

When Miss Lucy Gillett went to work as a home economist in New York's A. I. C. P.,[1] the nutrition problem was so acute that it was decided to abandon other home economics activities and concentrate on fulfilling the nutritional need.

The first classes were unsuccessful, since the women understood no English and, furthermore, were unable to adapt class instruction to their individual problems.

Literature was prepared and conferences were held with nurses and case workers to enable them to educate the homemakers with whom they worked. When these methods failed, the nutritionist herself stepped in to aid the family. With her help the homemaker learned how to budget expenditures, plan meals, purchase and prepare food, and carry out a physician's dietary prescription by fitting it into the family meal pattern. Sometimes, in order to help the family nutritionally, the educator had to help them extricate themselves from debt, overcome resistance to change, manage children, and fit racial eating patterns into a balanced dietary of available foods (136).

As more and more women were able to speak and read English, classes were held, radio talks and newspaper articles presented, and exhibits prepared.

Share charts were especially valuable visual aids. Using the information in the food share tables worked out by Rose, the nutritionist prepared scaled models with colored paper to indicate the shares of needed nutrients contributed by specific foods.

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[1]Association for Improving the Condition of the Poor.

To stimulate interest in one area without a nutrition program, a Better Food Contest was announced. The contest was open to everyone living in the district. Contestants must submit records of one week's menus, with the market list and the cost. Three times a week newspapers contributed space to the project, carried pictures, and at the end announced the winners and some of the winning menus. A child feeding and training study group resulted from the interest aroused by this contest.

With the discovery of Vitamin D as a factor in the prevention of rickets, an anti-rickets campaign was organized in one of the Association's health centers.

There were talks to women's groups, classes for the mothers of small children, newspaper articles, slides at local theaters, distribution of educational leaflets, store window posters, and exhibits in local drug stores, portraying the benefits of cod liver oil.

From time to time books, pamphlets, free leaflets, and slides for illustrated lectures were prepared.

Research was an important part of the program (136).

Before vitamins were known, emphasis was placed on protein, carbohydrates, fat, calcium, and iron (135), (136). The use of whole grain cereals was urged to increase the supply of iron. Later information on vitamins A, B, and C was soon added to the teaching materials (135).

In a twenty-four page booklet for welfare workers prepared by the Association in 1931,[1] the following food pattern was recommended for the low income family:

> At least two vegetables daily -- one should be potatoes and the other alternately a root and a green leafy vegetable; a raw leafy vegetable should be used two or three times a week.
> Citrus fruits or tomatoes three or four times a week for adults, daily for children.
> Fresh or dried fruit daily.
> Meat or fish limited to one meal a day three or four days a week.
> Milk daily, and one other protein food such as cheese, eggs, or legumes on meatless days.
> One-half egg daily, or a whole egg on alternate days for children.
> Sugar as a flavoring agent only; molasses would increase the iron content of the diet.
> Fats for fuel value; if a green leafy vegetable was used three or four times weekly, part of the butter at mealtime could be omitted and another fat substituted.
> Cod liver oil for children.

In 1939 the Association for Improving the Condition of the Poor merged with the Charity Organization Society to become the Community Service Society of New York (125).

Throughout the years several studies were made of families served by the Society and its predecessor to determine the effectiveness of their nutrition work as demonstrated by improved food habits. One such study was reported in 1941. The eating habits of the children in ninety families receiving regular home instruction were compared with the eating habits of the children in forty-five families receiving no

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[1] Good Nutrition at Minimum Cost, New York: Association for Improving the Condition of the Poor, 1931.

instruction. Significant improvement was shown in the homes receiving instruction (52).

Food Clinics

One of the first food clinics in the country began as a result of the observations of a few persons on the unfilled nutritional needs of Boston's "sick poor." These needs were like three lines which should have formed a triangle but whose ends never met in an angle.

Frances Stern relates how the early hospital dietitian fed her patient according to the physician's dietary order, but with little or no attention to the food conditions in the home to which he would soon return. The physician prescribed a nourishing diet at home for the patient who seldom understood the meaning of nourishing and who lacked the money to carry out the prescription. A relief agency provided food but not necessarily the most nutritious food.

The Food Clinic of the Boston Dispensary, now the Frances Stern Food Clinic,[1] was organized in 1918 as a place where the lines of the triangle would merge. Patients were to receive basic nutrition information, an interpretation of the diet prescription in terms they could understand, and instruction on how to carry it out with the inexpensive foods available to them (310).

In the late 1800's Boston's North End Diet Kitchen[2] provided milk and other foods to the poor. In 1923 it added nutrition teaching

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[1]See Chapter XII.

[2]Now the Massachusetts General Hospital Nutrition Clinic.

to its previous function (286).

In Chicago a medical school clinic taught nutrition to classes of underweight and malnourished working boys and girls. Since most of these young people came to the evening classes directly from work, a nourishing supper was served at a slight charge (37).

The Infant Welfare Society of Chicago, founded in 1911 (169), employed a dietition about ten years later to teach mothers (37).

Boston Young Women's Christian Association

A survey of nutrition education facilities in Boston in 1927 revealed the following organizations conducting nutrition programs for adults:

Settlement Houses -- mothers' classes, cooking and health classes, some home visitation.
Neighborhood Kitchen -- cooking, meal planning, child care.
Young Women's Christian Association -- lectures on diet in its relation to health.
Community Health Association -- prenatal instruction and classes for mothers' clubs, classes for staff nurses.
City Health Department -- instruction in feeding the preschool child.
Federated Jewish Charities -- classes, consultation, staff training of case workers.
Commercial restaurants and cafeterias[1] -- information on caloric and sometimes other values included on the menus.
The New England Dairy and Food Council -- advertisements, lectures, films.
Boston Dispensary Food Clinic -- outpatient work.
Massachusetts Department of Public Health -- general activities (305).

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[1]The Georgian Cafeterias and Childs Restaurants.

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YWCA Nutrition Service

In 1934 the Boston Young Women's Christian Association arranged with the Boston Dispensary Food Clinic to conduct a program of individualized nutrition education for the young women of the Association. The nutritionists were to spend two evenings a week at YWCA headquarters.

The work, carried out during the following winter, was aimed at helping the young women to acquire a basic knowledge of nutrition and the individual ability to adapt this basic knowledge to any abnormal condition which a young woman might face. Under and overweight were common examples of such conditions.

Emphasis was placed on a "protective" diet containing adequate energy foods, protein, calcium, phosphorus, iron, the five vitamins then considered essential,[1] and water.

The following foods were recommended to provide these nutrients:

Milk -- two glasses daily.
Fruit -- two servings daily.
Vegetables -- two servings daily in addition to potato.
Eggs -- three or four weekly.
Meat or fish -- one serving daily.
Butter -- one quarter pound weekly.

Each woman had an initial conference with one of the nutritionists, and in case of need was invited to return. During the first season there were 134 initial visits and forty-one return visits.

This work was continued until 1941 (253).

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[1] A, B, C, D, G.

The Children's Bureau

On the first anniversary of the declaration of war by the United States, the Children's Bureau, in cooperation with the Child Conservation Section of the Field Division of the Council of National Defense, began the observance of Children's Year (64). Designed as a war measure, the activities carried on during the twelve month period awakened the country to the needs of children (279: 327-328), (367: 3). The opening drive included a campaign for weighing and measuring of babies and preschool children, many of whom were found to be malnourished.

A pilot project called the "Child Welfare Special" followed. A large government truck was converted into a mobile well-child clinic and used in a number of counties in the Central States area (65).

With the passage of the Maturity and Infancy Act, there was increased effort in health agencies to reach the expectant mother. By 1924 forty states were cooperating with the Children's Bureau in work under this act (63).

A survey of nine cities in the East and Midwest revealed the teaching methods in effect in most of the cities. Regularly scheduled classes were found to be only partially successful. Informal discussion of problems was an effective method in some cities. Demonstrations, talks, cooking lessons, and discussion periods where regular attendance was not urged, proved more effective than series of meetings dependent upon good attendance records for success.

The Children's Bureau continued its series of publications on child care, including nutrition. A booklet on care of the preschool age

child in 1920 included recipes with its nutrition instruction. While most other writers were insisting that the preschool child should not be given meat to eat (283: 139-140), (347: 429), Children's Bureau publications from the first recommended that older infants and preschool children be fed beef, lamb, and chicken (168), (362). This is in line with today's practice.

The Children's Bureau has continued to take an active interest in the nutritional needs of children, as evidenced by current publication lists.[1]

Homemaking in Adult Education

The woman who wished to increase her effectiveness as a homemaker in the 1930's had a widening range of choices in subject matter. Two general areas were set up within the same overall program -- one for the person interested in the broad field of child development, family relationships, and mental health, the other for the woman interested in food selection, buying, and like skills. Consumer education was a newcomer in this latter group (197).

