

CHARLES HENRY EMELEUS (1930–2017)



Photo credit: B.R. Bell, 2013

Henry Emeleus was born in Lisburn, Co Antrim on 4th September 1930 into a family with considerable scientific potential. His grandfather, Karl Henry Emeleus, was a pharmacist, originally from western Finland, who eventually settled in Sussex. There, he took over an historic pharmacy, which remained in the family for three generations, until 1997. His father, Karl George Emeleus CBE became Professor of Physics at Queen's University, Belfast, soon after Henry's birth, and his uncle, Harry Julius Emeleus CBE FRS was Professor of Inorganic Chemistry at Cambridge and was a president of both the Chemical Society and the Royal Institute of Chemistry.

Henry was educated at the Friend's School, Lisburn and the Municipal College of Technology, Belfast before graduating with first-class honours from Queen's University, Belfast in 1952. He was taught igneous petrology by Jack Preston but was

also influenced and inspired by James Richey, a fellow Ulsterman who maintained an interest in the Palaeogene igneous rocks of Ireland throughout and after his distinguished career with the Geological Survey of Great Britain. Henry completed an MSc on the western granites of the Mourne Mountains in 1953 and then went on to Oxford where, under Lawrence (Bill) Wager, he completed a DPhil on the ring-complex of Slieve Gullion in 1957. In 1969, with Jack Preston, he published a field excursion guide to the *Tertiary Volcanic Rocks of Ireland* but for the next thirty years, excursions to the areas that he knew best were prevented by security issues, something that must have caused him great sorrow.

In 1957 he was appointed to a lectureship at the University of Durham, where he became a senior lecturer in 1969 and a reader in 1979 before retiring in 1994. He then continued to pursue his research interests with as much vigour and commitment as ever and acted as mentor to staff and students alike until shortly before his death. His long and distinguished contribution to the university was recognised when they awarded him their Chancellor's Medal in 2014 and conferred upon him the title of Professor Emeritus in 2016.

The early influences of Richey and Wager were apparent throughout his career. Every project that he undertook was underpinned by meticulous detailed fieldwork and many people have commented that they have never met a finer field geologist. His physical fitness and stamina in the field was legendary and many have struggled to keep up with him, even in his later years. The fieldwork was backed up by equally detailed petrographical studies. Only then would he turn his attention to mineralogical and whole-rock analysis and all that modern trace-element and isotopic studies could offer. But he would return to the field or to the microscope whenever necessary to check that the facts fitted the theory, whether that was his own revised theory or someone else's. That is the ethos that he passed on to generations of students over his sixty-year-long career and earned him such respect worldwide.

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His students felt that there was nothing that he couldn't do with a microscope and he was a patient teacher, always with a sympathetic ear. If a student was struggling to identify or even to find a mineral in thin section, Henry would quietly tweak the microscope a little, move the slide and all would be revealed. He must have grown up with refractive index liquids and universal stages and his undoubted petrographical skills were soon expanded as he embraced more-analytical mineralogical techniques.

In 1964 he took leave in Chicago to study alkali feldspars with J.V. Smith. During that visit, he was introduced to electron-microprobe mineral analysis and on his return he was instrumental in establishing the 'Geoscan' microprobe facility in Durham, one of the first in the UK. That was the foundation for a whole generation of Durham research students as well as attracting students from many other departments to use the facility. It was also a major factor in Durham being selected to investigate lunar samples from the entire Apollo programme of 1969–72 under the leadership of Malcolm Brown, with Henry taking the mineralogical lead.

It was while at Oxford, and encouraged by Wager, that he undertook the first of many field seasons under contract to the Geological Survey of Greenland (GGU, later GEUS), to which he was well suited. In addition to his scientific prowess and physical stamina, his calm, contemplative temperament saw him through days on end sitting out storms in a small tent. He married Ruth Tyler, then a geochemist at King's College, London, in 1965 and she accompanied him to Greenland in an official capacity for the 1966 field season.

His first task in the Mesoproterozoic Gardar alkaline igneous province of south Greenland (1955–58) was to map the Grønnedal-Ika nepheline-syenite and carbonatite 'complex', while assisting Brian Upton on the silica-over-saturated syenitic intrusions of the Kungnat 'complex'. During that time he also identified and investigated early Mesozoic kimberlite sheets cutting the pre-Gardar Pyramidefjeld granites. Later, together with Bill Harry, he mapped the nepheline-syenite intrusions of the Igaliko 'complex', covering some 450 km² of remote, mountainous terrain, in only three field seasons (1961–63). In arctic east Greenland, he mapped Palaeogene basalts in the Scoresby Sund area in 1971 and on the Hold-with-Hope peninsula in 1976. Eventually he spent more than fifteen seasons in Greenland, resulting in numerous memoirs, reviews and scientific papers and his

name is credited on seven published GGU map sheets. More-recently he contributed to a geological guide to the southern part of the Gardar Province (2006), which has helped to open up the area to geological 'tourism'.

