SMLS VISIT TO THE FAROE ISLANDS

July 4th - 11th 2011

Part 1 Introduction

Sussex Mineral and Lapidary Society have been organising geotourism visits overseas since 1990. These have included visits to Siberia, France, Spain, Hungary, Poland, Germany, Bulgaria, Slovakia, Lanzarote, India, Namibia, the USA and Canada. However the Faroes, our 24th overseas trip, represented a new sort of adventure. Our prime interest was to collect quality zeolites, but the Faroe Islandôs rugged scenery, its fauna and flora and its isolation presented a special interest and challenge.

Many of us had wanted to visit and collect in the Faroe Islands for some time, but we felt the need for a local contact. The head of the Geological department at Jardfeingi, the Faroese Earth and Energy Directorate, Dr Simon Passey, was in England in 2009 and gave a talk to the Brighton and Hove Geological Society. This was the introduction we needed and it led to a further contact with one of Simonôs geology colleagues, Bartal Højgaard, (figure 4, taken on Slættaratindur Mountain, the highest mountain on the Faroes) who gave us all sorts of useful information leading up to our visit, lent us equipment, obtained permission for us to go into two of the largest working quarries at Sátan and Mt Haeddin and joined us on our first dayôs collecting. His contribution was invaluable and we greatly enjoyed his company and appreciated his extensive knowledge of the islands, their culture, their rocks and minerals.

12 SMLS members participated and they were photographed (Fig. 2) as they came out of the Strond quarry in Bordoy. From left to right:: David Roe, Harry Critchley, Allan Mortimer, Nick Hawes, John Burgess, John White, Clive Minker, Tony Lee, John Pearce, Christine Critchley Peter Nancarrow, and Colin Brough. Our Societyôs membership is spread widely across the UK so members from as far apart as Cornwall, Lancashire and Wales converged on Stansted for the 2¼-hourôs flight to Vágar airport in the Faroe Islands on Monday 4th July. We picked up our three hired cars and drove through an under-sea tunnel two kilometres long, to the island of Streymoy to our base, the Streym hotel, overlooking Nólsoy island, in the colourful capital of Tórshavn (Fig. 3).

Fig. 1 Map of the Faroe Islands

Tórshavn was the obvious choice as it is well connected to the main islands in the north: Streymoy, Eysturoy, Bordoy, Vidoy and Vágar, most car ferries to the other islands start out of Tórshavn port and it contains many restaurants, museums, hospitals and other facilities. The roads in the Faroes are excellent, many of the islands are connected by under-sea tunnels, bridges and causeways and several roads run in tunnels blasted through mountains. Additionally there are rubber inflated boats (RIBs) and helicopters to complement these means of transport.

The Faroes (Fig. 1) are situated 62°N 7°W in the NE Atlantic Ocean, approximately half-way between Iceland and Scotland, situated in the heart of the Gulf Stream. It is an archipelago made up of 18 main islands. The landscape has been sculpted by glacial action during the Quaternary producing a mountainous terrain and spectacular and rugged scenery with treeless moorlands.

The population is around 50,000 but the people are outnumbered by sheep in a ratio of 2:1. The weather is unpredictable and heavy rain is possible at all times, but the windswept islands do benefit from the warm currents of the Gulf Stream. Fog in the summer can be a problem. Despite these very poor weather predictions we flew in and out of Vágar in clear skies and the only day it rained (Thursday) we drove north out of Tórshavn in rain and low cloud, through the tunnel under the mountains and emerged into dry weather for the rest of the day. It is light in the Faroes until nearly midnight so it gave us the opportunity for long hours of collecting, but made sleeping difficult.

Some of the group collected continually throughout the six days, but 7 of us took time out for an excellent 2 hour ñCruising the Vestmanna Cliffsò where we stood (Fig. 8) on the chilly, top deck of a powerful boat (Fig.5), which was skilfully manoeuvred into caves (Fig. 7), grottos, through rock arches and around sea stacks. The cliffs (Fig. 6) were awesome, nearly vertical, 500 to 600 metres high and going straight down into the sea like a fjord. Many birds, including fulmar, (Fig.10) black-backed gulls, kittiwakes, terns and guillemots were in evidence on ledges on the cliffs, but their numbers have been greatly reduced because of the fall in fish stocks and we did not see any puffins (Fig 9. shows a picture of a puffin with fish in its beak from the ***Atlantic Review's*** cover), so any thoughts we might have had of puffin pie were dashed. Sheep grazed precariously on some of the sheer cliff slopes while the salmon leapt in the fish farming pens, which seemed to be partially replacing the traditional fleet of sea fishing boats.

