

WILDERNESS AND HUMOUR IN THE NORTHWEST HIGHLANDS

My parting shots are a postscript to the travelogue on page 364. Although, overall, the little island of Great Britain is one of the world's most densely populated places, visitors from North America are often surprised by the wild emptiness of northwest Scotland. Vast, craggy, treeless landscapes like the Coigach Mountains, devoid of views even of distant buildings, have all the feel of true wilderness. The Northwest Highlands Geopark covers 2000 square kilometres and has a population of only 2400, 74% of whom live in four villages. But geologically we are in fact looking at North America, a tiny fragment of Laurentia left on the feather-edge of Eurasia when the North Atlantic opened. The unmetamorphosed red Torridonian sandstones forming the Coigach hills have sedimentary ages, with large errors, between 1200 and 950 Ma. They correlate with, and look very similar to, the Igaliko sandstones in the Gardar rift of South Greenland and the Keweenaw sequence in the mid-continental rift of North America, which extends from Lake Erie to Kansas, although the thick alkali basalt sequences are missing in Scotland.

The relationships of the Torridonian rocks to earlier and younger formations are intriguing and much employed in the UK for the instruction of students. They rest unconformably on what the early surveyors, with profound insight, called the 'fundamental gneiss', now properly called the Lewisian Gneiss Complex. Around Loch Assynt, the gneiss has a metamorphic age near 2.5 Ga. The Lewisian forms the featureless



A fragment of Laurentia. Neoproterozoic Torridonian sandstones of the Coigach Mountains from the summit of Stac Pollaidh. The single-track road is 600 m below.

topography at the base of the slopes in my second photograph. The land surface on which the Torridonian rocks were deposited had high relief, and this can be deduced using the geological map and seen in the field because of the contrast provided by the striking horizontal bedding of the sandstones. The pronounced bedding in the picture is genuinely horizontal in three



The 'double unconformity' on Beinn Garbh (539 m), seen looking south across Loch Assynt

dimensions, with only minor flexures of a few degrees. Resting on top of the Torridonian, but dipping at up to 20° to the east, is a succession of Cambrian sedimentary rocks which, in the picture, are composed of white quartzite, forming topography that is less strikingly bedded than the Torridonian. The plane of this second unconformity can be seen dipping from the summit of the hill down to the middle left edge of the picture where it truncates the Torridonian–Lewisian unconformity, a feature always known as the 'double unconformity'. It's a marvellous example of in-your-face geology, large-scale features marking enormous missing intervals of geological time, easily perceived at a roadside stop. But switched-on students will ask a simple question: 'How can it be that the younger Cambrian sequence is tilted but the ancient Torridonian sandstones are horizontal?' I'm sure *Elements* readers will have a sound explanation. My personal view is that it shows that Nature has a sense of humour!

Ian Parsons

October 5–8 Geological Society of America Annual Meeting, Houston, TX, USA. E-mail: meetings@geosociety.org; web page: www.geosociety.org/meetings/index.htm

October 5–9 Materials Science & Technology 2008 Conference and Exhibition – MS&T '08 combined with the American Ceramic Society (ACerS) 110th Annual Meeting, Pittsburgh, Pennsylvania, USA. Web page: www.ceramics.org/meetings/schedule.asp

December 1–5 Materials Research Society Fall Meeting, Boston, MA, USA. Web page: www.mrs.org/s_mrs/sec.asp?CID=2073&DID=92005

December 1–5 Eighth International Geostatistics Congress - GEOSTATS 2008, Santiago, Chile. E-mail: info@geostats2008.com; Website: www.geostats2008.com

December 15–19 2008 AGU Fall Meeting, San Francisco, CA, USA. E-mail: meetinginfo@agu.org; web page: www.agu.org/meetings

2009

January 18–23 33rd International Conference & Exposition on Advanced Ceramics & Composites, Daytona Beach, Florida, USA. Web page: www.ceramics.org/meetings/schedule.asp

March 22–26 American Chemical Society 237th ACS National Meeting & Exposition, Salt Lake City, UT, USA. Web page: www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=meetings%5Cfuture.html

April 2009 3rd International Maar Conference, Malargue, Argentina. E-mail: corinarisso@fibertel.com.ar or haller@cenpat.edu.ar; web page: www.iavcei.org/meetings_w.html

April 13–17 2009 MRS Spring Meeting, San Francisco, CA, USA. Web page: www.mrs.org/s_mrs/index.asp

July 5–10 Goldschmidt 2009, Davos, Switzerland. Details forthcoming

July 7–10 American Association of Petroleum Geologists (AAPG) Annual Meeting, Denver, CO, USA. Web page: www.aapg.org/meetings/misc_mtgts.cfm

Summer 2009 71st Annual Meeting of the Meteoritical Society, Nancy, France. Web page: www.cprg.cnrs-nancy.fr/NEWS/MetSoc

August 2009 25th European Crystallographic Meeting (ECM25), Istanbul, Turkey. Web page: www.ecm25.org

August 16–20 American Chemical Society 238th ACS National Meeting & Exposition, Washington, DC, USA. Web

page: www.chemistry.org/portal/a/c/s/1/acsdisplay.html?DOC=meetings%5Cfuture.html

August 17–20 Society for Geology Applied to Mineral Deposits 10th Biennial Meeting, Townsville, QLD, Australia. E-mail: SGA2009@jcu.edu.au

September 7–11 Geoanalysis 2009, Drakensburg Region, South Africa. Details forthcoming. Web page: geoanalysis2009.org.za

October 18–21 Geological Society of America Annual Meeting, Portland, Oregon, USA. E-mail: meetings@geosociety.org; web page: www.geosociety.org/meetings/index.htm

October 25–30 Materials Science & Technology 2009 Conference and Exhibition – MS&T '09 combined with

PARTING QUOTES

WE KNOW MORE ABOUT THE MOVEMENT OF CELESTIAL BODIES THAN ABOUT THE SOIL UNDERFOOT. – **LEONARDO DA VINCI**

THE THIN LAYER OF SOIL COVERING THE EARTH'S SURFACE REPRESENTS THE DIFFERENCE BETWEEN SURVIVAL AND EXTINCTION FOR MOST TERRESTRIAL LIFE. – **DEFINING AND ASSESSING SOIL QUALITY**

BY **JOHN W. DORAN AND TIMOTHY B. PARKIN**

the American Ceramic Society (ACerS) 111th Annual Meeting, Pittsburgh, Pennsylvania, USA. Details forthcoming

November 30–December 4 2009 MRS Fall Meeting, Boston, MA, USA. Web page: www.mrs.org/s_mrs/index.asp

2010

August 22–27 20th General Meeting of the International Mineralogical Association, Budapest, Hungary. Website: www.univie.ac.at/Mineralogie/IMA_2010

The meetings convened by the societies participating in *Elements* are highlighted in yellow. This meetings calendar was compiled by Andrea Koziol. To get meeting information listed, please contact Andrea at Andrea.Koziol@notes.udayton.edu