



THE HIGHLAND GEOLOGICAL SOCIETY

Scottish Charity No. SC004427

OCTOBER 2015

Dear Members,

Welcome to the start of another winter season of talks, detailed below. Please note that there are **two** events on 17 February! Meetings take place at 7.30 pm at Millburn Academy (Diriebught Road, Inverness, IV2 3QR) and are charged at £2 for members and £3 for non-members. If you would like to join the committee for dinner before any of the meetings, please let Alison know – all welcome.

Thank you to everyone who supported our summer fieldtrips, even when the weather was far from seasonal! We are already planning next year's programme: our first excursion will be to Skye on **Saturday 9 April to Monday 11 April** (lunchtime start on Saturday) to look at the UK's Atlantic Margin Petroleum System with Jim Ritchie from Speedwell Energy. We will be based at Sligachan – at the time of writing both the hotel and bunkhouse have rooms available so please book direct (hotel: 01478 650204; bunkhouse: 0781 085 7683) or arrange your own accommodation elsewhere if you prefer. There is also a campsite at Sligachan, if you don't want to book so far ahead. More information is available at:
<http://www.sligachan.co.uk/sligachan-hotel.php>

WINTER PROGRAMME 2015-16

4 November *Exploring Chile's volcanoes - Quetrupillán and Llaima*, Dr Dave McGarvie, Open University in Scotland

Quetrupillán volcano is the middle volcano in a chain of three volcanoes, and its neighbour to the west (Villarrica) had a decent eruption on 3 March 2015. At the time Dave was camping in heavy rain and thick cloud on the flanks of Quetrupillán, so didn't hear the ash falling on the tent; next morning it was obvious that an eruption had happened, so he climbed the c.300 m ridge between the camp and Villarrica to get a good view of aftermath of the eruption. The special feature of Quetrupillán is that instead of exerting energy in producing a nice and neat cone-shaped volcano, it has a rather scraggy main cone (with no head) in the north and a dispersed and fault-controlled volcanic field in the south. This dispersed volcanic field preserves excellent examples of ice-confined lavas, which is the main focus of Dave's research. He also had the opportunity to do a recce with US colleagues on another of Chile's largest and most active volcanoes - Llaima - which last erupted in 2008. This volcano has twin summits, and from summit to flank is dominated by young (Holocene) lava flows, some of which have dammed rivers to create beautiful lakes. From this volcano also emerged a massive explosive eruption c.13,200 years ago which produced an unusual and far-travelled ignimbrite. Dave has previously shared details of his fieldwork with the society and this promises to be another lively and interesting talk.

11 November The Royal Meteorological Society (RMetSoc) is hosting a talk in Inverness by Dr Matt Watson, on Volcanic Ash Hazards. This may be of interest to members – see end of newsletter for details.

9 December *The Adventures of a Baby Geologist in Hawaii*, Rhona Fraser, HGS

This talk will describe the OUGS trip made by a group of baby geologists (with some very tolerant grown-up ones) to the Hawaiian chain in May 2014; the excursion started with a visit to O'hau (of Pearl Harbour fame) and ended on the 'Big Island' Hawaii. Unsurprisingly, black igneous lithologies make up the islands but the highlight of the trip was an interesting black rock with large green (and some white) crystals. In places the sand is also green and Rhona promises lots of nice pictures for a dark December evening!

13 January *The Work of Matthew Foster Heddle*, Hamish Johnston

Hamish, author of the new - and first - biography of Matthew Forster Heddle will talk about hitherto unknown aspects of Heddle's life, describing his exploration of the Highlands and Islands and his related published work. This includes his *County Geognosy* series of papers (from Shetland to Sutherland), his role in uncovering the geological puzzle of the North-West Highlands, and his maritime expeditions.

Matthew Forster Heddle: Mineralogist and Mountaineer has now been published by National Museums Scotland Enterprises (ISBN 978 1 905267 98 9) at £14.99. The book is a nicely produced paperback of 270 pages, with 50 colour illustrations, plus black-and-white illustrations in the text. All profits from the book go to the Museum, which holds Heddle's great mineral collection.

17 February

2.00 pm The Inverness Museum Geological Collections

Cait McCullagh, Curator (Collections Engagement), Inverness Museum & Art Gallery

Inverness Museum holds several collections of rocks and fossils, of which only a small part is on display at any time. During the visit Cait will explain how the Museum looks after and displays these collections and some of the challenges it faces. She will also have available a sample of interesting rocks and fossils for us to examine hands-on and discuss. Bring your hand lens!

7.30 pm AGM followed by:

The Lost Zircons of Upper Badcall: A New Discovery in Old Rocks, Andy Moffat, HGS.

Andy's talk will explain what zircon is and describe a former uniquely accessible zircon occurrence near Upper Badcall, Scourie in NW Sutherland. The zircon was present as well formed distinctive pink crystals and, unlike most UK zircon, was easily visible to the naked eye. The crystals were hosted in Lewisian ultrabasic rocks occurring within the gneiss. There were attempts to have the site protected as a SSI through SNH but the wheels of bureaucracy ground very slowly and after several months no progress was made and by then it was too late. As news of this discovery spread and, despite the remote location, professional mineral collectors rapidly stripped the site with specimens subsequently appearing on eBay and other online mineral selling websites. A number of specimens will be on display at the talk and a short-wave ultraviolet fluoroscope will reveal the striking yellow fluorescence of the zircon.

