TROUBLE WITH TELECOMMS

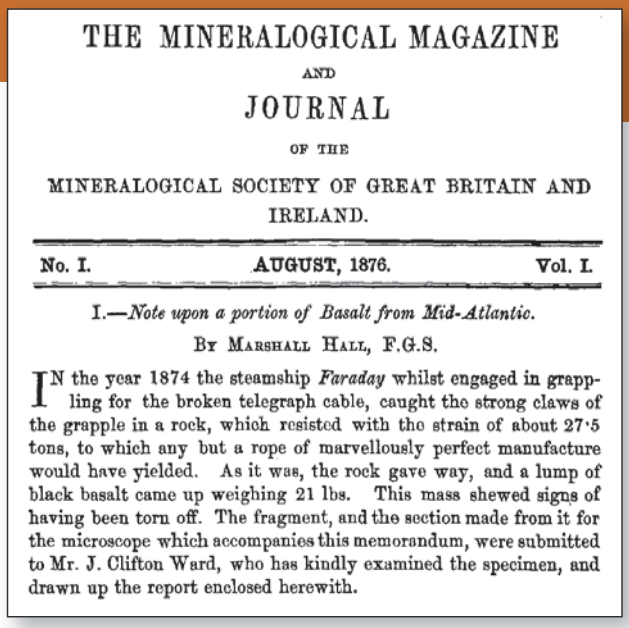
My little Parting Shots articles start their journey to your desk (or, I hope, your sofa) from my house in the West Highlands of Scotland. At the click of a mouse, they start their journey down a copper cable sheathed in grey plastic. For the first 200 m or so the cable runs under a field, but then it reaches a road. This is a very wet part of the world. The mountains a few kilometres to the west sometimes get 3 m of rain in a year, so the narrow roads are edged by deep ditches. The grey cables are simply dropped into these ditches, and you can see them snaking along, in amongst the reeds and tadpoles and empty whisky bottles. About 5 km to the east, the cable abruptly turns north and runs for about a kilometre under an arm of the sea, emerging somewhere near the local telephone exchange, where the technology goes up a notch and we join the national fibre-optic network.

I expect my broadband to be slow, but a couple of weeks ago, when I was thinking about this article, it became maddeningly erratic, and voices over the telephone became strangely muffled, which I ascribed to my advancing years. A man was sent by my telecomms provider, and he spent a whole day replacing what he called 'wet joints' between my house and the exchange. My broadband is now completely reliable and I feel years younger. To test this great technological leap forward, I serendipitously decided to go to the Mineralogical Society's archive and have a look at the very first paper published in *Mineralogical Magazine*. By a strange coincidence I found myself back in a world dogged by telecomms problems.

The opening lines of issue 1, volume 1, of *Mineralogical Magazine*, August 1876, the first words of the world's first properly scientific mineralogical journal, are reproduced nearby. The new journal was followed in March 1878 by what was then called *Bulletin de la Société minéralogique de France*, now subsumed in *European Journal of Mineralogy*. The Min Mag article by Marshall Hall is unexpectedly interesting. It relates how the cable-laying steamship *Faraday* is in the Mid-Atlantic, at latitude 50°30′ N, longitude 24°46′ W, 'grappling for the broken telegraph cable'. The broken cable is clearly world news, so no further explanation is needed. The grapple brings up a 9.5 kg lump of black basalt, which is passed to a Mr J. Clifton Ward who makes a thin section, which he views using polarized light. Min Mag provides illustrations in colour, something that has become commonplace only in the last decade and for which we are still charged extra by some journals! It was only in 1849 that Henry Clifton Sorby had introduced the use of thin sections, and microscopes fitted with Nicol prisms, to geology, so the Min Mag article was state-of-the-art petrography. Ward identifies augite and olivine (see his drawing) and white needles of plagioclase showing 'longitudinal banding when more highly magnified', but he cannot give a name to 'a good deal of a very dark brown or black patchy substance, probably an irony product of decomposition', which I think we would recognize as altered glass.

J. Clifton Ward's drawing of basalt brought up by the *Faraday* from 2242 fathoms (13,542 feet, 4100 m) in the North Atlantic

A cluster of plagioclase crystals, between crossed polarizers. The section seems to have been on the thick side.



