

OBITUARY

William John Dyer (1913-2003)

The scientific community was saddened to learn of the death of Dr. 'Bill' Dyer on September 22, 2003. Dr. Dyer was born October 30, 1913 in Williams Point (near Antigonish) and attended St. Francis Xavier University where he received his Bachelor of Science degree in 1934. Later he was granted a Masters degree (1937) by MacDonal College followed in 1940 by a Ph.D. from McGill University. He worked for a short time for the Department of Agriculture in Ottawa before moving to Halifax in 1940 to join the Atlantic Fisheries Experimental Station of the Fisheries Research Board of Canada (subsequently renamed the Halifax Technological Laboratory). He soon became head of the Biochemistry Department, a position he retained until his retirement in 1974. It is perhaps of interest that he occupied the same office on the second floor of the building at 1707 Lower Water Street, Halifax, during his entire career as a research scientist. Several laboratory directors came and went over his working years, but all recognized the value of Dr. Dyer's research which was supported by the enlightened policies of the Fisheries Research Board of Canada.

In the 1940s and 50s, research at the Halifax Technological Laboratory was focused primarily on cod, then the economic mainstay of the Atlantic fishery. The main concern was how to retain the fresh quality of fillets shipped to inland markets. Dr. Dyer and his group became recognized for their world-class efforts in understanding the post-mortem biochemical changes in fish muscle that contribute to the deterioration of flavour, odour and texture in iced cod and appear eventually in the frozen cod fillets. Dr. Dyer's prolific publications on the subject described laboratory procedures and tests that could be utilized to scientifically monitor quality in iced fish. These tests included detection of such indicators of spoilage as trimethylamine, free fatty acids, protein solubility and hypoxanthine. Much of the knowledge gained was pre-requisite to the establishment of the federal Department of Fisheries' Inspection Service (which relatively recently became part of the Canadian Food Inspection Agency) and was used in the training of its officers. Dr. Dyer and others at the Halifax laboratory maintained a close working relationship with the Fisheries Inspection Laboratory located next door at 1721 Lower Water Street. As the research progressed it was soon realized that seafood quality was not only dependent on post-harvest handling, chilling, bleeding, washing, etc. but that the physiological condition of the fish prior to harvesting was also extremely important. This included recognition of such factors as spawning condition, seasonal feeding patterns and the stresses of catching.

It should be emphasized that Dr. Dyer's research was not confined solely to cod and haddock, but also included studies on several other species such as lobsters, redfish and scallops. For part of his career he was also very active in evaluating the effect of gamma irradiation for fish preservation and the use of polyphosphates in preventing water loss from fillets during transport.

Many more questions arose with the growing emphasis on frozen fish fillets and many will agree that Dr. 'Bill' Dyer became recognized as Canada's 'Mr. Frozen Fish'. World attention became directed toward Dr. Dyer's research at the Halifax Laboratory from such centres as the Torry Research Station in Aberdeen, U.K., the U.S. National Marine Fisheries Service Laboratory in Gloucester, Mass., several research establishments in Japan, plus Canada's own fish processing industry.

At that time most frozen fish products were considered inferior and the fundamental question was: why did freezing not maintain the flavour and texture of fresh and unfrozen products? The pioneering work of Dr. Dyer and his associates established many of the parameters required to inhibit biochemical changes in frozen cod and several other products. These included rapid freezing, maintaining non-fluctuating storage temperatures at least below -18°C , and using non-permeable packaging materials. Biochemical investigations indicated that the development of free fatty acids through hydrolysis of muscle lipids triggered actomyosin denaturation, resulting in a toughening of texture. This work also led to the development in 1959 of the Bligh and Dyer method of extracting lipids from biological tissues which became a 'Citation Classic' and is still used today as a standard procedure throughout the world. In addition, protein studies revealed factors related to the gelling properties of fish actomyosin; these studies were closely followed in Japan and ultimately contributed to the development of surimi and products such as artificial crab legs. Dr. Dyer was well recognized in Japan, and in 1972 the Japanese Fishing Industry sponsored a seven-week lecture tour taking him to many of the major fisheries centres in Japan.

Dr. Dyer was an active member of a number of scientific organizations [the Nova Scotian Institute of Science, the Chemical Institute of Canada (CIC), the Canadian Institute of Food Science and Technology (CIFST), and the Atlantic Fisheries Technologists] and received awards from the United Nations Food and Agriculture Organization, the CIFST, the CIC, the Japanese Society of Fisheries, and the Japanese Society of Heating, Refrigeration and Air-conditioning Engineers. He was a member of the Masonic Order and the Scottish Rite and was the oldest living Past Master of St. Andrews Lodge No. 1 AF&AM where he remained active as Chaplain past his 85th birthday. He was a member of several painting groups in the Halifax area, a hobby he particularly enjoyed during his retirement years.

Dr. Dyer is survived by his wife of 59 years, Francis Elizabeth (Keeping) Dyer, a graduate of Acadia University who also worked for a time at the Halifax Laboratory (1942-1948). Their family includes Edward, Jim, Shirley and Jean and eight grandchildren.

Prepared by E. Graham Bligh with contributions from colleagues and the Dyer family.