Unemployment and the Public Schools

> Philadelphia is in the midst of a struggle against the evils that result from unemployment. Thirty-seven thousand families of the unemployed are receiving financial relief. There is no wage earner in 59,000 families. It is probable that there are twice 50,000 families in Philadelphia which

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[1]See the following Children's Bureau publications: "Nutrition and Healthy Growth," 1964; "Infant Care," 1964; "Your Baby's First Year," 1962: "Your Child From 1 to 3," 1964; "Your Child From 1 to 6," 1962; "Your Child From 6 to 12," 1964; "Feeding Mentally Retarded Children," 1964.

> must figure to the last penny if they are to be adequately fed during this winter of hard times.
>
> . . . . . .
>
> In this emergency (an emergency fraught with as great possibilities of damage as the world war) the foods teachers of Philadelphia have organized to aid in combating malnutrition and its attendant evils.

It was Henrietta W. Colvin, director of the Division of Home Economics, the Board of Public Education, Philadelphia, speaking.

What group she was addressing she does not say. On December 14, 1931, she sent a copy of her talk to Emeline S. Whitcomb, senior specialist in homemaking education, United States Office of Education in Washington.

Miss Whitcomb was making a study of "How Home Economics is Meeting the Emergency," to be presented at a meeting of the Department of Supervisors and teachers of home economics of the National Education Association in Minneapolis in February, 1933.

Not only Philadelphia, but other cities across the nation had wide-awake home economics departments and were striving to help, directly or through their students, the impoverished families around them.[1]

A sampling of activities follows:

In Adams, Massachusetts, mothers' classes were held in the schools.

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[1]All material in this section is taken from the correspondence of Emeline S. Whitcomb, senior specialist in homemaking education, United States Office of Education, Washington, D. C., in the files of the National Archives.

In Detroit, Michigan, there were cooking classes and demonstrations for welfare clients. Much of the teaching of girls in home economics was done with the hope that it would reach the mothers at home.

In Chicago low income mothers were invited to the schools to sample the work done by pupils on relief rations and to receive further directions.

In Kansas City teachers visited the homes.

In Denver, with the cooperation of Parent-Teacher groups, an instructive bulletin was prepared. The Denver Foundation made funds available for a meal planning and food preparation clinic in one of the school food laboratories.

In Atlanta, Georgia, Smith-Hughes classes were organized in needy sections.

In Los Angeles there were classes for homemakers and work with indigent families.

Public Health Organizations

In 1917 a home economist was employed by the Massachusetts Department of Public Health under the title health instructor in foods. By 1925 there were five nutritionists on the staff. These women provided nutritional material for print, supplied information to school and public health nurses, prepared exhibits, lectured to club or community groups, and served as teachers and consultants (195).

In 1936 only a few states were employing nutritionists. In that year federal grants for maternal and child health services under

the Social Security Act were made available to states. Within eighteen months the number of state health department nutritionists had tripled (155).

The Delaware State Board of Health, in cooperation with the State Board of Education and the Cooperative Extension Service, and with financial aid from the Children's Bureau, conducted a demonstration program in one of its counties during the 1936-37 school year.

Adequate nutrition for the child was taught by means of group meetings of parents, school personnel, Parent-Teacher Associations, home demonstration clubs, groups, women's clubs, and men's service groups, and by news stories, posters and circular letters. Public health nurses were given special instruction to enable them to carry on the work with their clients.

In New Mexico nutrition demonstrations were conducted for groups of village midwives and their patients. Without the influence of the midwives there was little interest among mothers. These people were taught the value of their traditional foods and helped to realize the need for other foods like milk (154).

Detroit was one of the cities employing nutritionists in the health program at an early date. In 1930 the original nutrition program which was conducted in the schools was supplemented with nutrition teaching in the prenatal and child welfare clinics. This phase of the work began with a weekly talk in the patients' waiting rooms, and grew into a program of interviews, group discussions, posters, and exhibits. Home visits were made, and occasionally a housewife was taught how to

select food by a trip to market accompanied by a nutritionist.

A weekly radio broadcast was arranged and a speakers' bureau organized (144). Current public health programs will be described in Chapter XII.

The Chautauqua

For a decade following World War I the Chautauqua continued to include home economics work in its summer sessions, but with gradually declining emphasis as public schools, colleges, and universities took up the work. The regular summer program was terminated in 1928.[1]

Of the influence of Chautauqua, Gould says:

> The graduated income tax, slum clearance, juvenile courts, pure food laws, the school lunch program, free textbooks, a balanced diet, physical fitness, ... all these and many more were concepts introduced by circuit Chautauqua to communities that had heard of them, if at all, only from the occasional school teacher or minister who had had the good fortune to spend a few weeks at Chautauqua Lake (138: 81-82).

Progress in Research

At least six vitamins were known before 1930. The terms A, B, C, D, E, and G were in common use (208: 45). The pellagra preventive factor was still not well understood, but it was well known that the disease could be prevented by an adequate diet (208: 389-392).

As early as 1922 McCollum referred to the diet of "milled cereals, tubers, molasses, syrup, and fat pork" which seemed to produce

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[1]No mention is made of a home economics program in the 1929 Summer School Quarterly nor in succeeding editions.

the disease. It was known that milk would cure it and that it could be effectively prevented by a diet containing milk, meat, eggs, and leafy vegetables (204: 273-290).

In 1922 there was no accepted theory on the causal factor in rickets (204: 301). Within a few years, however, the effectiveness of Vitamin D as both a preventive and a therapeutic agent became well known (208: 332).

Iodine was generally recognized as a factor in the prevention of goiter. The State of Michigan had pioneered in the promotion of public health education on the use of iodine for endemic goiter (225), (77: 69).

During the decade of the thirties most of the vitamins were identified chemically and the necessity for several trace elements was demonstrated (205: 22-29).

In 1939 McCollum predicted that within the next two decades scientists would have "an essentially complete solution of the present major nutritional problem"[1] (205: 29).

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[1]The discovery of all indispensable nutrients.

CHAPTER XI

NUTRITION FOR AMERICA AND THE WORLD

The National Nutrition Conference for Defense met on the morning of May 26, 1941, in Washington. The more than 900 delegates present represented the national network of government, industry, labor, medicine and public health, education, mass media, agriculture and consumer groups. The earnestness with which these men and women went at their task of planning for the nutritional welfare of the nation was intensified on the second day of the conference when, in answer to the international situation, President Roosevelt declared a state of unlimited national emergency (268: v-xiii).

The Committee on Food and Nutrition of the National Research Council had prepared a table of recommended dietary allowances to be used as a general planning guide. It included data on protein, energy nutrients, minerals and vitamins to be used as a general planning guide.

Among the final recommendations which the conference made to President Roosevelt were the following:

> Full use of the newer knowledge of nutrition should be made, not only for the armed forces, but for industry and the home.
>
> 'Vigorous and continuous research' should be conducted, and there should be increased efforts toward the education of professional workers in the newer knowledge of nutrition.

> The recommended allowances and other useful but technically worded information should be translated into understandable food terms for individuals in different economic levels.
>
> Every possible instructional device should be utilized, and all national and local organizations should be mobilized to educate the American public.

The ultimate goal was to permeate every community in the nation with an interest in, and a knowledge of practical nutrition (268: 230-233).

In September the Office of Defense Health and Welfare Services was set up to coordinate health and welfare programs and to provide specialists to aid in carrying out these programs. The Nutrition Committee, established in 1940, was assigned to this agency.[1] There was also a Nutrition Division within the Office, concerned with nutrition education.

The War Food Administration was in effect from the spring of 1943 until June, 1945.

The Home Economics Section, Vocational Education Division, United States Office of Education, worked with the states in the development of programs, including nutrition and food conservation courses.

The Bureau of Home Economics and the Division of Protein and Nutrition Research of the Bureau of Agricultural Chemistry and Engineering were consolidated in February, 1943, to form the Bureau of Human Nutrition and Home Economics. This new agency was to carry on research in home economics and to disseminate information based on this research.

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[1]It was transferred in 1943 to the Department of Agriculture.

These organizations, with the Federal Extension Service, were among the leading government agencies responsible for the war program of nutrition education (111: 279-282), (593), (850), (988).

State nutrition committees were organized in all the states. Their purpose was to pool information, assist in coordinating the efforts of different agencies, and recommend methods for spreading information. In about half the states, the nutrition committee was represented on the State Defense Committee by 1942. In some states county and local committees were also functioning.

A bibliography was prepared for the use of librarians in selecting nutrition materials; in some communities service clubs donated money for the purchase of nutrition books.

Eighteen states provided refresher courses for persons with earlier training in home economics.

Speakers' bureaus were organized, and some county committees provided nutrition consultant service at county fairs. "Nutrition weeks" and "nutrition months" were observed (309).

The War Food Administration produced a national wartime nutrition guide -- the Basic Seven (245) -- which soon became widely known. It was reproduced in colorful poster form by some of the food processors.

