

# Obituary for Don Sangster - Geologist

Found 17 Feb 2024

SANGSTER, Donald Frederick

It is with sadness we announce the passing of Don on Friday, December 28, 2018, age 83. He is survived by his loving wife Eleanor (Doherty); his children Vicki Williams (Michael), Cameron (Alicja), Sharon and Geoffrey; his grandchildren Lewis and Sonia; sister Janet Bourgeau (late Angus); and brother James Sangster. Don was a research scientist with the Geological Survey of Canada for 33 years. An avid canoeist/canoe craftsman, community firefighter volunteer.

## From Geological Association of Canada

[https://gac.ca/wp-content/uploads/2019/08/Geolog\\_V48N1\\_Final.pdf](https://gac.ca/wp-content/uploads/2019/08/Geolog_V48N1_Final.pdf)

### Homage to Donald Frederick Sangster 1935 – 2018

Don Sangster focused on the geology and genesis of lead-zinc deposits throughout most of his career. As noted in the nomination for his Logan Medal in 1998, he had an uncanny ability to see a complex problem in its simplest elements, apply exactly the correct tools to investigate the genesis of a mineral deposit type, and then report the results and their genetic implications, elegantly and with profound insight. He showed admirable acumen when advising environmental panels, Ministers and foreign governments, and considerable skill editing significant journals and special publications.

He was also a friendly, collaborative colleague with impeccable conduct, and mentored many who have since become prominent researchers. Don also made a point of leaving his geological research at work – while at home, he focused on his family, friends, expert hobbies such as making 30 beautiful and seaworthy cedar strip canoes, and his community volunteer activities such as fire fighting and Scouting. He joined the Geological Survey of Canada in 1964, and throughout his 30-year formal career, 2½ years of Emeritus and 20 years of alternating consulting and volunteering,

Don was highly respected as a researcher, sought out for his sage advice, and regarded in awe for his ability “to git ‘er done” succinctly and on time. This did not get in the way of his sense of humour.

Don fashioned a nameplate for his office door, reading P.B. Zinc, and was duly recorded in the next GSC telephone directory as Zinc, P.B. From then on, he was known as Mr. P.B. Zinc! Dr. Sangster was widely recognized for his exceptional contributions to Economic Geology. He was Distinguished Lecturer of the Canadian Institute of Mining and Metallurgy (1973), Thayer Lindsley Distinguished Lecturer of the Society of Economic Geologists (SEG) (1983), International Lecturer of the SEG (1988), and Visiting Senior Scientist at the University of Oslo, sponsored by the Royal Norwegian Council for Scientific and Industrial Research (1992). He earned the Duncan R. Derry Medal of the Geological Association of Canada (GAC) (1981), the Silver Medal of the SEG (1984), the Past- Presidents’ Medal of the Mineralogical Association of Canada (1986), and the Logan Medal of the GAC (1998).

Don served in many capacities in the SEG, became its exemplary president in 1994-95 and, according to Brian Skinner, he steered it toward being a truly international organization. Don was born on August 3, 1935 in Sherbrooke, Québec, to a family of community builders. Unsure of his career interests, he pursued his first B.Sc. in Chemistry, at Bishop's University. While in his third year, he discovered Geology while accompanying a friend’s father to a job interview at a small lead-silver mine in the Gaspé Peninsula.

Fascinated by the minerals he could see in the mine dump, he decided on his future profession right there and then. He finished his chemistry degree in 1955, and went on to obtain a B.Sc. and M.Sc. in Geology from McGill University in 1958 and 1961, respectively, and a Ph.D. in Economic Geology from the University of British Columbia in 1964.

Don’s career with the Geological Survey of Canada (GSC) began with support of his Ph.D. thesis on iron skarn deposits in British Columbia. He became a GSC iron researcher right after graduation, and led major interdisciplinary (including geophysics) field studies to document and conceptualize iron metallogeny, terminology and processes such as skarnification. Don soon pursued Canadian volcanogenic massive sulfide (VMS) deposits research, and produced comprehensive databases and models. Jim Franklin recalls that Don was the first to recognize the Flin Flon – Snow Lake greenstone belt, and its enclosed VMS deposits, as Proterozoic rather than Archean. Don’s GSC Paper 72- 22 entitled “Precambrian volcanogenic massive sulphide deposits in Canada; a review”, a "best-seller" among GSC

publications, became the “standard of its time” for research, was required reading for students, and changed discovery concepts for these economically important deposits.