We had our share of incidents during the visit:

- Tony managed to drive 20 miles with his Sat/Nav on the roof of the car without it falling off. Using longitude and latitude to position sites is standard practice and four members of the group had Sat/Navs. Sometimes their readings agreed with each other.
- John White tried to leave the island with a forgotten chisel in his hand luggage, but it was quickly detected and confiscated,
- Harry broke his only hammer on the first day, but Bartal was able to lend us another, also a sledgehammer and a hard hat.
- We were tempted to stretch our arms (without a glove) into some of the large vugs to feel the position of the crystals and were sometimes rewarded with mesolite splinters sticking into and penetrating our fingers, which was very painful.
- Although most of our mobile phones allowed us to phone to the UK, only one could be persuaded to make local calls. It had been intended to have one phone per car so we could keep in contact, also to make calls in an emergency, e.g. accidents in quarries or running over a careless sheep on the roadé I guess we should have bought some SIM cards, but it was Thursday before we thought seriously about this; the collecting was too absorbing and distracting, and we never got around to it.
- Allan managed to smash another finger (TWICE) by trimming a specimen without wearing a glove (the last one was during the SMLS field trip to the Auvergne in 2010). It required two stitches in the local hospital in Tórshavn. I think Allan must like visiting hospitals.
- At the local supermarket there was a sudden and unexpected rise in the circulation pf the local Faroes Daily free newspaper after we realized that normal newspapers were £3 each (for wrapping not reading!).

We found the Faroese people very friendly, helpful and almost everyone we met had a good command of English (as well as Faroese and Danish) which allowed us to have many useful and interesting conversations and discussions. Some of the small villages were particularly

