

My Earth science educator story – Peter Craig What I did, why I did it and what happened



Peter Craig.

I have spent many happy days over the last twenty years or so helping Scottish youngsters and their teachers learn more about the geological processes that have shaped our planet and, more importantly for many of them, their own local environment. Becoming an Earth science educator was not a career I originally envisaged for myself and, from the many twists and turns in my more general life story, I have tried to separate what led me firstly into field geology, then into teaching in general, and finally into Earth science education.

The seed is sown

I can remember precisely when I first heard about geology as a potential career. Boozie Clark (he had a red nose....) was normally the most boringly predictable teacher, but one ten-minute slot at the beginning of one of his lessons did actually start the process which led to my graduation as a geologist ten years later. He had just received a letter from an ex-pupil who was working as a geologist in Antarctica. In a school where physics and chemistry were the only science subjects taught, this science teacher took the trouble to recommend geology as an alternative science subject that we could

study if we ever went university. Having spent two weeks on the intricacies of lighting a Bunsen burner and evaporating water in a petri dish, the thought of being a scientist exploring strange landscapes in remote parts of the world was immensely appealing! The seeds of what has become a lifelong passion were sown in that ten-minute slot in an otherwise unremarkable first year at secondary school.¹

The seed germinates

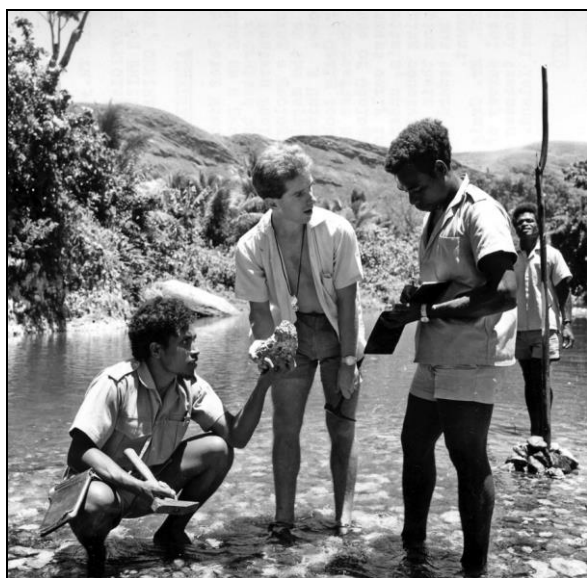
The earlier part of my degree course at Aberdeen University in the 1960s seemed to involve an inordinate amount of time studying crystallographic theory and endless lists of mineral and fossil characteristics. However, most of the lecturers in the geology department at that time had a background in fieldwork carried out in far-flung places and, over the four-year course, they led us on many fieldtrips to explore the geology of Scotland. Several of the lecturers were inspirational role models, but one in particular, Bill Fraser, spent many hours during our final year teaching us to 'read' outcrops and learn how to make scientific interpretations based on the evidence in front of us. I suppose that was my initiation into teaching others about geology, for one of Bill's techniques was to hand over responsibility for key parts of an excursion to individual students. This was done the night before the actual trip and there was nothing quite like having to explain a series of classic exposures to your class-mates for focusing the mind and making sure you had all the details at your fingertips. Fifty years later, I still get the same frisson when preparing a workshop for pupils or their teachers.²

¹ Lesson One – never underestimate your power as a teacher to influence the thinking of those you teach, especially when off-topic!

² Lesson Two – as a teacher, you can only gain the attention and earn the respect of your learners if you have confidence gained from thorough preparation.

Beginning to see the light

My next experience of teaching arose in 1968 during a two-year posting from the Edinburgh office of the British Geological Survey (BGS) to the Solomon Islands in the south Pacific. One of my duties was to train local staff in the skills of geological mapping. Helping these naturally very observant Solomon Islanders, to recognise different rock types and develop their mapping skills, was a very rewarding and pleasurable experience. This encouraged me to further develop my own teaching skills when I returned to Scotland and took up a part-time post as geology tutor with the then fledgling Open University. In both teaching contexts, the enthusiasm and energy of the learners was infectious and generated a productive learning environment that I have tried to replicate in every teaching context ever since.³



A posed press photo in the Solomons to show overseas aid 'in action'.

