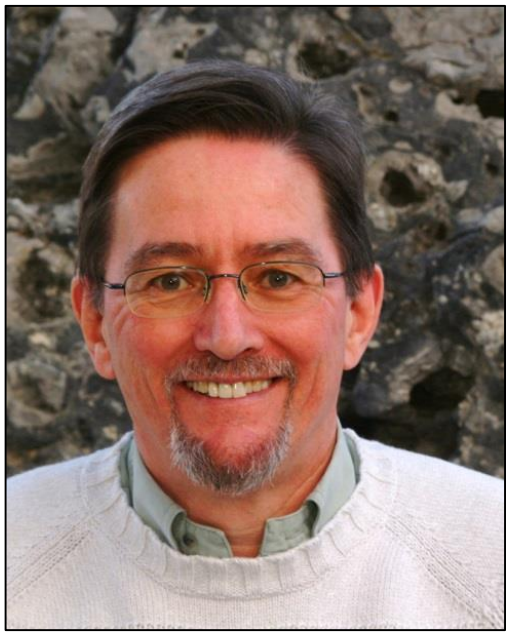
My Earth science educator story – Godfrey Nowlan
What I did, why I did it and what happened



Godfrey Nowlan in front of rocks of the Cairn Formation, an important petroleum reservoir in the Western Canada Sedimentary Basin. (*Glen Edwards*).

Getting turned on to geology

I grew up in Ireland and went to university to study science with a penchant for microbiology. Along with courses in chemistry and biology, I took a geology course in my first year. Part of that course was a field trip to visit coastal outcrops near Dublin. The rocks were a mixture of sedimentary and volcanic rocks and the leader wove such a fascinating story of their geological development that I got completely hooked on geology. I wish I could remember who led the trip so that I could thank him for turning my mind on to geology.

Turning geology into a scientific career

I graduated at the time of a big downturn in the global economy (1971) and so I looked for a place to do a graduate degree and to wait out the bad times. That place turned out to be Memorial University in Newfoundland, Canada and what a wonderful place it was, especially at the time of the birth of significant research on plate tectonics in the early 1970s.

I got my master's degree and moved further west in Canada to the University of Waterloo to study fossils in the high Arctic. The field work became more and more exciting and then I got my doctorate, followed by a job with the Geological Survey of Canada based in Ottawa. I was a specialist on a group of microfossils that were useful for telling the age, paleogeography and thermal maturity of rocks. I became a paleontological specialist, which can be defined as knowing more and more about less and less until you know everything about nothing.

Home sweet home: Field work for doctoral thesis in the Arctic Islands, 1974. (*Chris Barnes*).

Children dictate a return to the classroom

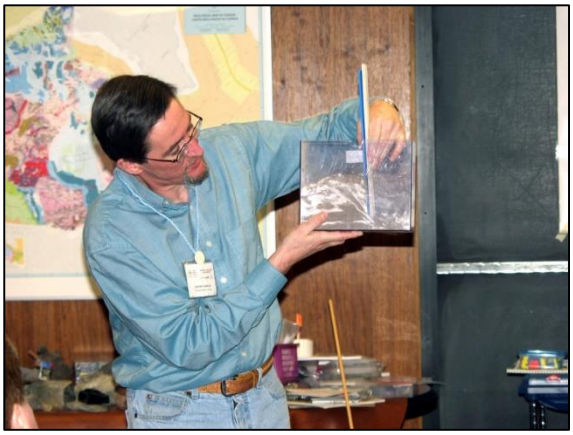
Early in this rewarding career, I had children and as they grew up and their teachers found out that their Dad was a paleontologist, I got invited to school classes. I loved the interaction with children and their teachers and over the course of several years I became aware that many teachers are ill-equipped to teach Earth science, especially in elementary schools. I dragged my head out of my specialty and began to look at the broader societal implications of Earth science. I decided to do "outreach" and thereby became a sort of teacher. A not-so-good teacher at first, having to learn the hard way how to communicate with non-scientists and children.

A teacher in earnest

Later I moved to Calgary to take a management job with the Geological Survey of Canada. In Calgary, I became reacquainted with Ward Neale, a wonderful man who had been head of the Geology Department at Memorial University of Newfoundland, where my career in Canada began. He was now retired and making public awareness of science his highest priority. His enthusiasm during his public outreach and education work was inspiring. Ward and I (with others) started the Calgary Science Network in 1989 (Nowlan and Neale, 2000) and it has remained in existence, morphing into the Alberta Science Network (see web reference). It arranges for school classroom visits by scientists and runs workshops for teachers. I became a dedicated classroom visitor and started to do workshops for teachers, always with a school teacher partner. As part of this we also began a program of public events to which members of the public could bring rocks and fossils for identification.

Interpreting rocks and fossils at a public event, 2004. (*Alberta Science Network*).

It took a long time to hone my skills to become an effective classroom and workshop presenter. If there were common threads in the improvement it was to simplify the content, to dwell mainly on what was important about Earth Science to society at large and to develop hands-on activities to explain them. Since geology in the curriculum meant “rocks and minerals”, the presentation morphed more into why anybody would bother to study rocks and minerals. The incredible importance of natural resources in our society became a unified theme for talking about geology. Everything from fuel for cars, to the steel from which they are made, to the rare earth elements required to build modern technology, was embraced and discussed in the context of an evolving Earth. The other important issues for older children are geological hazards and the environment.



Demonstrating thrust faults and folds in a teacher workshop, 1996. (*Elspeth Snow*).

Going national and international

As a founding Chair of the Canadian Geoscience Education Network (see web reference), I became involved with education and outreach across Canada. This organization remains active across Canada and is essential to the rational development of educational materials and programs across a very large country. A national program of workshops for teachers, called EdGeo, has run for decades and provided Canadian teachers with critical knowledge and materials to teach what little Earth science is present in Canadian curricula. A series of posters explaining the geology of parts of Canada called Geoscape were completed by CGEN.

On the international front, I ran the GeoSciEd Conference in 2003 in Calgary. This is the meeting sponsored by the International Geoscience Education Organization (IGEO) that brings together educators from across the world. I found involvement in these national and international organizations to be inspirational.

Future

I retired from the Geological Survey of Canada in 2013, but have remained active in geoscience outreach and education programs. Chief among these has been the development of UNESCO Global Geoparks in Canada (see web reference). Working with communities across Canada to help them to become familiar with their local geoheritage and related cultural heritage, and to develop a geopark that becomes an engine of sustainable economic development, is one of the most satisfying roles I have ever had. It fulfills all the requirements of education and outreach.

Since retirement I have also seen the publication of a book on the geology of Canada for which I wrote a few sections and helped with the editing. The wonderful feature of this book is that the diagrams and most of the photos are available on-line for educational use (see web reference).

The joy of explaining how the Earth works to one's fellow citizens of the planet brings a great sense of well-being and I encourage readers to try it. Increasing the knowledge of the citizens of Earth about their planet should help them to take more care of their planet in the future.

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http://www.albertasciencenetwork.ca/

Canadian Geoscience Education Network
http://earthsciencescanada.com/cgen/

Canadian Geoparks
www.canadiangeoparks.org

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