The seven groups of foods included

(1) green leafy and yellow vegetables,
(2) citrus fruits and tomatoes,
(3) other fruits and vegetables,
(4) milk and milk products except butter,
(5) meat, fish, and poultry, and other protein foods,
(6) breads and cereals,
(7) butter and fortified margarine.

Nationally known food companies which had spent millions of dollars annually to advertise the appetizing qualities of their products now turned to an emphasis of their nutritional values (288).

A publishing company donated advertising space over a ten month period to promote nutrition by means of copy contributed by an advertising agency (309).

A yardstick of good nutrition, based on the Recommended Dietary Allowances, was prepared (331), and the National Livestock and Meat Board invented a food selection guide and nutrient calculator, operating on a slide rule basis, to carry out the yardstick function (37).

The Nutrition Division of the Office of Defense Health and Welfare Services prepared a handbook for the use of food demonstrators (146).

"Teaching women to cook," said Helen Mitchell of the Office of Defense Health and Welfare Service, "is a part of a sound popular nutrition program" (226).

There was much emphasis on the effects of inadequate nutrition. "Hidden hunger" would produce fatigue, accidents, and susceptibility to minor illness, and would lower morale (344).

Much effort was expended on the promotion of whole wheat bread. One minister attended a regional nutrition meeting and returned to his congregation to preach on the virtues of whole grain flour and to grind some wheat in a small hand mill attached to his pulpit (309).

A speaker at the Massachusetts Nutrition Conference described the vain efforts of one of the country's largest baking companies to

popularize whole wheat bread (275: 11). The whole wheat campaign was judged unsuccessful, and soon bakers were required by law to add vitamins to white bread.

The Cooperative Extension Service

Much of the extension work during World War II was of necessity concerned with food production and food conservation. A new method of food conservation was the home freezer. Rationing of scarce products was again an unwelcome fact.

The Basic Seven instead of the Five Food Groups was the meal planner's guide.

Sample programs around the country in 1945 included the following activities:

In California the home demonstration agents planned their program around home food production and preservation; adequate protein foods; blood regeneration; basic nutrition information for farm families, racial groups, and families of returning veterans; diets for the expectant mother; the infant, and the older citizen; and food sanitation (79).

The Colorado program included home food production and preservation, meal planning, and child feeding (80).

In Connecticut food rationing problems, meal planning, food preservation, and protein sources were emphasized. Cereals, vegetables, and soy flour were stressed sources of protein.

Near the close of 1945 the Connecticut Extension Service began a series of projects called "What's Cooking In Your Neighbor's Pot?" The first group to be studied was the Polish group. The history, culture, foods, and crafts of the Polish people received emphasis. A monthly radio program was planned for this and future groups studied.

The extension nutritionist was responsible for the production of a weekly press release called Table Talk, based on food and nutrition information (81).

Iowa extension personnel conducted an extensive program on food production and presentation, food preparation, nutritious and appetizing foods, and the food habits of different racial and national groups (82).

In Kentucky a refresher course for home economists was conducted by E. Neige Todhunter of the University of Alabama.

Home gardens, food preservation, corrective diets, and time saving methods in the planning, preparation, and serving of meals were popular topics (83).

Leader training meetings in Louisiana covered care and feeding of the sick, vegetable cookery, increasing the use of milk, making cheddar cheese, better breakfasts, and table service.

Fifty-one news releases were prepared, each featuring the nutritive value and cooking of an abundant, seasonal, or native food (84).

The Missouri Extension Service emphasized food preservation but interest began to lag when the war ended and canned foods began to come off the ration lists.

Major emphasis was given to food selection and preparation (86).

The American National Red Cross

Nutrition Service was reactivated in 1941 following the National Nutrition Conference for Defense in May (8), (102). Community chapter resources were taxed to meet the demand for nutrition classes. Certificates for completion of the nutrition course rose from approximately 5500 in 1940-1941 to over 180,000 in 1941-1942, and over 300,000 in 1942-1943 (272: 95-98).

Working with the state nutrition committees, the Red Cross provided refresher courses for the retraining of women who had had previous professional training in nutrition (10).

A Standard Nutrition Course, revised in February, 1942, was taught in ten two-hour classes (119).

As the war continued, with new problems arising and old ones becoming more acute, nutrition courses were adapted to the needs of the groups.

In army camp areas where the wives, far from home and friends, attempted to keep house in inadequate quarters, classes emphasized food preparation with one gas burner and no storage space. Foreign speaking women attended classes with interpreters, demonstrations, and selected visual aids.

Foreign born housewives who knew only their native foods were taken to markets by Red Cross workers and assisted in learning how to purchase American foods (41).

Volunteer Red Cross leaders in Norfolk, Virginia, went to the local utility company for help on preparing low cost menus, then taught

European refugees coming into the Norfolk entry port (161).

Housing project residents received information about foods which they had never used in the sections of the country from which they had come (11).

Women who worked in defense factories all day could listen in the evening to radio talks and skits illustrating what to eat and how to prepare it (12).

There were talks, demonstrations, films, and exhibits (272). Information centers were set up in department stores and markets, staffed by trained aides who gave demonstrations for the benefit of shoppers. The packed lunch for war workers was a popular subject (11), (193).

Safeway stores sponsored a nutrition course for housewives (289).

Sales psychology and promotion techniques were borrowed from industry. Programmers studied their audiences to determine their special interests then promoted nutrition in terms of this interest.

Sales personnel in New York City department stores were "sold" nutrition on the basis of its glamor; the non-selling personnel were told about its effect on their health. A nutrition film, "Hidden Hunger," was shown to a group of railroad men who, it was assumed, were concerned over fatigue and minor ailments (98).

The wives of Westinghouse defense workers were impressed with the importance -- and the facts -- of nutrition by means of colorful cartoon-like pictures, interesting story-lectures, and, with these interest catchers, factual information (187).

In Rochester, New York, a family of six, known to local newspaper readers as "the Browns," was selected for a demonstration of the practice and the benefits of good nutrition. For several months the Browns ate carefully planned meals, the foods for which were donated by Rochester merchants and milk dealers. Each day's menu was published in two Rochester papers; on Friday the following week's grocery order was publicized. On the women's page of the papers were articles by a local physician on the hypothetical health problems of the family, such as colds, and the effects of good nutrition in preventing these illnesses. Other articles described the values of the foods eaten by the Browns (152).

In New York City a "Wartime School for Housewives" was conducted for over 750 women. A radio program, "The Wartime Cooking School of the Air," was featured on a city station. There were talks to churches, garden clubs, department store audiences, and grocery-men's associations. Materials in seven languages were distributed (159).

In Denver, Colorado, a city wide nutrition education program was organized with a coordinator and three full time teachers from the Emily Griffith Opportunity School. By the fall of 1942, approximately 10,000 women had been reached with information (96).

The Adult Education Department of the Minneapolis Public Schools conducted city wide food and health forums. These forums emphasized vitamins, the adequate diet, nutrition wise "buymanship," and the effects of food, rest, recreation, and mental health on personal well-being (188).

Work in training lay leaders to assist professional persons in carrying on programs was done in some areas (348).

It was a part of the nutrition work of the Office of Defense Health and Welfare Services to serve as a clearinghouse for information. The state committees were asked to report their particular problems and most successful programs to the Office of Defense and Welfare Services, where the information would be pooled for the benefit of all states (251).

To insure a lasting peace after the war, Americans were told, there must be adequate food and good nutrition for all the world's people (211: 267).

> There seems no reason to doubt on the basis of present evidence, that just as, by the use of modern medical science, we have conquered diseases that took an enormous toll of life in the past, so by the use of the modern knowledge of nutrition we can build a better and a stronger race, with greater average resistance to disease, greater average length of life, and greater average mental powers.
>
> This can be done by the conquest of hunger -- not only the obvious hunger man has always known, but the hidden hunger revealed by the modern knowledge of nutrition (268: 232).

It remained to be seen how Americans would carry out this ideal of the National Nutrition Conference delegates.

CHAPTER XII

FOOD AND THE EDUCATION OF ADULTS

About 1900 the knowledge of nutrition favored spending less instead of more money. This situation ceased to be true with the coming of the newer knowledge of nutrition. Economic problems took on new color. People needed to be assured of sufficient income for purchase of protective foods instead of being taught greater economy in purchase of the protein and energy foods.

"The scientist," wrote a layman during the depression, "works in his laboratory with a few pink-eyed rats, and what he discovers is seen to be tied in with the deepest social and political and economic questions" (145: 166).

Although the results of a nation wide nutrition survey indicated that the nutritional condition of Americans was generally good (229), the agencies most concerned with nutrition education find much work to do. One of the most inspiring features of this study was the dedication to a task displayed by nutrition workers at many levels.

Current Federal and Related Programs

A list of federal agencies concerned with food and nutrition includes services in five departments and five other agencies (120).

Of these various units, one -- the Federal Extension Service -- is exclusively an educational organization.

