

# Nutrition at U.C. Berkeley

## 1895-1960

RUTH OKEY

IT IS HARD to date the beginning of teaching in nutrition at the University of California, Berkeley, because the activities of departments such as physiology, physiological chemistry, and public health inevitably included some consideration of food composition and the effect of diet on health. Formal instruction in human nutrition probably began with the appointment of Dr. M. E. Jaffe as professor of nutrition in the College of Agriculture at Berkeley about 1895. His office and laboratories were in a frame building located in the southeast area of the Berkeley campus not far from the present location of Hertz Hall. His research, judging from the titles of theses filed under his direction, was largely directed toward the loss of minerals and other nutrients during cooking. He did some work on nitrogen balance in cooperation with Dr. W. O. Atwater at Middletown, Connecticut, and at the USDA in Washington, D.C. He evidently became interested in adequate low-cost food budgets. About 1910, he published the 'Jaffe budget' which was based on records of amounts of food actually consumed by reasonably healthy people. Food allowances were not very specific. They resembled those of another study based on the food furnished the inmates of German institutions—notably almshouses and prisons. Caloric and gross protein requirements were met and gross mineral content was reasonably adequate. But, at the time, little was known of vitamins or of functions of trace minerals.

In 1915, Dr. Agnes Fay Morgan was appointed assistant professor in nutrition in Dr. Jaffe's department. A year or so

later, she became joint chairman with Mary Patterson of a newly organized Department of Home Economics, which was designed to prepare teachers of home economics for public schools and colleges, and dictations for hospitals. Other appointees to Dr. Jaffe's department included Dr. Harold Goss, who later went to Davis in the Department of Animal Science, and Dr. H. A. Mattill who did pioneer work on vitamin E with Dr. Harold Olcott at Iowa. Dr. Jaffe retired in 1925.

Recognition of the diversity of background necessary for the training of teachers in clothing, textiles and art, plus Dr. Morgan's firm conviction that teachers of foods and nutrition should have a relatively broad background in chemistry, biological sciences, and economics, led to separation of the new Department of Home Economics into Household Art under Mary Patterson, and Household Science under Dr. Morgan's chairmanship in 1918. The two departments were housed in a frame building above Euclid Avenue and near Hearst. With the coming of Anna W. Williams (1918) who had charge of food preparation and methods of teaching home economics, and Ruth Okey (1919) who taught two service courses in nutrition, Dr. Morgan was able to concentrate on a more advanced course in nutrition and dietetics, with prerequisites in quantitative analysis and biochemistry. Also, Dr. Okey offered a first semester graduate seminar in nutrition. Thesis work for the M.S. and Ph.D. degrees was offered as outlined later.

Laboratories were small, crowded, and not well equipped. The research program

was, like Dr. Jaffe's, at first directed toward study of the composition of California foods and the effects of methods of cooking, processing, and storage on nutritional values. Dr. Morgan directed graduate theses dealing with food values of almonds, walnuts, prunes, as affected by processing and storage, and with the effect of heat on the biological value of proteins from various sources.

Dr. Okey directed a series of studies of the monthly variations in the blood constituents usually measured during medical examinations of normal women. Volunteers were students from her undergraduate classes whose diets were uncontrolled and a group of graduate students who ate constant and controlled diets for a month at a time. Variations in basal metabolic rate were measured and correlated with figures for protein intake and nitrogenous constituents of blood (publications in *J. Biol. Chem.*, 1925-1932). The first work on blood cholesterol variations was part of this study, as was some work on blood glucose, calcium, phosphorus, and hemoglobin.

When the Department of Household Science was moved to the new life sciences building in 1930, quarters for animal research were made available. One teaching lab for foods and one for nutrition classes were allotted on the basement floor, together with two research laboratories, a seminar room, four offices and a storeroom. A one-semester required course in food chemistry and a junior prerequisite in lab biochemistry taught by Dr. Okey were added to the dietetics major. Also, an instructor in food economics and one in food chemistry were added to the staff.

Laboratory work in the service courses in nutrition was continued until the large enrollment in these courses at the beginning of World War II made it necessary to eliminate non-major lab courses. Actually, facilities for teaching were not greatly improved by the move to the life sciences building.

Availability of courses in food technology, notably those given by Dr. W. Cruess, Dr. Gordon McKinney and Dr. Maynard Joslyn added greatly to the electives available to majors in nutrition and dietetics. Courses in the School of Public Health became more and more valuable as the problems of adequate feeding within the war restrictions became acute and wise choices of rationed food became more important.

