Earle Wilcox Crampton, 1895–1983: A Brief Biography

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Earle W. Crampton was born in Middletown, Connecticut in 1895 and in 1914 became an agriculture major at the University of Connecticut. His academic studies were interrupted by World War I, during which he served overseas for 2 years in the U.S. Cavalry; he continued in the reserves for the following 32 years. On his return home, he completed the B.S. degree at Connecticut in 1920 and spent the next 2 years at the University of Iowa, where he obtained the M.S. degree in 1922.

That same year he obtained his first (and only) employment at Macdonald College (the Agricultural Faculty of McGill University, Montreal), located in Ste. Anne-de-Bellevue in the Province of Quebec, Canada. He remained on the McGill staff for a period of 51 years, then returned in 1973 to his birth place, where he died 10 years later. He describes the condominium where he and his wife, Ethel, then lived as being on the property that once comprised the dairy farm of a Mrs. Davis. He wrote, "As a school boy I worked on the Davis farm weekends and peddled milk with Mrs. Davis in Middletown week-day mornings before school. . . . I guess I am a bad penny come home to roost."

Earle W. Crampton's professional life closely paralleled the development of scientific approaches to animal production and nutrition that took place during the first half of this century. During the period of his undergraduate studies in Connecticut, research defining the scientific basis of nutrition was just emerging, nutritional connections to the expanding fields of biochemistry and physiology were being uncovered, and the concept of statistical analysis as a research tool was taking hold. During his 51-year professional career, Dr. Crampton pioneered the development of new scientific concepts and analytical techniques and applied them to almost every aspect of nutrition and animal production.

As a member of Macdonald College's Department of Animal Husbandry, Dr. Crampton's initial publications dealt with the application of statistical analysis to feeding trials. These arose from his association with early statistical procedures developed at Iowa State University. His initial research with domestic species dealt with the effect of feeding on lean meat yield of swine. Thirty years later, Dr. Crampton pioneered research in the use and testing of computer-generated least-cost rations for swine production. This latter work was in conjunction with a major feed manufacturer and is an historic example of industry-university partnership. Another long-term industry collaboration was Dr. Crampton's work with a Montreal-based aluminum company dealing with toxic effects on bone and teeth formation in dairy cattle from fluorine emitted from smokestacks in their Quebec refinery.

When the Government of Newfoundland wanted to encourage mink ranchers to establish operations in their province, based on feed prepared from pot-head whales and fish by-products, Dr. Crampton established a mink-feed research program at Macdonald College using dogs as pilot animals. The frozen whale meat was delivered by air and the feeding trials with mink were conducted in Newfoundland. Another series of studies on the effects of consuming parasite-infected white fish from central Canadian lakes was conducted in the 1960s at Macdonald College; dogs again served as experimental animals.

Because of his research and reputation, Dr. Crampton was appointed Chairman of the newly established Department of Nutrition in 1941, a post he held until

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[1]Dr. Eugene Donefer had the privilege of being both graduate student and collaborator of Dr. Crampton over a 16-year period. Dr. Donefer took retirement from McGill University in 1994 after 37 years on staff. This biographical sketch was prepared with the assistance of Leroy E. Phillip and Sherman P. Touchburn of the Department of Animal Science.

Received October 29, 1996.
Accepted November 4, 1996.

his retirement in 1960. At this time his department was amalgamated into the newly formed Department of Animal Science. A characteristic of the Department of Nutrition was the small number of staff (two to three) associated with Dr. Crampton and the relatively modest research facilities. This often surprised visitors, who anticipated a much larger staff and more elaborate facilities based on the productivity of the laboratory. It also surprised new graduate students coming from other universities that were more richly endowed. I was most fortunate to be a member of this small group. The lesson learned quickly was one of the basic principles of Dr. Crampton's research philosophy: the human mind properly used was our most important research tool.

In 1936, Earle Crampton recognized his need for further research training and registered in a Ph.D. program at Cornell University under the direction of Dr. L. A. Maynard, one of the most outstanding nutrition researchers of the time. This collaboration, with all of the animal feeding trials conducted at Macdonald College, resulted in the 1938 publication by Crampton and Maynard entitled "The relation of cellulose and lignin to the nutritive value of animal feeds" (J. Nutr., 15:383). This research, which questioned the validity of the proximate analysis scheme and proposed new methods for the analysis of cellulose and lignin, became one of the most frequently cited papers in the biological sciences. Continuing his deep interest in this topic, Dr. Crampton served as Chairman of the Special Committee on Evaluation of Feeds of the American Society of Animal Production.

