Citation for the

University of British Columbia

D. Harold Copp Lectureship

The D. Harold Copp Lectureship was founded in November 1996 by a generous gift to the University of British Columbia by the Medical Research Council of Canada. Subsequently the endowment fund was expanded by an equally generous gift from the Wolfe and Gita Churg Foundation.

In making this gift, Dr. Henry Friesen, President of the MRC, stated :

> ***"On behalf of the Council, I wish to recognize the truly extraordinary and varied contributions Dr. Copp has made, not only at the University of British Columbia but throughout Canada and indeed internationally. He has an outstanding record of accomplishment as a basic scientist, as a skilled administrator, as a teacher, mentor and advisor to many. There would be very few individuals in the roster of heroes of Canadian medical scientists whose influence and achievements have been so wide ranging.***
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> ***I wish to recognize particularly his very special role as a key member of the Farquharson Committee whose report in 1959 led directly to the creation of the Medical Research Council. It would be my wish that the lecturers chosen would exemplify the sterling qualities of character and the commitment to scientific excellence and service that were so evident throughout Dr. Copp's distinguished career."***

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December 3, 1996

Obituary: Dr. D. Harold Copp

It is with the deepest sadness that I report to the Members of the Canadian Physiological Society the death of Dr. D. Harold Copp. He died peacefully at home on, March 17, 1998, surrounded by his family. I know that our members will be particularly saddened by Dr. Copp's death. He was a staunch supporter of our Society and served as President from 1963-64 and was the inaugural Sarrazin lecturer at the Winter Meeting held in Banff in 1977.

Dr. Copp was born on January 16, 1915 in Toronto and educated at the University of Toronto from where he graduated in 1939 with his M.D. degree with honours and the Faculty Gold Medal. He received his Ph.D. in Biochemistry from the University of California, Berkeley, in 1943. His thesis included the first experiments using the radioisotope ^{55}Fe, and demonstrated the very rapid turnover of iron and hemoglobin synthesis in bone marrow. In collaboration with Dr. J.G. Hamilton, and as part of the Manhattan Project, he was one of the first to study the metabolism of the bone seeking nuclear fission products (including ^{90}Sr) and to stress their significance as a health hazard in the atomic age. This work was his introduction to bone and mineral metabolism which, thereafter, became the central focus of his research. He remained at Berkeley as a Lecturer and Instructor in the Physiology department from 1943-1945 and as an Assistant Professor from 1945-1950. At that time, he joined the faculty of the new medical school at the University of British Columbia as the first head of its Department of Physiology and he remained in this post until his retirement on June 30, 1980.

Dr. Copp's research contributions included a precise semi-automatic micro method for calcium titration, the first quantitative estimation of bone blood flow based on clearance of radiocalcium or radiostrontium, and studies on the effects of severe phosphorus deficiency in rats. In 1960, he developed a technique for perfusion of the thyroid-parathyroid complex of the dog with blood high or low in calcium and used this preparation to demonstrate that lowering of the plasma calcium stimulates secretion of parathyroid hormone independent of any action of the nervous system or other endocrine glands.

In 1961, these experiments led to the discovery of a previously unrecognized hormone which he named calcitonin because it was apparently involved with parathyroid hormone in regulating the level or "tone" of calcium in body fluids. Calcitonin is released by hypercalcemia, and in young mammals it inhibits bone resorption and lowers plasma calcium and phosphate. It was first extracted from mammalian thyroid glands (hence the alternative name, thyrocalcitonin), but in 1967, he and his colleagues showed that it was produced by the ultimobranchial glands of non-mammalian vertebrates, thus establishing for the first time an important endocrine function for this organ. He took particular delight in pointing out that the word "thyrocalcitonin" was misleading since the true source of the hormone in mammals are the ultimobranchial cells imbedded in the thyroid and parathyroid. Everyone agreed that "ultimobranchial calcitonin" was something of a mouthful, (although the abbreviation UBC seemed highly appropriate !), and the original name, calcitonin, was reinstated.

