Research in the Agricultural Research Service/USDA: Introduction and Early History

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Introduction

The funding of research by the United States government requires authorization by the Congress, appropriation by the Congress, and distribution by an executive agency of the government. The first such funding for federal intramural research on human nutrition was authorized in 1893 and appropriated through the Department of Agriculture in 1894. The process required cooperation among private citizens, members of Congress, and officials of the USDA. Dr. Wilbur Olin Atwater, a nutrition scientist at the Connecticut Agricultural Experiment Station, was concerned that the resources that he and the rest of the land-grant program of the USDA had were not adequate to meet the national needs for research in nutrient requirements, food composition, and food consumption in the United States. So, Dr. Atwater met with friends who might influence members of Congress and administrators of the USDA and began a process referred to as “skilled diplomacy.” That is the origin of the present interactions between scientists, legislators, and government administrators that has been repeated many times to create the infrastructure and annual funding for human nutrition research in the Agricultural Research Service (ARS) of the USDA. Atwater was placed in charge of the program, which he coordinated or conducted work in state agriculture experiment stations and other institutions in the United States. A limited overview of people and activities in the earlier human nutrition research program is presented here, but the main purpose of this history symposium is to show in the papers that follow (1–5) how the interactive political process evolved to significantly increase federal government spending for nutrition research between 1970 and 1990.

Early history

Legislation in 1893 established intramural human nutrition research in the USDA through a process, instigated by Wilbur Olin Atwater, which resulted in an appropriation of $10,000 for food investigations in 1894. Atwater had a friend in Boston, Edward Atkinson, who was also a close friend of the Secretary of Agriculture. Mr. Atkinson had intervened with the secretary and a period of intensive skirmishing and skillful diplomacy had finally resulted in the appropriation (6). Dr. Atwater, already the Director of the Connecticut Agricultural Experiment Station, was appointed as Chief of Nutrition Investigations in the USDA's Office of Experiment Stations. In the 10 y that Atwater headed the program, he coordinated or conducted work in 4 areas: types and amounts of foods consumed by different groups; chemical composition of foods; effects of cooking and food processing on nutritional quality; and amounts and types of nutrients people need to function at their best. These accomplishments led to his accolade as the “Father of Nutrition Science” in the United States. The human nutrition investigations were moved to Washington, DC, when Atwater retired in 1906 and the laboratory was put into the Office of Home Economics.

The scientifically distinguished record proceeded in synchrony through the succeeding decades with discoveries of the vitamins and essential mineral elements. The energy metabolism work at the USDA was the lead in the nutrition field, but important work on human requirements for essential fatty acids, vitamin G (which became riboflavin), vitamin A requirements of adults, and human utilization of calcium from spinach also was accomplished.

1906–1954

The human nutrition research work was continued under several organizational structures culminating in the formation of the Bureau of Home Economics in 1923. In 1930 Louise Stanley was the Chief of the Food and Nutrition Division and Hazel Stiebeling was hired to lead a section of Food Economics. Stiebeling initiated an extensive program in basic and applied research to investigate the nutritive value of diets in the United States. The research included the first nationwide consumer purchases survey in 1935–36. The results of the study were the basis for President Franklin D. Roosevelt’s famous quotation, “one third of our nation is ill-fed, ill-housed, and ill-clothed.” Concrete responses to this productive synergy between scientists, government agencies, and Congress were the enrichment of flour and bread with iron and 3 B vitamins and vigorous nutrition education and school lunch programs. These and the other major accomplishments of that period are presented in great detail in the Yearbook of Agriculture, 1939 (7).

In 1933 Stiebeling and her colleagues devised a set of dietary allowances (her term) based on data available at that time. She initiated the concept that the quality of diets cannot be evaluated without quantitative benchmarks to compare nutrients in food with the nutrient needs of the body. Her work with Esther

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1 Published as a supplement to The Journal of Nutrition. Presented as part of the symposium “History of Nutrition: Legacy of Wilbur O. Atwater: Human Nutrition Research Expansion in USDA” given at the 2007 Experimental Biology meeting on April 30, 2007, in Washington, DC. The symposium was sponsored by the ASN. The symposium was chaired by Jackie Dupont.

2 Author disclosure: J. L. Dupont, no conflicts of interest.

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Phipard led to the publication of quantitative dietary allowances in 1939 and became the basis for the Recommended Dietary Allowances established by the Food and Nutrition Board of the National Academy of Sciences in 1943 (8).

In 1941 the Bureau’s laboratory research was moved to the Agricultural Research Center, Beltsville, MD. In 1953 stewardship of the human nutrition research program came under the auspices of the ARS after 60 y of USDA intramural research support. The organizational entity that was incorporated into the ARS structure was the former Bureau of Human Nutrition and Home Economics, which in 1954 became Human Nutrition and Home Economics Research within the ARS with Dr. Hazel Stiebeling, Director, responsible to the Deputy Administrator of the ARS. The Human Nutrition Research Branch was under the leadership of Dr. Callie Mae Coons, Chief.

1954–1970

The organizational structure of human nutrition research administration in ARS was changed frequently during the next 20 y. The people responsible for human nutrition research management did not change much until Dr. Stiebeling retired in 1962. Dr. Callie Mae Coons became Chief Nutrition Specialist and Assistant to the Administrator. Dr. Ruth M. Leverton provided program management as Assistant Deputy Administrator and the Human Nutrition Research Director was Dr. Edith Weir. In 1964 Dr. Willis A. Gortner became Director of the Human Nutrition Research Division.

1970–1990

The following articles (1–5) will give the chronicle of the major expansion period for human nutrition research centers in the ARS. The process of skillful diplomacy was the major factor leading to the expansion in this period, just as it had been when Wilbur Atwater first secured funding for nutrition research in the USDA.

Literature Cited