The Department of Agriculture

Today the U. S. Department of Agriculture carries on an active nutrition program including much research and both direct and indirect forms of education. Through its far-reaching programs of research and dissemination of information, it aids producers, marketers and distributors, and consumers. It continues its studies of food composition and nutritive value, human nutritional requirements, food quality, preparation, and preservation, meal planning and budgeting, consumption and dietary adequacy and food economy. In 1909 the U. S. Department of Agriculture began making estimates of the national per capita consumption of specific groupings of foods and their nutrient content, providing the basis for certain types of studies in the adequacy of the nation's food supplies.

Through its own agencies and in cooperation with others, the Department of Agriculture endeavors to provide accurate nutritional information in a form which will motivate the public to adopt sound food practices.

Only one agency within the Department -- the Cooperative Extension Service -- conducts an education program as its major function. In this agency are food and nutrition specialists on both the national and the state levels. Work in the twin fields of foods and nutrition is divided into two general divisions: (1) food production and preservation and (2) selection and preparation. In general the work of the

Extension Service has benefited rural more than urban groups; however, there have been for many years a few programs for urban groups.

For over a decade programs in marketing and consumer education have been carried on in a few cities.

Some nutrition education of an indirect nature has also been carried on by the Department through certain of its agencies (338).

The Grange[1]

Today the Grange takes justifiable pride in its participation in community projects but does not, as a national organization, lead out in adult education programs in nutrition.

The Federal Extension Service

There is considerable autonomy in program planning within a state (97). After World War II there was a trend away from nutrition, with increased interest in food preparation. Today, with a decreased need for home food preservation, there is a definite trend away from canning. Some work is done with freezing fruits and vegetables. There is much emphasis on weight control, and a great deal of concern over food fads and fallacies. Groups receiving special attention at this time include the teen-age group and the young homemakers (304). This concern over teen diets, young mothers, faddism, and overweight was evident in the state program reports between 1946 and 1962 (80), (81), (82), (83), (85).

[1]The Grange is not a part of the Department of Agriculture, but is included here for convenience.

In recent years pilot programs for young homemakers have been conducted in approximately twenty-five states. As a result a series of lessons has been developed in the Federal Extension Service for use by home economists in the state services. These lessons cover basic information about nutrition, child feeding, meal planning, food selection and purchase, food preparation, and food fads and facts (122).

State Extension Programs

State Extension Service reports during the past twenty years show a trend toward education in entertaining with food -- meals, snacks, parties, table setting (82), (83) -- and a wide interest in weight control (80), (81), (82), (85), and in the use of dairy products (80), (82), (85). Following World War II Connecticut had a yearly program called "What's Cooking In Your Neighbor's Pot" to promote knowledge and understanding among groups with different national or racial and cultural backgrounds (81). Some states promoted infant or child feeding studies (80), (85). When numbers of welfare recipients in a state needed assistance in learning how to use donated foods, the Extension Service provided help (80), (83).

There is a decided trend in the direction of help to low income families (304).

Efforts are made to avoid duplicating work performed by another agency (97). There are, however, cooperative efforts.

The need to reach a wider audience than that offered by the home demonstration clubs has resulted in work with non-members (304). Since World War II television has become a commonly used medium of communication.

Examples of current programs are recorded in Appendix A. The Table in Appendix A shows the states whose annual reports were consulted, with the years studied.

Food Marketing Information for Consumers

The New York State Extension Service maintains a food marketing information service in the City of New York.

Through radio and television programs, pamphlets, and news sheets the service keeps the public in the metropolitan area informed on retail marketing facts. Nutrition information is included.

Special audiences include welfare department personnel, housing project groups, low income groups, institutions, teachers, food editors, and the extension agents in the counties around New York City.

Consumer education is a new phase of the program (158).

Public Health at the Federal Level

The Division of Chronic Diseases of the Public Health Service includes work in cancer control, arthritis and diabetes, and heart disease. A major activity of these offices is the development of educational materials. The services of nutritionists are made available in workshops and institutes for professional personnel (120), (315).

Division of Indian Health

This division has been a part of the public health service since 1955. The nutritional needs of Indian groups, surrounded by but

separated from conditions of prosperity, adequate food supplies, and skilled health personnel, provide a real frontier for exploration and pioneering activities (48).

The Division of Indian Health includes Indian tribes on 250 reservations in twenty-four states and the Eskimos and Aleuts of Alaska (254), (339).

The nutrition activities of the Division are largely concerned with the education of professional staffs, although there are nutritionists on some of the reservations.

Many Indians are eligible for commodity foods, and much work is being done in teaching them how to use these foods, especially dried milk.

Nutrition teaching builds on a foundation of available foods which fit into the Indian or native Alaskan culture with much effort to expand the dietary into an adequate one. Native recipes, many of them never before put into writing, are supplemented with dried milk, experiments determining the amount which can be added without reducing the acceptability of the product.

There is very little teaching of nutrients. Barriers of language[1] and understanding require simplified materials prepared with the Indian consumer in mind (254).

Fifteen of the twenty-four states with reservations have Extension Service personnel for whose services the Bureau of Indian Affairs

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[1]Many medical and some nutritional terms have no equivalent in the Indian languages.

of the Department of the Interior and the Department of Agriculture have provided an agreement. This extension work is carried on apart from, but in cooperation with, the Division of Indian Health.

Home demonstration agents work with homemakers' clubs and community development or special interest groups. Every effort is made to give status to the basic native Indian foods (184) and to build upon these to provide an adequate diet.

Office of Economic Opportunity

One of the newest programs found in this study was Project Head Start, a part of the current anti-poverty campaign. The fundamental purpose of Project Head Start is the physical, mental, emotional, and social development of the economically underprivileged child. This purpose is served by a nation wide system of child development centers.

Believing that poor nutrition in early childhood interferes with not only physical but also mental development, the planning committee for Project Head Start has made nutrition a part of the program.[1]

Included in the program by September, 1965, were 550,000 children. The program's nutritional activities include the preparation and serving of meals to the children in the centers and teaching nutrition to the parents. Dietitians, nutritionists, and home economists are urged to participate in the local programs and to encourage the parents

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[1]Project Head Start, Nutrition -- Better Eating for a Head Start, Washington: Office of Economic Opportunity, no date.

at the center to take a part in planning the adult nutrition program (285).

State and Local Programs

The first state health department nutritionists were employed in Massachusetts and New York (251). Today most state health departments have a nutrition section as a nutrition consultant. In a number of states the nutritionist is a member of the maternal and child welfare staff, although she may perform many services outside of this branch of the department.

All state, county, and city health departments included in the study render indirect service, that is, provide up-to-date and practical nutrition information to professional staff members, especially nurses and social workers. These persons, in turn, translate this information into day to day service for their clients. Several of the agencies rendered additional direct service to some group or groups.

Colorado State Department of Public Health

The Colorado Department of Public Health, which serves a large Spanish speaking population, provides direct nutrition service to two groups, diabetic patients and migrant farm laborers.

Work with the diabetic patients is largely an individual counseling service. In recent years the migrant laborer program has provided an interesting and challenging task.

During the summer of 1965 food demonstrations, using surplus commodity foods available to the group, were conducted for young single

women in the camp. Although considerable interest was shown by the group, other social and religious activities interfered with individual attendance.

In addition to the group demonstrations, individual counseling was available for persons with special problems such as overweight (105).

Louisiana State Board of Health

The Louisiana Health Department employed eight nutritionists in September, 1965.[1] No direct service is provided.

Educational materials put out by the American Medical Association and the American Dietetic Association, with carefully screened commercially prepared materials, are used (173).

A teaching handbook, What Shall I Eat and Why had gone through five editions in 1955. The book provided charts based on the National Research Council's Recommended Dietary Allowances, and simple directions to help the user plan an adequate diet for himself (288).

Confidentially Speaking, a monthly publication for in-service education, is occasionally given to special groups such as teachers.

The Massachusetts Department of Public Health

The seven nutritionists of the Massachusetts Department carry on a great deal of professional education, with some direct service activities. In addition to in-service education of staff members, workshops

[1]Two more staff members were to be added in November, 1965.

are conducted for professional personnel in hospitals or other organizations. Some educational work is done for non-professional hospital dietary personnel.

Some literature is prepared, and a mimeographed list of recommended and non-recommended nutrition books for lay readers[1] is distributed by the Nutrition Section, which currently is developing a project using color slides on child feeding, to be used by parents or nursery school staff members (359).

Chicago Board of Health

Nutrition in the Chicago Board of Health began with the high risk patients in the prenatal clinics. Today all expectant mothers receive instruction.

Nutritionists visit the children's day care centers and long term care homes in Chicago as a part of the licensing program. There is some nutrition education connected with these visits.

Nutritionists are available for talks to any interested group. Forty to fifty yearly requests are received from TOPS[2] clubs. Other groups include professional societies, church groups, senior citizens, and retired civil service employees. Audiences range in size from fifteen to 150 persons.