It contained the first mention of "mill-rock" which became an iconic term for describing key volcanic host rock types of VMS deposits and camps. That term came from Don standing on an outcrop of volcanic breccia and telling his field trip companions that once you recognized that lithology, you could "cup a hand around your ear and hear the future mill grinding the ore, just over there". In the early 1980s, Don delved into the sedimentary PbZn realm, both Sediment-Hosted Exhalative (SEDEX) and Mississippi Valley Type (MVT) types. His constructive start for SEDEX was to organize the 1983 CIM Short Course on “Sediment-hosted stratiform leadzinc deposits”, held in Victoria.

This brought together current experts, many of them exploration geologists. His Short Course Notes crystallized working knowledge as a basis for future research. Cominco highly commended Don’s explanation of the Sullivan deposit; it served as their exploration model for years. He also kicked off a major International Conference on Mississippi Valley-type Lead-Zinc Deposits with his 1983 paper, entitled “Mississippi Valley-type deposits: A Geological Mélange”, that fronted the Proceedings Volume that was co-edited by G. Kisvarsanyi and others.

He then studied both SEDEX and MVT deposit types, both intrinsically and in relation to each other. Into the MVT dialogue, Don introduced more of his colourful expressions, such as the unique "snow-on-the -roof" texture, resulting from internal sedimentation on collapse-breccia blocks. He further documented the importance of paleo-karst, basement and reef structures to their genesis. Don solved a fundamental blockage in the genesis of MVT lead-zinc deposits by adding high-resolution palaeomagnetic calculations from Dave Symons’ lab at the University of Windsor to constrain their ages that were previously open to dispute, but now are linked to orogenic events worldwide. He and Dave published seven papers on various districts, culminating in their 1994 review: “Palaeomagnetic methods for dating the genesis of Mississippi Valley-Type lead-zinc deposits.”

Right after retirement from the GSC, Don chaired the major 1995 SEG International Field Conference on MVT in St. Louis, Missouri, complete with international field trips, and edited the proceedings as SEG Special Publication No. 4 (664 pp.). Don led in the technology and delivery of government mineral resource assessments. He was one of those chained to their desks for the 1972 Operation September report, a secret national appraisal that foresaw major discoveries such as Windy Craggy. His

1983 Geoscience Canada synopsis of GSC resource assessment recruited at least one young scientist to the public service for this honest-broker task. After completing his final national assessment for mineral policy, Don joked that with its “SECRET” designation, he could no longer read his own work!

Don co-supervised formally and informally, collaborated and co-published with many young scientists and assistants, before, during and after his GSC years. Jim Franklin marvelled at Don’s organizational abilities in this regard – he would be working on a paper, be interrupted by some brash young scientist, sort the person out, pick up the pen and finish the sentence! It would take most others a day to pick up the “thread”.

Don was an outstanding Ph.D. supervisor, constantly probing hypotheses with pointed questions. He would give students considerable autonomy and not meddle in details, but laid bare any poorly supported conclusions. Serious discussions with Don invariably devolved into humour. A desk outside his door, termed his “farm system”, kept students at bay until he had finished a task and then called them in.

Don also taught many how to write in English, although Don complained he had to buy a new red pen each time a student gave him a draft. Many prominent scientists in universities and geological surveys around the world (e.g., many in Canada and at least four in Morocco) owe Don their start in geoscience. Don gave freely of his time to family and friends, students and colleagues, and to his community.

He was a volunteer Firefighter, Boy Scout leader, artisanal canoe builder, pig roaster, beekeeper, storyteller, hunter, backcountry canoeist, hiker and camper. He overcame major medical challenges: such as barely surviving a ruptured spleen and broken back, suffered in a helicopter crash, quadruple bypass surgery, years of dialysis, and fighting off blood infections.

Don died peacefully in hospital, in Ottawa, Canada, on December 28, 2018. He is survived by his wife of more than 50 years, Eleanor (née Doherty), his children Vicki Williams (Michael), Cameron (Alicja), Sharon and Geoffrey, his grandchildren Lewis and Sonia, his sister Janet Bourgeau (late Angus) and his brother James Sangster. To the end, Don provoked, innovated and was incredibly precise and productive in whatever he did. All who knew him enjoyed his dry wit, his easy manner and his genuine warmth. We shall miss him greatly. Charlie Jefferson, with Georges Beaudoin, Alex Brown, Jim Franklin, Tom Frisch, Beth McEwen and Bill Poole