2 March *Minerals and Gems of the Cairngorms*, Roy Starkey

The Cairngorms are the most extensive area of high mountain terrain in Britain. The area has given its name to gem quality smoky quartz, but has also produced spectacular specimens of beryl and topaz. In Victorian times, hunting for crystals was both a popular pastime and a "cottage industry", but nowadays the area is a National Park and few fine specimens have come to light in recent years. In 1811 it was reported that these "Cairngorm Stones" were so much sought after, that a number of the inhabitants, not only of Aberdeenshire, but of the counties of Perth and Inverness, flocked to these mountains, in whole families, during the summer season, in quest of gems; and purchasers from London, who were well acquainted with their value, came frequently to buy the precious stones from these poor people. The profits of the finders or miners were extremely variable because the success rate was relatively low. Huge amounts of effort were expended in the search and records suggest that by the early 1800s, the Cairngorm diggers had already trenched more than twenty acres to a depth of from five to six feet. It is a recorded fact that Queen Victoria ascended Beinn a' Bhuid on 6 September 1850 and collected specimens of Cairngorm quartz. This talk will review the fascinating history of "Cairngorm stones", illustrated by images of notable specimens and explorations over the past 25 years or so.

13 April *A Geologist's Perspective of the Role of the Highlands and Islands in Hydrocarbon Exploration and Production*, Jim Ritchie, Subsurface Director, Speedwell Energy Ltd, Aberdeen

Major engineering facilities in the Highlands and Islands provide visual evidence of the impact of the oil and gas industry in the region. Examples include the platform fabrication yards at Ardersier, Kishorn and Arnish Point on the Isle of Lewis, the exploration rig maintenance yards at Invergordon and Nigg with mobile rigs

lined up in the Cromarty Firth and, further north, the oil terminals at Flotta and Sullom Voe, as well as the subsea production and control bundles fabrication facility at Sinclair's Bay. What is perhaps less well known is the important contribution of the Highlands and Islands to the understanding of the subsea geology in the Moray Firth, North Sea and Atlantic Margin. The consequent successful exploration for, and development of, oil and gas in these areas continues to be very important to the economy of Scotland and the UK. Jim's talk will give some examples of applying outcrop studies to the offshore environment and will also describe some onshore hydrocarbon exploration and development activity. There will also be a description of the components needed for a working petroleum system, which is essential for successful hydrocarbon exploration.

Other news:

We regret to inform members of the sudden death of Richard Sangar whilst out walking earlier this year. Richard's partner, Carol James, was Secretary of the HGS from 2005 to 2009; Richard provided technical support to Carol and produced the society's newsletters during this period. Peter Christie has passed on condolences to Carol and thanked her for Richard's significant contribution to the smooth running of the society.

The Friends of Hugh Miller

The latest newsletter from the Friends of Hugh Miller is available on-line at: <http://s3.spanglefish.com/s/27844/documents/newsletters/newsletterautumn15.pdf> or contact Martin Gostwick at mgostwick@gmail.com to be added to the mailing list. The HGS is affiliated to the Friends of Hugh Miller, which is a charity committed to celebrating and promoting the legacy of this great pioneering Scottish geologist. Conservation work has recently been completed on Eliza Miller's headstone, which acts as a poignant reminder of the Miller's Cromarty connection. The Friends have established a 'Headstone Fund' to raise money for this work and for future conservation efforts – all donations welcome!

11 November - RMetS public talk at Inverness College: Volcanic ash hazards – impacts, monitoring and mitigation; Dr Matt Watson

Volcanic eruptions that produce fine ash are common, and regularly impinge on busy airspace, with potentially disastrous consequences. Since the eruption of Eyjafjallajokull in 2010 improvements have been made to operational observations in order to better mitigate the associated risks to jet aircraft. Matt will present some of the methods used to observe and track volcanic ash, the practices followed to predict its movement in time and space, and the challenges associated with these. Drawing on experiences from recent eruptions, he will also discuss the prospects for the next Icelandic event.

The talk is free for both members and non-members, and will be held in Inverness College UHI, 1 Inverness Campus, IV2 5NA at 7pm (with tea and coffee from 6:30pm). The talk may also be broadcast to other UHI venues via UHI's video conferencing technology, making it possible to hear the talk and participate in the discussion afterwards from another UHI venue (see <http://www.uhi.ac.uk/en/campuses> for venues). No registration is necessary for attendance at the Inverness venue, however to register to attend at another UHI venue, or for further information, please email shonalmackie@gmail.com.

Contact information:

Chairman: Alan Thompson 01463 238992 alanrossthompson@hotmail.com

Secretary: Dr Alison Wright 01309 671949 a.j.wright00@aberdeen.ac.uk

Treasurer: Dr Rhona Fraser rhonabifraser@tiscali.co.uk