In 1969, and in the remarkably short time of three months, he led a team including Ron O'Dor and Owen Parkes, that isolated, sequenced and synthesized salmon calcitonin. He also showed that the salmon hormone is far more potent and longer acting than that derived from pig or human thyroid, and thus has proven to be the most effective form for human therapy. Calcitonin has been used clinically in the treatment of osteoporosis, Paget's disease, hypercalcemia of malignancy and, more surprisingly, as an analgesic. Given his often remarked upon role of serendipity in medical research, Dr. Copp followed with fascination and intense interest the emerging role of calcitonin as a powerful analgesic agent. It is 30-50 times more potent than that of morphine without any sedative or addictive action, and has been used effectively to relieve the unbearable pain in terminal bone cancer. In 1991 world sales of calcitonin exceeded $1 billion U.S per annum - exceeded only by another great Canadian discovery, insulin.

In the years immediately before and after his retirement, his interests were directed to the comparative endocrinology of calcitonin and calcium regulation in lower vertebrates, including bony fish. In these studies, he and his colleagues, including Graham Wagner, isolated a biologically active principle from the corpuscles of Stannius, that may be involved in controlling hypercalcemia by inhibiting calcium uptake by the gills. He originally suggested the name "teleocalcin", for this new small glycopeptide hormone, but by consensus, it is now called stanniocalcin.

Throughout his career Dr. Copp has received national and international recognition for his research and service to the medical research community. In Canada, he has served on and chaired a number of national committees and was a member of the Board of Directors of the National Cancer Institute from 1962-1971, serving as President from 1968-1970. Elected to the Royal Society of Canada in 1959, he received their Flavelle Medal in 1972 and became the first convenor of the newly created Medical Sciences Subject Division in 1974. He was awarded the Medal of Service of the Order of Canada in 1971 and became an Officer in 1972 and a Companion in 1980. The latter is a select group of Canadians whose total number at any one time is limited to 150. In 1994 Dr. Copp became one of the first inductees of the Canadian Medical Hall of Fame, an honour of which he was particularly proud. Academic honours include an LL.D. (Queen's, Toronto) and D.Sc. (Acadia, Ottawa and UBC). He was also the first recipient of the British Columbia Science Council Gold Medal in 1980.

On the international scene, he was the 1967 recipient of the prestigious Gairdner Foundation Annual Award, elected a Fellow of the Royal Society of London (1971), and invited to give the Jacobaeus Memorial Lecture in Scandinavia in both 1971 and 1980. He was involved in the establishment of the Gordon Research Conferences on Bones and Teeth and the Parathyroid Conferences, organizing the Sixth Parathyroid Conference in Vancouver in 1977. He also served as a scientific secretary for the Second U.N. Conference on Peaceful Uses of Atomic Energy (1958). In 1989, the German Osteology Society established the bi-annual Copp Prize to honour

and promote excellence in the area of osteological research, and, at the International Congress on Osteoporosis in Rome, he was awarded the Rorer Foundation International Prize for Progress in Therapy.

At UBC, aside from building the department of physiology, he served as President of the Faculty Association from 1965-66, and inspired many medical students with his lectures and laboratory demonstrations, often with the able assistance of Mr. Kurt Henze. He continued after his retirement with an annual lecture to our medical students on the topic of plasma calcium regulation with, of course, a unique perspective of the history of the field and with a special emphasis on calcitonin. In 1980 he was the first Distinguished Faculty Lecturer of the Faculty of Medicine. In 1991, in celebration of the 30th anniversary of the discovery of calcitonin, the department was proud to host a special symposium attended by almost all of the major contributors to research on osteoporosis and the hormonal control of plasma calcium.

Dr. Copp was one of Canada's most honoured scientist, a much respected colleague and a remarkable ambassador for UBC, British Columbia and Canada. I am sure that all members of our Society will join me in extending our deepest sympathy to his wife of 58 years, Freddie, his three daughters, Mary, Carolyn and Patricia, and their families.

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