

ALAN RUFFMAN: A NOTED NOVA SCOTIA SCIENTIST AND ACTIVIST

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Long time NSIS member Alan Ruffman passed away suddenly on December 28th, 2022, at the age of 82. Alan was well-known as a community activist in Halifax and as a geoscientist with interests not limited by conventional disciplinary boundaries. Much of his science was carried out under the umbrella of his consulting company, Geomarine Associates. He was known to the press, documentary makers and the public not only for his activism on urban planning, but also for his work on earthquakes, tsunamis, and the geoscience and other aspects of the sinking of the Titanic and the Halifax explosion. He was the local go-to person for the press for questions about earthquakes, and his statements were always meticulously careful and accurate.

As an undergraduate at the University of Toronto (1959-64), Alan had summer field experience in the Canadian Shield. At that time, he also crossed the stormy Atlantic in a freighter and decided he wanted to be a marine geologist. Attracted by the presence of the Bedford Institute of Oceanography and the chance to sail on the *CSS Hudson*, he came to Dalhousie University in the fall of 1964 with an NRC scholarship to do a Master of Science degree.

Alan's first important geoscience contribution to public policy, in 1971, was to recognize the significance of Orphan Knoll in the southern Labrador Sea, which from its bathymetry seemed to be a continental fragment like Flemish Cap. He understood how important Orphan Knoll would become in defining the outer limits of Canadian jurisdiction over the seabed. Remarkably, he found himself in a position to influence where Leg 12 of the Deep Sea Drilling Project

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would drill adjacent to Canada, and succeeded in getting approval for a drillhole on Orphan Knoll. He also got himself on the *Glomar Challenger* as a participant on the Leg. It was Alan who named the Knoll as an orphan, left behind as Europe separated from North America through continental drift. The continental sediments of Jurassic age recovered at the bottom of the drillhole were perhaps more like those known in Ireland than in Canada. He maintained an interest in the geology of Orphan Knoll throughout his career, contributing to his last journal paper on the Knoll in 2020.

Alan and John Stewart founded the consulting career and contributed to Geomarine Associates Ltd. in 1973, carrying out pre-drilling site surveys on the Canadian offshore. They were involved in the 1979 discoveries of the Venture gas field, Hibernia oil, and Labrador gas. Geomarine soon out-competed foreign companies and by 1982 had 32 staff with offices in St. John's and Halifax. In 1985, the company divided: Alan took the name and library and worked on his own; John took the staff. Alan was always interested in doing science with site surveys. At that time, exploration concerns included severe shallow overpressures, unknown shallow stratigraphy and sea-level history, and active seabed sand migration. Geophysical data collection, borehole investigation and seabed charting are documented in the company's countless technical client reports, providing interpretations of the shallow geology of the offshore Scotian Shelf around Sable Island.

In the 1990's, Alan discovered and mapped the sediment layer on the Burin Peninsula produced by the 1929 tsunami (Fig 1); he recorded oral histories of the event. This early work was very influential for the thorny question of distinguishing tsunami from storm deposits and gained Alan international recognition. Alan became interested in paleoseismicity as reported in historical records, for example discovering that the tsunami created by the 1755 Lisbon (Portugal) earthquake reached the coast of Brazil. His forensic skills in scientific and historical research were applied to the Halifax explosion and the tsunami it produced; the sinking of the *Titanic*, the rescue effort from Halifax, and the identity of the unknown child; the impact of the Saxby Gale; and the history of ice in the Gulf of St Lawrence. He wrote a well-regarded popular book, *Titanic Remembered: The Unsinkable Ship and Halifax*, on the sinking. He was an accomplished communicator who made our marine geology and history well known internationally, through the press, television and his



Fig 1 Alan Ruffman in 1994 with an overturned sod showing the 1929 sandy tsunami deposit (light colour) in the coastal marsh peat (dark) on the Burin Peninsula, Newfoundland. Photograph courtesy of Martitia Tuttle.

writings. Indeed, he was identified as a Halifax “historian” by the *Washington Post*.

Alan did not forget his early experiences on the Canadian Shield. In the 1980’s, he promoted the study of what he termed the “Week-end Dykes” on the Eastern Shore near Tangier, so named because he could only take time off work to study them at weekends. Like dykes on the Canadian Shield, these igneous rocks contained an important record of the lower crust beneath the Meguma terrane. And his last great enthusiasm in 2023 was new evidence for post-glacial activity on the “Holy Grail Fault” in the muskeg of north-central Manitoba, analogous to the well known post-glacial faults of Scandinavia.

Alan was a talented polymath who developed and promoted advancement of marine geoscience, and throughout his long career he made new findings clear to the general public. He was endowed with a deep curiosity, was sometimes irritatingly meticulous and loquacious, but had a sharp mind able to identify important opportunities. His work is widely known and influential both nationally and internationally, a remarkable achievement for someone who did not have a university, government, or corporate employer to pay his

expenses. He was always a perceptive, kind and generous supporter of the under-dog, be whether they were students or under-appreciated scientists. He himself was under-appreciated because of his idiosyncrasies, but he was always there for others. He will be greatly missed in Nova Scotia and beyond.

SELECTED PUBLICATIONS OF ALAN RUFFMAN

(This list is in chronological order, starting from the most recent)

- Meredyk, S.P., Edinger, E., Piper, D.J.W., Huvenne, V.A., Hoy, S. & Ruffman, A.** (2020). Enigmatic deep-water mounds on the Orphan Knoll, Labrador Sea. *Frontiers in Marine Science* 6, art. no. 744. 23 p.
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Note: According to his short unpublished autobiography, Alan had 122 “refereed or semi-refereed” published items; authorship of 163 *Geomarine Associates* contract reports, most of which are now public; 201 abstracts of public scientific talks; 15 book reviews; and 104 “other” published articles.