In 1976, I took the major decision to leave the BGS to take a one-year post-graduate course in Aberdeen to train as a teacher of physics, science and geology. That was a pivotal moment in my career and it was a difficult decision for me to make. For the next twelve years, I happily taught various science courses in two very different secondary schools, always managing to squeeze in Earth science wherever

³ Lesson Three – do everything you can to stimulate interest and enthusiasm for whatever topic you are teaching.

possible. Eight years training post-graduates to teach physics and general science followed, during which time I learned an awful lot more about the art of teaching.⁴



Lanzarote

I blossom and learn to sow my own seeds

An opportunity to leave full-time employment arose in 1996 and I spent most of the next few years teaching people how to use computers. However, a chance phone call from a regional science resources manager highlighted the lack of support for Scottish teachers wanting to explore Earth science topics with their pupils. Immediately, I knew what I really, really wanted to do! Sponsorship from oil companies, support from Scottish Natural Heritage, and part-time employment with the Earth Science Education Unit (ESEU) at Keele all followed in due course, and helped me develop customised resources and workshops that were enjoyed by pupils and teachers throughout Scotland. 20,000 children and adults so far, have discovered that 'rocks have stories to tell' in the *Rock Detective* workshops my wife and I deliver at Science Fairs across the country. Around 200 ESEU workshops for teachers

⁴ Lesson Four from this period was that being an educator is a journey that never reaches a final destination; there are always new skills to develop and new ideas to absorb.

and student-teachers gave me the privileged opportunity to raise awareness about geological processes and how they create the physical world around us. Other chances to train countryside rangers, talk to community groups, and write field guides have been seized on over the years and I like to think that the few seeds sown in that science lesson diversion sixty years ago have now multiplied into blossoming generations of children and adults who view our home planet with different eyes and new understanding.⁵



Pupils near Falkirk discover that rocks ‘tell stories’.



Pupils in Shetland being asked to “Imagine what it would feel like if you were a layer of sand with more and more layers piling up on top of you”

⁵ Lesson Five is that engaging in teaching is not restricted to delivering lessons in a classroom; if you are as lucky as I have been, your teaching can extend into as varied a spectrum of activities as your imagination allows.

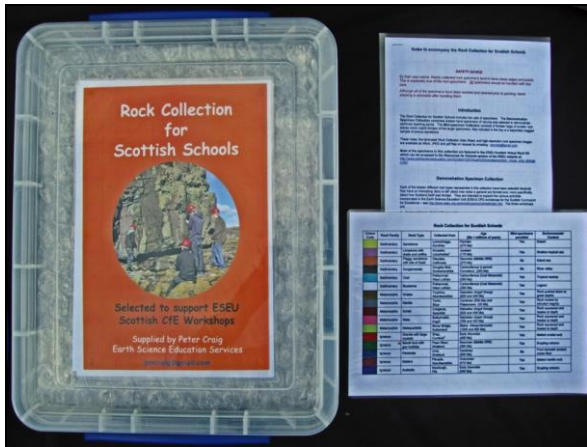
Scattering countless thousands of seeds in the form of rock specimens

Finally, there is one facet of my educator’s role that has been my special passion – providing carefully selected rock specimens that can be used in the classroom to capture the imaginations of teachers and pupils and help them to gaze meaningfully backwards into geological time. In a culture in which time seems to be becoming ever more compressed, and living in the instant is becoming the norm, gaining a better understanding of our real place in space and time is surely an important educational goal. Attractive rock specimens provide one pathway into this topic. Rock kits similar to the one below have now been issued to around a thousand schools across Scotland, along with lots of stimulating ideas for using them in a wide range of activities designed for all age levels. The rock specimens they contain are a wonderfully tactile form of ‘imagination seeds’ that seem to have an inherent ability to grab children’s attention – and hopefully maybe succeed in stimulating the beginnings of curiosity and wonder about the world we inhabit. If so, I shall be very, very pleased and regard the work of collecting and preparing them as time well spent.



As well as hand specimens, this rock kit comes with mini-specimens for activities. Recent versions also come with a ‘starter pack’ of beach pebbles to encourage their use in thinking about ways of sorting and classifying rocks.

Peter Craig, aged 71, Aberdeenshire, Scotland, September 2016, pmcraig@gmail.com



This design of rock kit is securely packed but the colour-coded specimens are easy to access. Each kit comes with Teacher Notes and detailed information about the specimens.



A youngster gets excited by beach pebbles at Moray Science Festival.