During the Depression and the war years, the cooperation of the University with the State Emergency Relief Administration became very close. Dr. Morgan had been a member of the governor's nutrition committee in the late 1920s, Miss Hilda Faust, head in nutrition of the Agricultural Extension staff, and Miss Helen Walsh in the Department of Public Health played a large part in the educational program for best use of food throughout the state. Dr. Jessica Peixotto and later Dr. Emily Huntington organized and secured support for the Heller Committee for research in social economics. Budgets for family expenditures at four levels of income—the executive, the white collar worker or clerk, the active laborer and the welfare-dependent family—were made up and priced yearly. Food became an important section of this budget, the Department of Household Science was asked to cooperate, and Dr. Okey became responsible for this section of the Heller budgets. In 1932, food lists for adequate food at low cost, originally published by Drs. Huntington and Okey in the *California Journal of Nursing*, were adopted by the State Emergency Relief Administration as a basis of pricing food allowances by the State Department of Welfare and used widely by the other state departments that fed people—Corrections, Youth Authority, Mental Hygiene, Public Health, Education—as a basis for feeding plans. The food administrators in the various state departments plus representatives from the university formed state nutrition committees which met at fairly frequent intervals to discuss problems of food supply, pricing, preparation, and menu planning. A special committee of the State Dietetics Association worked on problems of low-cost special diets for hospitals. Also, about

1940, Dr. Okey served as representative of the Bureau of Home Economics, USDA, on the Ninth Regional Committee, Department of Defense. The work included plans for feeding in concentration camps and involved some cooperation with the quartermaster corps in the very early days of World War II. Miss Faust and her associates worked very closely with county extension agents in agricultural communities of the state.

Dr. Morgan was active in planning war institutes and special courses in nutrition with the cooperation of representatives of the schools of Public Health and Medicine, and members of the staff of the Department of Animal Nutrition at Davis. With the closing of the Davis campus during the war, Dr. Bessie Cook joined the Berkeley staff. She was responsible for much of the extra work involved in the war nutrition institutes and was of great assistance in the courses designed for training high school teachers.

After the transfer of home economics to the College of Agriculture in 1938, the teaching staff became members of the Agricultural Experiment Station staff under Paul Sharp's directorship. His program included cooperative studies with the other western states. One of the first of these regional research studies, W-4, dealt with problems of nutritional status of various groups of people in the nine western states. The lab facilities were housed in a trailer which could be moved from state to state. The California contribution was a study of diet in relation to physical fitness in older volunteer subjects, carried out in San Mateo County. Supervision in the county was under the immediate direction of Dr. Helen L. Gillum. Dr. Morgan represented the state in the regional project and later summarized results not only for the western region, but for the other sections of the U.S., in the publication, "Nutritional Status, U.S.A."

The cooperation of the western states committees, with their annual or semi-annual meetings of the participants, was considered of sufficient value that regional cooperation was continued in projects W-44, W-44R, W-91, W-95 which dealt with lipid research, and W-57 which dealt with protein. Results of W-44 were summarized in nontechnical form as Bulletin 785 by a committee consisting of Betty Hawthorne (Oregon), Ethelwyn Wilcox (Utah), and Ruth Okey (California) as chairman. A more technical report, Bulletin 840, of the findings of W-44 and W-44R, was prepared by Dr. Okey in

1967. Forty-six journal articles giving details of the work in the region were reviewed in this last report. Dr. Lyman represents California in the current lipid project.

Federal support of research in nutrition began about 1955 with NIH grants to various staff members, largely for projects closely related to research already underway. Examples were the lipid and protein studies of Drs. Okey, Lyman, and Ostwald, and the protein studies of Dr. M. A. Williams.

With the completion of the alterations in the portion of Morgan Hall originally occupied by the Department of Clothing and Textiles, and the purchase of equipment such as that which made possible better chromatographic separations of lipids, use of radioactive tracers, Mettler balances, and ultra-centrifuges, the new Department of Nutritional Sciences was able to greatly expand its teaching and research.

The staff was enlarged by the addition of such well known scientists as Dr. George Briggs, Dr. E. L. R. Stokstad, Dr. Doris Calloway and Dr. Sheldon Margen, all carrying tenure rank. Dr. Okey retired in 1961 and was succeeded as chairman by Dr. Briggs. Training grants as well as grants for study of specific research problems brought greatly increased opportunities for graduate and postdoctoral work. Not the least of these were due to the transfer of the Berkeley members of the food science staff—professors Gordon McKinney, Maynard Joslyn and Duane Brown—to the department, together with Dr. Harold Olcott and his staff in marine biology. Dr. Ruth Huememann in public health was perhaps the most outstanding of the public health group.

Drs. Margen and Calloway were able to set up a program in human nutrition, using the facilities of the penthouse apartment to house subjects of human nutrition studies. They have been able, using new techniques, to make many contributions and some very important alterations in our concepts of adequate diets for normal as well as clinical nutrition.

By 1967, the Berkeley department could be rated as one of the best in the U.S. New and younger appointees to the staff have since been added—Dr. George Chang and Dr. Leonard Bjeldanes in foods and microbiology and Dr. Janet King and Dr. Susan Oace in foods and dietetics.

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