Later in his career, he concentrated mainly upon the Palaeogene, Hebridean Igneous Province, and on Rum in particular. Many scientific papers resulted, in collaboration with numerous co-workers, and he was the obvious choice to write reviews of the province, such as those in Diana Sutherland's *Igneous Rocks of the British Isles* (1982), in two successive editions of *Geology of Scotland* (1983 and 1991) and the *British Tertiary Volcanic Province* volume in the Geological Conservation Review series with Mark Gyopari (1992). His enthusiastic active collaboration with younger researchers and their students continued throughout his retirement, in particular with Valentin Troll, with whom he produced *A Geological Excursion Guide to Rum* in 2008 and a major review of the 'Rum Igneous Centre', published in the *Mineralogical Magazine* in 2014.

In 1980 he compiled a 1:20,000 map of Rum for Scottish Natural Heritage but his most widely appreciated legacy will be the more-recently published maps and descriptions of much of the Hebridean Igneous Province that he produced under contract to the British Geological Survey (BGS). He was following in the footsteps of Alfred Harker of Cambridge University, who had fulfilled a similar role some 100 years earlier, and in many respects he was updating the work of his mentor, James Richey. Most notable are his 1:50,000 maps of *Rum* (1994) and of *North Mull and Ardnamurchan* (2013), the 1:25,000 map of the *Ardnamurchan Central Complex* (2009), the *Rum and Adjacent Islands* memoir (1997) and, together with Brian Bell, the *Palaeogene Volcanic Districts of Scotland* volume in the British Regional Geology series (2005). His contribution to our knowledge of Hebridean geology is immense and the BGS in particular owes him a huge debt of gratitude.

He supervised successfully some twenty PhD students and provided help and inspiration to so many more, from Durham and from other institutions. Over half of his PhD students worked in south Greenland, four in the Hebridean Igneous Province and others in Assynt, Norway, Cumbria and Iceland. All have gone on to careers in universities, surveys, museums or mineral exploration and many have achieved professorial positions.

Henry was an active member of many societies and had been a supporter of the Volcanic and Magmatic Studies Group since its foundation. He had been a member of the Mineralogical Society since 1957, a member of its council and served as Vice-president 1977–79. He was the recipient of many honours, starting with the award of part of the Daniel Pidgeon Fund of the Geological Society of London in 1958, followed by a moiety of the Lyell Fund in 1973. In 1978, a new mineral (composition $\text{Li}_2\text{Na}_4\text{Fe}_2^{3+}\text{Si}_{12}\text{O}_{30}$) from a pegmatite in the Gardar Province was named ‘emeleusite’ by his lifelong friend and colleague Brian Upton and was described in the *Mineralogical Magazine*. Queen’s University, Belfast conferred a DSc in 1982. He was an honorary fellow of the Edinburgh Geological Society and was awarded their Clough Medal for 1994–95. He was the first recipient of the Collins Medal of the Mineralogical Society in 2010, Durham University awarded him their Chancellor’s Medal in 2014 and the Geological Society their Prestwich Medal in 2016.

Away from geology, his interests mainly centred upon his family, upon gardening and upon railways, large and small. He was an acknowledged authority on railways in the north of Ireland and many of his photos

are included in online archives. He was a patron of the National Railway Museum and at one time travelled to York weekly as a volunteer. His pride and joy was an O-gauge railway in his attic, which was modelled on the Great North of Scotland Railway.

There have been many tributes to Henry Emeleus, from colleagues, former students and friends. Unsurprisingly, all use combinations of the same words to describe a man who was clearly so highly respected as both a teacher and a researcher and who was a guide and an inspiration throughout so many lives and careers. They have described his broad and deep knowledge of his subject, his thoroughness, dedication and scientific integrity but have also commented on his quiet calm, his modesty, his loyalty and his dry wit – all in all a true gentleman. We hope that such heartfelt tributes bring comfort and pride to his wife Ruth, his children John, Katherine and Lucy and his two granddaughters, for his was truly a life well lived.

He died, after a period of illness, in Durham on 11th November 2017.

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