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[1]Prepared by Helen S. Mitchell, with the cooperation of the Joint Committee on Nutrition Literature of the Massachusetts Library Association and the Food and Nutrition Section of the Massachusetts Public Health Association.

[2]Take Off Pounds Sensibly.

An in-service education program is conducted for staff members of the Board of Health.

Literature from the American Medical Association, the National Dairy Council, and the Metropolitan Life Insurance Company is used, along with a nutrition leaflet put out by the State Board of Health (301).

Cook County Department of Public Health

The nutrition staff of the Cook County Department participates in the in-service staff education program, provides a limited amount of direct service to patients in the areas of budgeting and modified diets, and makes occasional home visits with a staff nurse.

The staff provides speakers for county groups in adult education, weight control, Golden Age Clubs, or other interested groups, and cooperates in providing workshops or conferences. Free nutrition literature from any reliable source is used, but the giving out of literature is limited to cases of obvious need for printed materials (217).

New York City Department of Health

In 1937 the Health Department of New York City established a nutrition program following the demonstration program begun five years before by the Health Department in cooperation with the New York Chapter of the American Red Cross (8). In 1943 a nutrition division was established (234).

In 1949 the division became a bureau of the department (212). Many individual sections of New York City had health needs equal to those of an entire community elsewhere (175).

Today the Nutrition Bureau maintains in-service training for nurses and nutritionists, consultant service for social workers and for institutions. It provides specialists for conferences and consultant service for physicians, dentists, dental hygienists, and dental assistants, as well as to many community organizations. The Bureau has a principal, three supervisors, and twenty-nine nutritionists.

Direct service is provided at five nutrition clinics in the Department of Health and one in a hospital. Basic as well as therapeutic nutrition education is carried on in the clinics.

"Listen to Nutrition," a daily radio program, is in its twenty-third year on a city station. "Nutrition to You" is the Bureau's weekly television program (74).

Most literature provided by the Bureau is produced by its own nutritionists. Except for the subjects of the anti-coronary research project who live on "Prudent Diet," a diet relatively low in fat, literature is based on the normal American dietary pattern but with a slight reduction in those fats having a high saturated fatty acid content (74). Thus the "Star of Good Eating," a poster type teaching device published by the Bureau in both English and Spanish, includes lean meat, skim milk and salad and cooking oils, with a slight reduction in whole meat, animal fats, and hydrogenated margarines and shortenings.

The Department of Health maintains an obesity clinic staffed by physicians, nurses, nutritionists and other personnel. The high degree of success, as judged by weight loss, is credited to: (1) an authoritarian approach accompanied by a system of clinic discipline;[1] (2) an esprit de corps which makes the patient one of the team; (3) education in a "nutritional way of life" differing drastically from the old way and developed in both individual and group sessions with the nutritionist; and (4) a long follow-up period with encouragement and professional help from the clinic staff (69).

Other Public Health Activities

Many health programs, including maternal and child health, cancer control, tuberculosis control, dental health, crippled children's programs, and chronic disease control are vehicles for informal nutrition education (55). Public health, school, and industrial nurses have opportunities to provide adults with nutrition information (182). Realizing the need for basic nutrition training, the former director of Community Service Society's nutrition work in New York City, wrote Nutrition in Public Health for the purpose of giving the public health nurse a background of information to use in working with her clients (134). Today this need is largely met by in-service education of public health and other nurses.

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[1]If 65 per cent of the planned weight loss does not occur in the ten week period allotted to each patient, the patient is dropped from the clinic.

Colorado State Board for Vocational Education

The Smith-Hughes Act of 1917 provided federal funds for home economics education of women and girls over fourteen years of age through the public schools. The Defense Education Act of 1963 provided for home economics education leading to a vocation such as food service worker, visiting homemaker, family dinner service specialist, or homemaker's assistant.

The Colorado State Board for Vocational Education conducts an active program with funds provided in part from these acts. School lunch supervisors are currently receiving training. In the summer of 1965 a group of twenty school lunch supervisors met in a workshop in Denver. At its close they returned to their communities to train other women as supervisors.

Nutrition education takes place with training in meal planning and food preparation (71), (218).

Historically, home economics education was primarily for the activities of the home. The Emily Griffith Opportunity School, a part of the public school system in Denver, conducts numerous adult classes in food and nutrition both within the school and in other areas of the city.

One of the courses taught at the Opportunity School is called "meals for moderns." Another is "food preparation in the home." Both include basic nutrition knowledge among their objectives (218).

Community Colleges

A survey of twenty-five community colleges in the United States provided information on nutrition courses open to adults. Five offered no such courses, three offered one course, seven offered two courses, and four offered three courses.

Only four colleges provided evening classes in foods and nutrition or classes planned particularly with adult needs in mind.

Professional Organizations

Professional groups in the medical and paramedical fields are of necessity concerned with nutrition education.

The American Medical Association

The American Medical Association, founded in 1847, conducts an active campaign to supply the public with nutrition information through printed materials and other communications media.

Both speakers and literature are available to groups on request. With the assistance of the American Dietetic Association and the Chicago Dietetic Association, book reviews are prepared for public libraries and professional journals. The American Medical Association prepared nutrition exhibits which are shown at twenty-five or thirty conventions, many of them medical groups, yearly.

The Food and Nutrition Section of the Association receives approximately twenty-five phone calls daily with questions on foods (185).

The Association distributes a "Campaign Kit to Combat Food Faddism and False Claims" to state and county medical societies and to other professional societies active in the nutritional field. A half-hour film, "The Medicine Man," depicts the methods employed by a "health lecturer" to sell his products.[1]

The American Dietetic Association

"The profession of dietetics is dedicated to the service of humanity through application of knowledge of the science of nutrition."[2]

The American Dietetic Association was founded in 1917 as a response to hospital food service problems of World War I (33: v).

Its nutrition education activities today consist of work for professional groups in annual convention, institutes, and cooperation with other professional and health organizations, the publication of its Journal for members and other nutrition workers, and the preparation of pamphlets and Journal reprints for distribution to members and the professional or lay public.

In addition state and local associations carry on individual projects of which the most unique is the "Dial-a-Dietitian" program.

At specified hours daily[3] any person with a problem involving information in foods or nutrition can dial the service and present his

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[1]Available on loan from the American Medical Society.

[2]From "Code of Ethics of Members of the American Dietetic Association."

[3]The public is advised of this program and the hours of service through local newspapers.

question. The question is assigned to one of a staff of dietitians in the city. She provides the answer and replies by mail within hours of the request.

A grant from Nutrition Foundation, Inc., made the first programs in 1961 to 1963 possible. In March, 1965, the program was conducted in sixteen cities in the United States and one city in Canada. The American Dietetic Association estimated that more than 10,000 persons were reached through Dial-a-Dietitian activities in 1964 (4).

The Frances Stern Food Clinic

The Boston Dispensary Food Clinic, established in Boston in 1918,[1] now the Frances Stern Food Clinic, is a unit of the New England Medical Center Hospitals and Tufts University Medical School.

Although a relatively small number of patients is counseled individually in a given day, the Clinic has become widely known. The teaching staff is composed of three full time and one part time nutritionists and six graduate dietetic students.

About 700 students, most of them medical or dental students, receive training yearly.

All patient education is conducted on an individual basis. No printed diet lists are used. Each diet is based on the cultural and economic background of the patient as well as his physical condition. Since at least thirty-one different nationalities are represented among the clients, this individual attention requires a considerable

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[1]See Chapter X.

expenditure of time.

Basic nutritional information is developed in terms of individual nutrients, rather than as easily memorized food groups.

A continuous program of preparing exhibits is carried out, with each Food Clinic exhibit used for about one month. Short term exhibits are also prepared for special occasions.

Each exhibit is photographed, diagrammed to scale, and the information retained for future use or for use by other groups. These exhibits are an important part of the adult nutrition education of the Food Clinic (123).

Harvard School of Public Health

The Nutrition Department of Harvard School of Public Health, under the leadership of Dr. Frederick Stare, plays an active role in providing nutrition education for the public.

Dr. Stare himself began a weekly newspaper column in the Middletown Daily Record, Middletown, New York, in 1959. This column, under the Los Angeles Times Syndicate, is now printed in fifty-one newspapers.[1] It appears twice weekly with one column devoted to a discussion of normal nutrition and the second to a question and answer service.

A short weekly radio program is conducted every Thursday afternoon on a Boston station. A member of the School of Public Health staff gives a short talk, and following the talk the public has opportunity to

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[1]This was the number in July, 1965.

submit questions by telephone.

Members of the faculty and staff are available for lectures or other nutrition activities upon request (235).

Voluntary Non-Profit Agencies and Organizations

Some new organizations including nutrition education among their activities have been organized recently; some old and well established agencies have cut back on their program. The Red Cross is included in the latter group.

The American Red Cross

The annual nutrition report of the Red Cross for 1948 pictured a lively interest in nutrition classes and other activities. There was an increased use of mass educational media to reach larger numbers of persons. Posters, pamphlets, newspapers, and radio and television facilities were widely used. Nutrition classes were publicized by radio and newspaper, and hundreds of women enrolled.