THE MINERALOGICAL MAGAZINE
AND
JOURNAL
OF THE
MINERALOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

No. I. AUGUST, 1876. Vol. I.

I.—*Note upon a portion of Basalt from Mid-Atlantic.*

By Marshall Hall, F.G.S.

In the year 1874 the steamship *Faraday* whilst engaged in grappling for the broken telegraph cable, caught the strong claws of the grapple in a rock, which resisted with the strain of about 27·5 tons, to which any but a rope of marvellously perfect manufacture would have yielded. As it was, the rock gave way, and a lump of black basalt came up weighing 21 lbs. This mass shewed signs of having been torn off. The fragment, and the section made from it for the microscope which accompanies this memorandum, were submitted to Mr. J. Clifton Ward, who has kindly examined the specimen, and drawn up the report enclosed herewith.

The discovery of basalt on the ocean floor causes consternation. Ward suggests that 'as it is possible that the mass of basalt from which the specimen was chipped had been floated southwards on ice, the microscopic examination of some of the northern basaltic tracts might indicate the parent rock'. I fear that all the techniques of chemical and isotopic analysis available today might well fail in that task! To establish whether it is feasible for ice to have carried it to the position from which it was collected, Marshall Hall consults a Dr John Rae. Rae responds that 'he is not aware of icebergs having been seen about that spot, but that such an occurrence is not impossible'. Hall and Rae agree that the basalt is most likely to have been 'wrenched off some submarine peak'.

Canadian and Scottish readers will know about John Rae. He is my greatest hero, a relatively unknown traveller whose explorations of northern Canada far outshine the Arctic exploits of Peary and Amundsen. Born in 1813 in the tiny village of Orphir in the Orkney Isles, off the north-eastern tip of mainland Scotland, Rae graduated as a surgeon from Edinburgh University in 1833. His father, also John, was made the Orkney agent of the Hudson's Bay Company in 1819. The company's supply ships would call there before crossing the Atlantic. Rae junior signed on for a single season as surgeon on an HBC ship heading for James Bay, at the southern end of Hudson Bay, but as luck would have it, the sea ice came early and Rae had to winter on bleak Charlton Island. He enjoyed it so much that he remained at Moose Factory on James Bay for ten years! He learned the hunting and survival skills of the local Inuit people, for whom he had great respect, and dressed like them. On behalf of the HBC he undertook a number of extraordinary journeys of exploration in the enormous wilderness of northern Canada and its Arctic islands, travelling in small parties and living off the land. In 1844–1845 he walked 1200 miles (1930 km) in two months, earning the nickname 'Aglooka' – 'he who takes long strides' – from the Inuit. He was involved in the search for the Franklin expedition and was condemned by the British establishment for suggesting that members of Her Majesty's Royal Navy had resorted to cannibalism.

Telecomms entered Rae's life again in 1860 when the Atlantic cable failed (again). A new route was sought through Faroe, Iceland and Greenland, and he was sent to assess the landward part of the route. Then, in 1884, aged 71, he was involved in a project to investigate the possibility of a telegraph route through British Columbia to Siberia, and explored a great length of the mighty Fraser River, without a guide, using a dugout canoe. This great man died in London in 1893, in his 80th year. His only memorial is a statue in St Magnus Cathedral in Kirkwall, Orkney, showing him lying down as in the open, wearing his Arctic travelling clothes, a gun at his side.

Ian Parsons, University of Edinburgh

ChemLogix™

THE LOGICAL CHOICE FOR RAPID CHEMICAL ANALYSIS OF SOLID MATERIALS

Introducing the ChemLogix™ Family of Chemical Analysis Instruments, Including the ChemReveal™ LIBS Desktop Analyzer

The ChemLogix™ family of instruments simplifies complex chemical analysis.

Its line of ChemReveal™ laboratory-based analyzers utilizes laser-induced breakdown spectroscopy (LIBS) to provide rapid and reliable identification of materials and chemical composition of solids.

Equipped with advanced ChemLytics™ software and backed by TSI's global sales and support, ChemLogix instruments truly are the smarter – and more logical – choice for chemical analysis.

Understand more, visit tsi.com/ChemReveal

TSI®

UNDERSTANDING, ACCELERATED

ADVERTISERS IN THIS ISSUE

JOB POSTINGS

See www.elementsmagazine.org/jobpostings