Gesner Medal

(AGS Colloquium, Truro, Feb 8th, 2020)

I nominate **Dr. Rudolph Ralph Stea** for the **Gesner Medal** for his outstanding scientific achievements to the understanding of the Quaternary and Cretaceous geology of Nova Scotia and Maritime Canada. Over the past 38 years, Rudolph (Ralph) has been a highly productive and world class scientific researcher of the Quaternary geology of Nova Scotia.

During Ralph's career at the Nova Scotia Department of Natural Resources, he published numerous peer-reviewed journal papers, government reports, geological maps, and book chapters. The quality of Ralph's scientific papers and his productivity are both uniformly high. His publications include papers in such prestigious journals as *Boreas*, *Quaternary Science Reviews*, *Geological Society of America Bulletin, Canadian Journal of Earth Sciences,* and *Sedimentary Geology*. Ralph's promotion of Quaternary geoscience in Nova Scotia is not only evidenced in his many publications, but in his contributions to, and organization of, numerous geological field trips in association with national and international conferences. After retirement, Ralph has continued to make important contributions to Quaternary science. For example, in 2008 he was the first to recognize complex ice flow in the Lac de Gras kimberlite field of northern Canada and its significance to diamond exploration.

Key highlights of his contributions are listed below:

• Through systematic mapping and rigorous interpretation of data across all of Nova Scotia, Ralph developed and promoted the *zonal concept* of glacial dispersal for Nova Scotia. This research contributed to the understanding the glacial history of eastern North America.

• Ralph developed the concepts of *inheritance* and *overprinting* as they relate to the composition of tills in Nova Scotia. These concepts provided a new understanding of till stratigraphy and glacial flow patterns in Nova Scotia, and these concepts are now applied in the interpretation of glacial sediments worldwide.

• Throughout his career, Ralph demonstrated the applicability of till sampling to exploration for metallic minerals, in particular gold, in Nova Scotia. He developed the concepts of *palimpsest* glacial dispersal and *vector addition* to explain complex ice flow and these concepts are widely quoted and applied when using drift prospecting methods across Canada.

• In 1992, Ralph published the first seamless surficial geology and ice flow indicator maps of the entire province of Nova Scotia, which resulted from the compilation of 16 regional maps. This map was the **first** provincial surficial geology map in Canada and set the standard that all other provinces subsequently followed. The map allows new interpretations and derived products related to Nova Scotia's Quaternary geology as well as land use planning and resource management.

• Ralph's research on the timing and areal extent of Younger Dryas glaciers in Nova Scotia has contributed key elements to the understanding of Younger Dryas events for eastern North America and Western Europe, and to global climate change modelling. His results provide an analogy to past glacier development in Maritime Canada during the last interglacial/glacial transition.

A significant part of Ralph's success is his contagious enthusiasm for geoscience, which is readily apparent when giving numerous talks, leading field trips, and working with colleagues and students. He has mentored many students and geologists from other provincial and federal geological surveys (including me).

His continuing contributions to the understanding of the Quaternary geology of Nova Scotia are exceptional in their large numbers of publications, the breadth of topics, and high quality. He is well deserving of the Gesner Medal. It is my great honor to be part of the nomination of Ralph Stea to be recognized for these contributions.

Sincerely,
Beth McClenaghan