There were nutrition movies for community groups and arrangements of nutrition material for libraries, stores, and fairs.

Red Cross chapters arranged programs for teachers, school lunch managers, Parent-Teacher Associations, visiting housekeepers, Girl Scout leaders, student workers in a state welfare department, prenatal clinic groups, a group from the American Association of University Women, a mothers' club, a boys' club, an organization of ministers' wives, hospital patients, penitentiary inmates, and veterans in a trade school.

In the year 1947-1948 almost 37,000 nutrition certificates were issued (13).

Three years later the American National Red Cross issued its last regular annual nutrition report, which told of the activities of the national staff in the preparation of printed materials for the use of Red Cross workers (14).

Rather than duplicate the work of public health and other agencies in the nutrition field, the national office discontinued its program, except for maintaining a consultant to provide service to staff members.

Some nutrition instruction is included in home nursing classes.

The Boston chapter carries on an interesting, if limited, program in low income neighborhoods. Here a housewife in the neighborhood is given training in economical meal planning and food purchasing and other household skills and then assumes the responsibility for helping her immediate neighbors with their problems. She is required to counsel a specific number of families in a week or a month and to report her activities to the chapter (100).

United Planning Organization

The United Planning Organization in the Greater Washington area is a private, non-profit organization, established with financial aid from two foundations, to act as the community action and planning agency in the national capital area (110).

The poverty areas included in the United Planning Organization in Washington have six neighborhood development centers, each with one

professionally trained consumer specialist, two or three consumer aides, and from eight to thirty liaison persons, neighborhood members who work between the neighborhood and the center on legal, health, housing, employment, consumer, or other problems.

This is the background against which the consumer specialists of the central office serve as coordinators and consultants in consumer education.

Many of their clients have third to fifth grade reading levels. Nutrition education is carried on in terms of foods with which they are familiar instead of with nutrients, which they would be unable to understand. Planning, shopping, and money management, in connection with the food stamp program, are areas of teaching. Plans were underway for the training of neighborhood women as food demonstrators, to work with inexpensive food products. Typical of the community action emphasis in the program is the fact that the home economist in a local gas company was going to carry out the demonstrator training program.

Arrangements were made early in 1965 with the Giant Food Store chain of supermarkets for a practical education program. On Thursday mornings, at the beginning of the week end sales, consumer specialists will escort small groups of low income women to the stores for practical training in food buying.

Consumer specialists in the headquarters office are anxious to work with any neighborhood group who can be interested.

"Innovation," said one of the specialists, "is our watchword" (230).

The Community Service Society of New York

The Community Service Society, formerly the A. I. C. P. and the Charity Organization Society, no longer conducts a direct service program in nutrition. Much of this phase of its earlier work has been taken over by the Bureau of Nutrition of the City Department of Health. Community Service nutritionists provide consultant service to the nurse in public health and also service, upon request, to the Family Life Education Unit of the Society.

The old records of the Association for Improving the Condition of the Poor have gone into archives. They would provide material for a fascinating study of nineteenth century attempts to provide nutrition education for the poor of New York (316).

The Arthritis Foundation

There are a number of voluntary agencies in the United States which are concerned with research and education on one specific disease. The Arthritis Foundation, founded in 1948, is one of these. Its national headquarters are in New York City.

There are fifty different kinds of arthritis, some of them having dietary implications (353).

The dietary recommendations of non-professional persons, however, are usually without scientific foundation. Nutrition education materials published by the Foundation are related to promoting a normal well balanced diet and to persuading the arthritic to ignore false claims about the virtues of or the danger in specific foods.

The Diabetes Society of Greater Boston

This agency is a lay organization established to provide information about diabetes. It provides free leaflets and other material on request to individuals or institutions, sponsors two yearly lectures in Boston, provides educational exhibits, and promotes community diabetes detection programs.

In the first six months of 1965 2000 requests for literature had been received (307). Some but not all of the dietary material distributed is related less to basic nutrition facts than to the modifications of the diabetic diet.

The Society sells A Cookbook for Diabetics,[1] which contains valuable nutrition information for the diabetic.

Commercial-Industrial Organizations

Much nutrition information is provided by food processing and related industries. High quality nutrition information and visual aids are produced by the same organizations.

The National Dairy Council

The National Dairy Council was formed in 1915 (194). State and local councils are supported by the dairy industry -- producers and handlers -- in the area. Industry members wishing to establish a local council approach the nearest area representative who refers the request

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[1]American Diabetes Association, A Cookbook for Diabetics, New York: The American Diabetic Association, 1959.

to the National Dairy Council in Chicago. The National Council is responsible for the authorization of local councils.

The responsibilities of local councils can be divided into two general classifications: the distribution of nutrition materials and the conduct of nutrition education programs -- talks, conferences, consultant services, school programs.

Most material for distribution is purchased from the National Dairy Council. Local councils prepare news releases, materials of interest to food editors, and occasionally other materials.

All visual aids developed by the National Dairy Council are submitted for approval to either the American Medical Association or the American Dental Association.

Materials include the Dairy Council Digest, a review of nutrition research published every two months, posters, a wide assortment of graded materials for use in schools, adult materials, recipes, and food models.

Talks and other activities are provided upon request by the local councils. Professional groups, Parent-Teacher or other school groups, churches, adult education, and Golden Age groups are among those requesting programs. There are also radio and television presentations. In most activities requiring the use of speakers or consultant services, priority is assigned to leader groups who can pass on the information to their respective audiences. However, when time and personnel are available, direct service is provided to any interested community group (130).

Nutrition education is based on the total nutritional requirements for good health rather than on the promotion of dairy products alone (194).

The Nutrition Foundation

The Nutrition Foundation, Inc., was founded by the food industry in 1941 for the double purpose of financial assistance to nutrition research and the promotion of public education in nutrition (250).

The American housewife knows that authentic facts about nutrition are available, and she wants to obtain them (299).

To supply this need the Foundation cooperates in the production of newspaper and magazine articles and radio and television programs. An estimated thirty-five million persons were reached in 1963 to 1964 with newspaper articles on such topics as nutrition research, food faddism, infant nutrition, and weight control.

The Foundation itself publishes a few informative pamphlets, including A Balanced Diet and Food for Family Fitness. Nutrition information is furnished to teaching personnel, workers in the medical and paramedical fields, and State Extension Service personnel (260).

The Foundation publishes Nutrition Reviews, a monthly review of nutrition research for the scientifically trained reader.

Eastman Kodak Company

The Eastman Kodak Company was founded by George Eastman in 1880 to produce Mr. Eastman's new invention, the dry photographic plate (103).

The company expanded its health service in 1920 by setting up a Medical Department, in which a nutrition service was soon organized. Today the professional staff of Eastman Kodak's nutrition service includes a supervisor, who is also director of the Eastman Kodak dietetic internship, and two nutrition advisers.

Each of the eight interns spends six weeks in the service.

All Eastman employees in Rochester are entitled to nutrition counseling service on request. In addition, the nutritionists maintain a monthly mailing service to all nurses employed in Eastman plants throughout the country.

In-plant activities in Rochester include individual counseling on normal and therapeutic diets, development of nutrition exhibits, pamphlets, and pick-up material for waiting room racks, and articles for the weekly personnel magazine (233).

Religious Organizations

Church groups are often among those interested in nutrition education programs (13), (130), (301).

The Church of Latter-day Saints

The Church of Latter-day Saints urges moderation in the use of healthful foods and abstinence from tea and coffee, alcoholic beverages, and tobacco.

"One of the most practical teachings of the Church," wrote David McKay,

> is the principle of the Word of Wisdom, ... Daily practice in keeping this commandment will do more in the development

> of true moral manhood than anything else I know. It is true, it deals principally with the appetite; but you show me a man who has complete control over his appetite, who can resist all temptations to indulge in tea, coffee, tobacco, or whisky, and I will show you a man who has likewise developed power to control his passions and desires. On the other hand, a man who indulges his appetites, either secretly or otherwise, has a weakened manhood that will not serve him when he is tempted to indulge his passions (210).

The Seventh-day Adventist Church

The Seventh-day Adventist church trains a corps of lay nutrition instructors under the sponsorship of the Medical Department of the General Conference. Approximately 100 to 150 women receive this training annually, and thereafter are authorized to conduct cooking schools which include basic nutrition information for local church groups. Authorization must be renewed yearly (314).

The Seventh-day Adventist Dietetic Association prepares leaflets on nutrition subjects and has published a small book under the title Everyday Nutrition for Your Family.

The Review and Herald, the church's official weekly news organ, and Life and Health, a monthly health magazine, contain frequent articles on nutrition written by physicians, dietitians, and the faculty of Loma Linda University, the church's medical school.

Life and Health is also prepared in braille for distribution to the blind.

