

## **Alberta Palaeontological Society**

### **Maritimes to Mars? Stromatolites may be Everywhere Even Out of this World**

Brief Speaker: Leslie Eliuk, Retired Geologist, APS and CEGA member

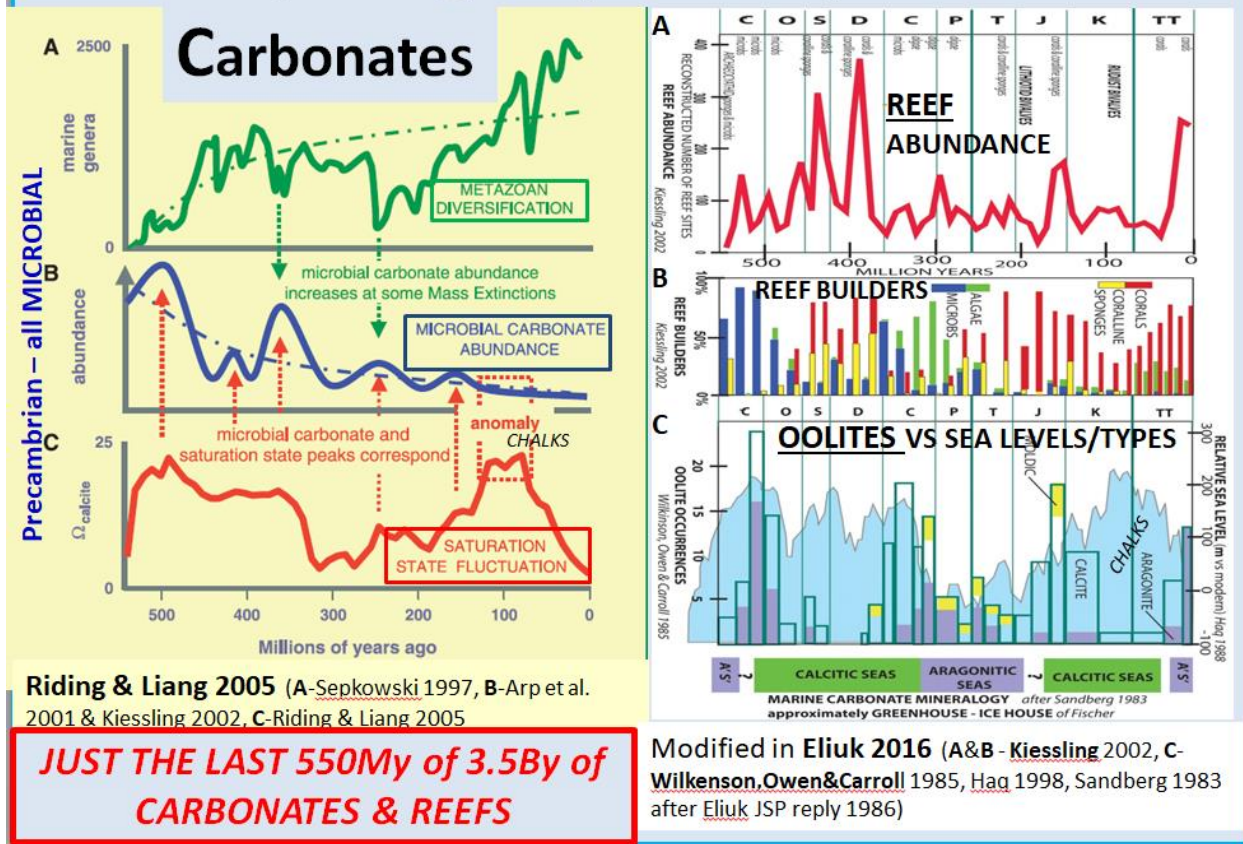
Location: B108, Mount Royal University

Time: September 15, 2023, 7:30 pm MST

#### Abstract:

Just having returned from a 17-year sojourn in lovely Lunenburg Nova Scotia, Les attempts to help add to Tako Konig's "to do & see list" and those of any others also interested in checking out more stromatolite localities with 4 or so possible candidates offered. In part, these are examples of Earth's oldest and by far longest-lived ecosystem – fossil and modern REEFS. Microbial reefs as evidenced by stromatolites, thrombolites and associated macro-features were the only reef-builders for 3 billion of the over 3.5 billion-year record. And they still occur in stressed settings that exclude the more usual metazoan reef makers like corals, sponges, rudistid clams and higher algae. Such a stressed setting is the terminal Windsor Group carbonates that preceded the salt-filled basins of the drying Early Carboniferous seas of the eastern Canadian Maritimes. While touring the scenic geological sites detailed in Hickman-Hild and Barr's 2015 Geology of Nova Scotia guidebook, the Ingonish Wharf locality was visited. There, glacially-deposited boulders of various sizes contain pieces of the rock record of the Cape Breton Highlands and their component geological terranes. But spectacular in situ outcrops of dolomitized algal stromatolite reefs also occur along nearly a kilometer of shoreline. These apparently barely merited a mention but caught my interest and are discussed here with a possible modern analogue. Further checking revealed they have been the subject of detailed study. This included the interpretation that they are not organic carbonates at all but actually seep deposits and slumps according to Paul Schenk and co-workers in 2001. And this alternative, the possibility of abiotic origins, has also been a continuing controversy in explaining the earliest origins of Precambrian stromatolites. Another speculative locality of very old Precambrian age, soon to be examined (I hope) is in the Jezero Crater lake basin on Mars. The nature of the lake margin carbonates would require much more proof since they would give fossil evidence of life out of this world. Finally, a more accessible but impressive example of Cambrian big microbial reefs is illustrated from Texas, the biggest lower 48 state of the USA. Stromatolites and reefs seem to be everywhere at least to avowed keepers.

# Abiotic/Biologically-Induced/B'-Controlled



## Biography:

Leslie Eliuk has a University of Alberta Zoo/Geol BSc (1968) and Geol MSc (1969 in 9 months under Prof Charlie Stelck on K/T palynology). And he apparently is slowing down after 4 decades since he took 9 years to get a PhD at Dalhousie University, Halifax, Nova Scotia in 2016 (on the Abenaki carbonates adjacent the Sable Island delta and advised by Prof Grant Wach). He previously spent 30 years as a Shell Canada petroleum geologist primarily concerned with carbonate reservoirs and sour gas. Then 10 years consulting on and studying mainly Jurassic-Cretaceous carbonates offshore Nova Scotia. Somehow all those years have not diminished his enthusiasm for carbonates and reefs. These include even the oldest kinds – the microbialites forming stromatolites and other pre-metazoan type reefs. During those years he helped the Canadian Society of Petroleum Geologists (CSPG, now the Canadian Energy Geoscience Association, CEGA) in various ways such that they bestowed Honorary Member status on Les in his 76<sup>th</sup> year.

## Information:

This event is presented jointly by the Alberta Palaeontological Society, the Department of Earth and Environmental Sciences at Mount Royal University, and the Palaeontology Division of the

Canadian Energy Geoscience Association. For details or to present a talk in the future, please contact CEGA Palaeontology Division Chair Jon Noad at [jonnoad@hotmail.com](mailto:jonnoad@hotmail.com) or APS Program Coordinator Lacey Holoboff at [lhoboff@gmail.com](mailto:lhoboff@gmail.com) or by contacting [programs1@albertapaleo.org](mailto:programs1@albertapaleo.org). Visit the APS website for confirmation of event times and upcoming speakers: <http://www.albertapaleo.org/> Visit the APS website for confirmation of event times and upcoming speakers: <http://www.albertapaleo.org/>.