In the late 1950s, Dr. Crampton and his co-workers introduced new concepts relating to forage utilization by ruminants, particularly the necessity for measurement of voluntary intake as a criterion for evaluating the nutritive value of forages. In 1960, Dr. Crampton presented a paper at the International Grasslands Congress held at the University of Reading. He proposed a new system of forage evaluation that incorporated digestibility and voluntary intake in a single value—an expression of the digestible energy potential of a forage. Subsequent publications from North America, Europe and Australia later identified voluntary intake as one of the most important measurements related to the productive potential of ruminants.

Over 12 different animal species, including humans, formed the basis of Dr. Crampton's contributions to the science of nutrition. Studies included different species to define aspects of comparative nutrition. This multispecies interest was reflected in Dr. Crampton's chairmanship of the Subcommittee on Feed Composition (Committee on Animal Nutrition, U.S. National Academy of Sciences—National Research Council). In collaboration with Dr. L. E. Harris of Utah State University, a system was developed for the collection of nutritive information from government, university, and industry sources. This effort resulted in the publication in 1959 of the joint U.S.-Canadian Tables of Feed Composition. This system of feedstuffs nomenclature and information was based on computer storage and retrieval and allowed for the preparation of tables in the NRC Nutrient Requirement publications for the various animal species.

Dr. Crampton's work on aspects of human nutrition had started during the Second World War when the Canadian Government was concerned about the effect of food shortages on nutritional status of the population. One concern related to the bioavailability of dietary Vitamin C. Dr. Crampton's lab established a bioassay for ascorbic acid using guinea pigs. Other studies were conducted on the nutritive value of edible fats and oils, and the effect of storage on the Vitamin A content of foods. Even after his formal retirement in 1960 as Emeritus Professor and in collaboration with Dr. John Moxley, a population geneticist, a project was conducted with the Montreal Diet Dispensary. The project concerned birth weights of babies of disadvantaged mothers, and the relationship between birth weight and 18 maternal traits measured during pregnancy.

Dr. Crampton's commitment to excellence also extended to undergraduate teaching. The course "Fundamentals of Nutrition" (initiated in the 1950s) was taken jointly by second-year dietetics students as well as those in animal science. This one-year course emphasized comparative aspects of nutrition and pioneered the introduction of biochemistry and physiology in the study of nutrition. Dr. Crampton's course, "Applied Animal Nutrition," was developed for animal science students and followed the course "Fundamentals of Nutrition." These courses strongly reflected past and current research developments and resulted in the publication of two books that were widely adopted; subsequent editions made them current into the 1980s.

Dr. Crampton justly received recognition for his professional leadership and for his research and teaching contributions to the growing fields of basic and applied nutrition. He personally directed 70 graduate students, who carried their "Crampton Experience" to their own professional careers in universities, government and industry. His more than 100 publications enriched the scientific literature of his time. Later in his career Dr. Crampton indicated that he felt his own contribution was best made in presenting initial concepts and techniques, stimulating others to elaborate and modify.

In 1950, Dr. Crampton served as Vice President and in 1951, President, of the American Society of Animal Production and was later named a Fellow of the Society. He was a founding member and President of the Nutrition Society of Canada, and was a Fellow of the Royal Society of Canada, the American Institute of Nutrition, and the Agricultural Institute of Canada. In 1948 he received the American Feed Manufacturers' Award for his contributions to animal nutrition. He was the first to receive this outstanding award. In

1955, he received the Morrison Award for research in animal production and in 1974 he received the E. W. McHenry Award of the Canadian Society of Nutritional Sciences for distinguished service in nutrition. In 1960 he was awarded the D.Sc. (honoris causa) degree by the University of Reading. In 1942 the Province of Quebec awarded him the Commandeur de l'Ordre du Mérite Agricole. Relating to his work in basic and human nutrition, Dr. Crampton served on the Editorial Board of the *Journal of Nutrition* from 1947 to 1956.

In recognition of his own long and dedicated service to the Faculty of Agriculture of McGill University, the nutrition laboratories on the Macdonald Campus were formally designated as the Crampton Nutrition Laboratory in 1973. That same year the annual Earle W. Crampton Award for Distinguished Service in Nutrition was established.

An earlier detailed biographical sketch of E. W. Crampton, with a selection of 24 literature citations, was published in the *Journal of Nutrition* (vol. 115: 153–158, 1985). That biography was prepared by Dr. Lewis E. Lloyd, Dr. Crampton's longest-term associate, who became the first chairman of the Department of Animal Science and, later, Dean of the Faculty of Agriculture.