CHAPTER XIII

TRENDS IN THE TEACHING OF NUTRITION TO ADULTS -- SUMMARY AND CONCLUSIONS

No reports dealing with the history of adult education programs in nutrition were found in the literature. A survey, based on selected samples, has covered the field, past and present, in the United States. The survey began with the entry of the United States government into the field of nutrition research in 1894. In addition, preliminary study was given to the level of nutritional knowledge and the means by which it was being spread when Congress made its first appropriation for research in human nutrition.

The following hypothesis was tested:

Adult nutrition education in the United States has developed through the use of methods and materials supplied by a few core organizations connected with, or a part of, the United States government, and a variety of activities of other organizations -- social, religious, philanthropic, or educational -- not coordinated with each other or with the core organizations.

Based on the evidence provided by the study, the following conclusions are submitted:

In the period since 1894 nutrition has progressed from the recognition of four nutrients -- protein, carbohydrate, fat, ash -- to a

knowledge of approximately fifty nutrients essential to human nutrition.

In the same period teaching attitudes have ranged from simple insistence that the public be told what it should eat to a recognition of existence of those social, psychological, and emotional factors which create so much difficulty in changing food habits.

One organization -- the United States Department of Agriculture -- has worked continuously throughout the entire period to provide nutrition education to the American public.

Three great networks of American organizations have shared the major responsibility for educating adults in good nutrition. These are the federal and state Cooperative Extension Services, the public health organizations at federal, state, and local levels, and the National Red Cross with its local chapters.

Of these three organizations, the National Red Cross, quasi-governmental agency, no longer conducts a nation wide program, and the public health services are relatively late comers, providing less total direct than indirect services.

A fourth network, composed of commercial and industrial organizations, has made a great impact on the nutritional concepts of the American public. It has made available a large amount of nutritional material, some of which is of high quality. In breadth and content, and in the amount of nutritional material used in the programs sampled by this study, it cannot be classed with the other three groups of organizations.

The major producers of nutritional materials are the United States Department of Agriculture and the public health services. Evidence from the study regarding the nature and relationships of the organizations concerned with nutrition teaching of adults, confirms the hypothesis.

Before the period of the newer knowledge of nutrition, information was spread by newspapers and magazines, books, cooking schools, women's clubs, religious organizations, welfare organizations, and by at least one correspondence school. The major source of information was the United States Department of Agriculture.

At the turn of the century writers were urging greater economy upon Americans. The food which would provide the largest amount of protein and energy at the least cost was considered the most economical, and this opinion formed the basis of much of the teaching. The cooking of food, through its effect upon digestibility, was reckoned to be of great importance to health.

Some persons urged the consumption of less food, especially of less meat. No evidence was found linking decreased meat consumption to vegetarianism. Until the work of Chittenden, and to some extent thereafter, a high protein dietary was considered desirable.

The newer knowledge of nutrition completely changed earlier viewpoints. By 1910 Sherman recognized that certain minerals, particularly iron and calcium, must be considered in daily dietaries. During World War I there were frequent references to a growth promoting substance found in fat and required by children.

With the exception of Children's Bureau publications, writers during the first quarter of the twentieth century recommended a drastically different method of feeding young children from that practiced today. Addition of solid foods took place at a much later age, and before the child was old enough to attend school he was not expected to chew many unmashed vegetables nor any unchopped meat. Several writers advised allowing him no meat before the age of six or seven. By the 1930's these restrictions had been removed.

The successive food groupings illustrate the growth of knowledge. The first groups of five classes of foods made no distinction between nutritionally unequal products. The Basic Seven of World War II divided foods into groups according to their protein, mineral, and vitamin values. The Daily Food Guide in use today classified four groups of foods likely to be inadequate in many dietaries, and is recommended for use with nutrition teaching rather than as a substitute for it.

The major nutritional issue today is related to fats. Food faddism is not a new problem. It was clearly evident in this study as far back as 1906. Americans are still being told that as a nation they consume too much food, but today the statement is made against a background of reduced caloric expenditure.

Trends

Trends in content and methods of nutrition programs can be divided into three groups:

(1) Trends brought about through the level of scientific knowledge.

(2) Trends brought about by changes in physical structures and facilities.

(3) Trends produced by contemporary beliefs, values, and social conditions.

Levels of Scientific Knowledge

Among the reasons advanced for recommended dietetic changes in the nineteenth and early twentieth centuries were philosophical arguments: meat should not be used because the use of it necessitated animal suffering; meat should be used freely because it was a part of the bounties of nature, and the survival of the fittest was everywhere evident in nature.

At the turn of the century much of the research affecting nutrition education was statistical in nature. Americans were urged to eat a high protein diet because well nourished groups in the United States and elsewhere lived on dietaries high in protein.

When animal experiments became common the trend shifted rapidly to an experimental basis for nutritional recommendations.

During the two decades between the two wars there was a trend to apply the new science to the common nutritional ailments of the day --

malnourishment, anemia, pellagra, and other problems. Today the application of science to problems of weight control provides one of the most popular programs.

Today's stock of knowledge appears to exceed the public's ability to apply it. The result is increased concern among nutritionists over food faddism, and a very definite trend toward making the efforts to combat it an important part of nutrition programs.

Physical Facilities

To say that there is a trend toward innovation today would be to ignore many programs in the past. The use of the supermarket as a teaching center began during World War II. It is a trend of minor proportions, but an interesting one.

There is a trend toward the use of all available mass communications techniques and media -- newspapers, magazines, books, telephone, radio, television, posters and exhibits, movies and slides, and other visual aids. This trend stands out particularly in time of war, but is clearly evident today.

Social Conditions, Values, and Beliefs

There was a strong religious note in early writings on food. Americans had a moral and religious duty to maintain good health and to abstain from injurious substances. Today, outside of religious organizations, appeals are based on the personal benefits to be derived from nutrition -- good health, appearance, and economy.

The trend in 1900 to emphasize economy differed from today's outlook. Economy today is a part of consumer education and the ability to choose well what one will enjoy. In 1900, and for a decade or two longer, economy was a national virtue allied to the need to conserve valuable resources.

Trends in methods include the use of trained lay leaders or visitors, encouraging participants to assist in planning programs, discussion methods, and conferring status upon foods of national or ethnic origin.

There is a trend toward division of responsibility among organizations to reduce duplication of effort. There has been a long term trend toward cooperation among agencies. The fact that a method reaches the proportions of a trend does not mean that it is new. Some of the methods popular today have been used successfully for decades by the Cooperative Extension Service.

There is a current trend to promote programs benefiting teenagers, young housewives, and low income groups.

Nutrition Education for Adults -- A Case Study

The history of nutrition education appears to provide a case study in adult education. From 1894 to the present there has been a growing body of knowledge, not always free from error and not yet completely developed.

Historically, there has been vision, enthusiasm, and much personal dedication of individuals in the promotion of the work. There

have been emergencies -- a depression and two world wars.

There are financial problems and the presence of vested interests, some of which have furthered the overall program while others have hindered it. The student body has many motives -- preservation of health, greater enjoyment of life, conservation of scarce resources, even religion. There is a continuing need to interest a wider body of students.

Many organizations -- professional, educational, philanthropic, and commercial -- have been involved, in addition to the core of the movement, the governmental and quasi-governmental agencies of the United States.

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A P P E N D I X A

Year	Ala.	Calif.	Colo.	Conn.	Iowa	Ky.	La.	Mo.
1920								x
1925								x
1930								x
1932	x						x	
1933	x							
1934							x	
1935								x
1937							x	
1939							x	
1940							x	x
1945		x	x	x	x	x	x	x
1946			x	x	x		x	
1950			x		x	x	x	
1954			x	x	x	x	x	
1955			x	x	x	x	x	
1957			x	x	x	x	x	
1959			x	x	x	x	x	

Unpublished Annual State Extension Service Reports
Used in this Study

Nutrition Teaching in State Agricultural and Home Economics Extension Services, 1964

The following summaries are taken from unpublished state Extension Service reports for 1964. A sufficient number of examples from each state have been included to provide a broad picture of the activities throughout the country.

Alabama

Over 50,000 persons were given nutrition information, through home demonstration clubs and twenty-six special groups in forty-two counties. Four television programs were presented on educational television channels.

Alaska

The Arctic Health Research Service provided data on the nutritive values of wild game and native foods, supporting the position that Alaskans living off the land could be well fed.

The use of all parts of the animal was emphasized, as well as preservation and storage methods for greens, fish, moose, and caribou.

Extension Service held an annual homemakers' short course and certificate courses, provided newsletters and newspaper articles, made use of radio and television facilities.

Arizona

Twenty home demonstration agents conducted fourteen programs on family nutrition. Four Arizona counties participated in the nation wide pilot study of food and nutrition programs for young homemakers.

Arkansas

The Extension Service conducted short courses on food management in one county, gave one or more lessons, "More for the Food Dollar," in each of twenty-nine counties, and helped families receiving surplus commodities to use them to good advantage.

California

Home advisers in twenty-eight counties emphasized from one to five areas in basic nutrition, including weight control, teenage nutrition, and other aspects. One two-day county-wide nutrition conference was held.

There were eight short courses on "Food and You" and two on "Calories Count," a short course on food buying for social workers in a welfare department, and a four-session Market-O-Rama short course attended by 700 persons interested in food buying.

Colorado

The Extension Service was especially interested in problems of teenagers, young mothers, low income families, and overweight persons. The state nutrition specialist held four open meetings on "The 'Nu' in Nutrition and Food." Overweight, new research on diet and heart disease, and new food packaging developments were considered.

Home demonstration agents received a refresher course on basic nutrition and current nutrition problems. Workers held demonstrations on the use of commodity foods for the benefit of welfare recipients.

Delaware

Preparations were made for a training meeting in 1965 on the use of donated foods.

Hawaii[1]

Programs included the use of island products, foods for improved nutrition, economy in meals, food preservation, family hospitality, and home food production.

An important part of the work involved nuclear age nutrition. All but three counties received information on emergency feeding, the problem of water shortage, and fallout contamination.

Idaho

Radio, television, and newspaper publicity helped spread nutrition facts. There was emphasis on good food "buymanship."

Indiana

Twenty-six counties had leader training lessons in four areas of nutrition. Thirty-six meetings on weight control were held for non-leader groups. There were food preparation classes and one class on food additives.

Iowa

A two-day nutrition education workshop was held for dietitians in schools of nursing, a one-day refresher course for hospital and

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[1]Report for 1963.

public health nurses, and short courses on nutrition and related subjects.

Kansas

Extension Service personnel conducted meetings on teenage nutrition, importance of breakfast, food fads and fallacies, protein foods, gracious living, food preparation and preservation, meal planning, the Daily Four Food Groups, food processing, labeling, and additives.

Louisiana

Areas of particular concern were diets for low income families and the problems of young homemakers. Four parishes conducted workshops for welfare personnel; aid was given in the use of donated foods.

Maine

Projects were carried out on the following subjects: feeding small families, understanding nutrition, table service, normal nutrition and fad diets, weight control, nutrition for low income families.

Maryland

The following programs were conducted: weight control, teenage diets, general nutrition, nutrition and health, and some special programs. Some counties carried work on food faddism and additives.

The problems of the urban housewife were of real concern in Maryland, since one-third of the homemaker club members live in the city or the suburbs.

Michigan

Buying was stressed. After much work to enable home economists to understand the problems and viewpoints of low income groups, a program on foods and clothing was presented to these groups.

Missouri

Home economists in the southeastern section attended a two-day training session on obesity, consumer information, and recent findings in nutrition. Other home economists were invited to area training meetings on the science of nutrition and food preparation. Schools on the use of low income foods benefited about 800 families. Individual conferences were also held with representatives of about 400 families. Classes and correspondence reached about 600 older persons; fifteen to twenty per cent of home demonstration club members were over sixty-five years of age.

New school lunch managers attended meetings on basic nutrition facts.

Nebraska

Women in 389 home demonstration clubs studied lessons on vegetables and salads.

A television series was presented to emphasize the importance of nutrition. The Daily Food Guide plan was used as a basis. Good "buymanship" and low calorie meals were included in other programs.

Nevada

The home demonstration agent assisted the welfare department by demonstrating and giving samples of properly prepared commodity foods. Demonstrations of meat preservation were done on Indian reservations.

The agent conducted demonstrations on salad preparation, and ten women reported that they had added nutritious foods in their family's diets through the use of salads. Over 700 copies of "Food and Fallout" were distributed.

New York

Staffs from forty-seven counties attended an in-service education program on feeding the family on a low cost plan.

North Carolina

Most of the nutrition work was related to buying. Young homemakers attended a series of nutrition classes in some of the counties.

North Dakota

Special groups in one county attended food classes.

Ohio

The nutrition specialist conducted a workshop for county workers, with special emphasis on teenage nutrition. Other programs emphasized beauty and health through nutrition, feeding pre-school children, low calorie meals, and food faddism. A nutrition workshop was held for teachers in one community.

In one county two senior citizen groups attended meetings on health in later years and its relation to food and good nutrition.

Pennsylvania

There was special concern with the nutrients most likely to be low in American food, with pre-school children, problems of young homemakers, and senior citizens. In one county the home economists cooperated with the labor union offices and the local Young Women's Christian Association in weight control projects for the garment workers.

County home economists were supplied with a monthly publication called "Food and Nutrition Digests," and spot announcements were prepared for radio and television audiences.

Rhode Island

Programs on planning and wise buying, quick meals, weight control, and food fallacies were conducted.

South Carolina

An intensive training program in nutrition was conducted for all home demonstration agents. In an effort to reach wider audiences classes were presented to special groups, and radio and television programs presented. There were newspaper reports and newsletters. The workers cooperated with other agencies to help low income groups, and in order to combat food faddism, basic nutrition facts were presented to the public.

South Dakota

Objectives included stressing importance of good food habits early in life, helping homemakers to plan and serve attractive, well balanced meals in a pleasant social atmosphere, and to alert the public to food fallacies, while providing facts to combat them.

Timely topics were presented in the newspapers and on radio. A program on vitamin C was presented on television.

Tennessee

The following groups received help: families receiving donated foods, senior citizens, persons interested in weight control, and city women.

Texas

There were demonstrations and individual instruction at commodity food centers. Two low rent housing projects included the use of donated foods. Management of the food dollar was a general theme throughout the year. Parent education included information on child feeding.

Virginia

Special interest meetings included young homemakers and persons interested in weight control. Weight control groups were organized throughout the state.

Washington

The state participated in the nation wide pilot project on food and food nutrition programs for young homemakers. Materials were also

assembled for low income area meetings.

In addition, meetings were held with women's clubs, homemakers, garden clubs, dairy wives, military wives, Eastern Star members, scout leaders, Grange members, a golden age club, the Wool Growers Auxiliary, and church groups.

Wyoming

Programs included food preparation and selection, preservation, and nutrition. A series of nine lessons on weight control was prepared, and three radio programs were presented.

A P P E N D I X B

COMMUNITY COLLEGES INCLUDED IN THE SURVEY OF NUTRITION EDUCATION PROGRAMS FOR ADULTS

Maricopa County Junior Colleges, Phoenix, Arizona.

Boise Junior College, Boise, Idaho.

Clark College, Vancouver, Washington.

Southern Colorado State College, Pueblo, Colorado.

Belleville Junior College, Belleville, Illinois.

Northeastern Junior College, Sterling, Colorado.

Palm Beach Junior College, Lake Worth, Florida.

St. Petersburg Junior College, St. Petersburg, Florida.

Chicago City Junior College, Loop Branch, Chicago, Illinois.

Chicago City Junior College, Woodrow Wilson Branch, Chicago, Illinois.

Flint Community Junior College, Flint, Michigan.

Hutchinson Junior College, Hutchinson, Kansas.

Montgomery Junior College, Takoma Park, Maryland.

Cameron State Agricultural College, Lawton, Oklahoma.

Northeastern Oklahoma Agricultural and Mechanical College, Miami, Oklahoma.

The Pennsylvania State University, Ogontz Campus, Abington, Pennsylvania.

Amarillo College, Amarillo, Texas.

San Antonio College, San Antonio, Texas.

Yakima Valley College, Yakima, Washington.

Modesto Junior College, Modesto, California.

Riverside City College, Riverside, California.

Santa Rosa Junior College, Santa Rosa, California.

Pasadena City College, Pasadena, California.

Palomar College, San Marcas, California.

Shasta College, Redding, California.

July 1, 1965

Dear

Please send brochures or other materials carrying information about foods and nutrition courses currently offered (1964-65 or 1965-66), either with or without credit, which would be open to adult students not working toward degrees.

This material will be used in one area of the research for a doctoral dissertation, for Michigan State University, on adult education programs in nutrition. It will be very greatly appreciated.

Very sincerely yours,

September 6, 1965

Nutrition Section
Louisiana State Board of Health

Dear

As a doctoral candidate at Michigan State University, I am doing research for a historical study of adult education programs in nutrition. This study will include both past and present activities in public health nutrition.

I would like very much to include at least one state where pellagra has been a problem in the past. Since I have chosen Louisiana as a part of my study in the Federal Extension Service, I would like also to include it in the study of public health activities.

I would appreciate any or all of the following types of information:

Samples of nutrition materials prepared by the Nutrition Section of the Louisiana State Board of Health for use with adults.

Samples, or information, as to materials prepared by other organizations, used by your department.

Programs, past or present, of special interest.

Copies of reports of special projects.

Suggestions for published articles which would be available in libraries.

Any other information on your program.

I wish it were possible for me to visit Louisiana, but since I cannot, I hope that somehow through correspondence I can obtain an accurate picture of what the Louisiana State Board of Health is doing.

Thank you very much.

Very sincerely yours,