Fig. 2. The Group outside Strond quarry in Bordoy

Fig. 3 Tórshavn

Fig. 4. Bartal

Fig. 5 Our cruising boat

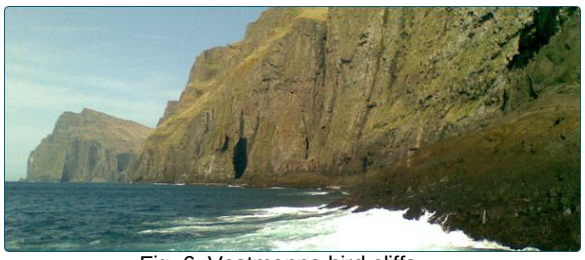

Fig. 6 Vestmanna bird cliffs

Fig. 7 In the caves

Fig. 8 On the cruise from Vestmanna

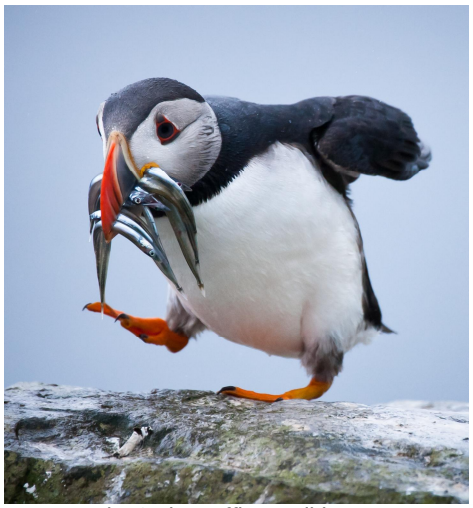

Fig. 9 The puffin we did not see

Fig. 10 Fulmars on the cliffs

Fig. 11 The coastal village of Leynar

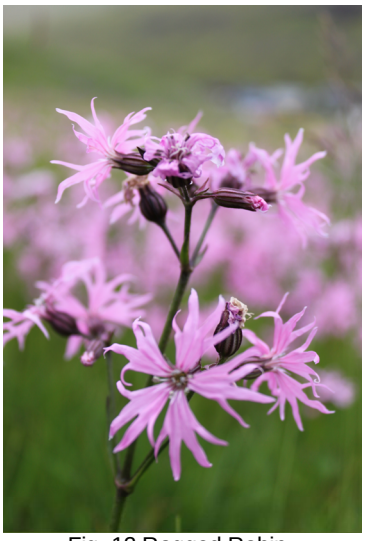

Fig. 12 Ragged Robin

Fig. 13 Helping a mineral collector in Tórshavn

Fig. 14. Arrival of 21 boxes of minerals in the UK and Allan weighing them

picturesque. Figure 11 captures a small village, Leynar, in a valley on the coast with some of the houses with traditional grass roofs.
We had expected the cost of living to be high, similar to Scandanavian countries, but we were horrified at the cost of food in the restaurants, beer cost around £6 or £7 a glass (or £12 per pint) and wines were £60 to £90/bottle. We should have remained seriously sober, but we had brought bottles of whiskey and wine as presents, not all of which were needed, also we had bought some duty free gin and a wine box and we felt obliged to drink everything to keep the weight down on our return flight. (One of the few items which was cheaper than in the UK was diesel at £1.20/litre).

We managed to eat out at three fine restaurants in Tórshavn during our stay including a superb fish buffet. We tried to economise by eating at a local pizza/pasta restaurant and brought in fish and chips on one evening. Tony casually said he could easily and cheaply make a chilli for the 12 of us, so we gratefully, and quickly, accepted his offer and, despite forgetting (initially) to buy onions in the supermarket and not realising that you don't need a tin opener if the cans all have pulls, we had a superb meal. I think Tony will be more careful what he volunteers in future! After our last meal at the Marco Polo restaurant we walked around town and figure 13 shows us meeting a sculptured man holding a very heavy rock. We thought he must be a mineral collector so decided to help him carry the rock.

It soon became clear that we should need to ship back some of the minerals we were collecting. It was possible to increase our baggage allowance on the plane by 10 kg at a cost of £5/kg but Allan, drawing on his experience of exporting minerals back from Namibia and Slovakia on previous SMLS trips, made contact with Blue Water Shipping A/S, who offered us a deal of £2/kg if we shipped a minimum of 200 kg. This resulted in several visits to the supermarket to raid their store of cardboard boxes, purchasing more wrapping paper, plastic boxes, nappies, newspapers, duck tape and marker pens. Finally, on the last evening, 21 boxes were assembled in the hotel ready to be picked up a couple of days after our departure when they would be shipped via Copenhagen and Manchester to Allan's home address in Shropshire. (The final total weight was 218kg and the boxes arrived at Allan's home in less than 2 weeks - figure 14) Some of the more delicate specimens would go in our hand luggage and plastic bottles cut in half were found to be very suitable for wedging specimens with delicate mesolite crystals.

The Faroes are very photogenic and our cameras were busy capturing our various activities, mineral sites and the rugged scenery. Clive collated all these photos for the group and they will provide an excellent database for various articles, displays and power point presentations we hope to produce.

Keeping an account of the group's finances during these overseas trips is quite a task and it was complicated by the exchange rate fluctuating between £1 = 8.75 DKK and £1 = 8.0 DKK. However, Christine is a born organiser and made it look easy and had virtually completed the accounts before we left the islands. Christine also took her laptop with her and made a diary which included information gathered before we arrived in the Faroes. Her diary was not only very interesting, but a very useful reference to check on sites visited and minerals collected.

References

Procter, J.	2008	Faroe Islands Bradt Travel Guide. 2nd Edition
Kort & Matrikelstyrelsen	2007	1:100,000 map of the Faroe Islands (ISBN 978-87-92107-00-8)

Many thanks for the various contributions from members of the group and Bartal.

John Pearce

Photo credits: Photo 2 (by remote) & 13 Colin, photos 3 &4 Jardfeingi; Photos 11 & 12 Tony Lee; photo 10 Peter Nancarrow; photos 5,6 & 7 Sunnar Skúvadal (skipper and owner of the Vestmanna cruise boat), photo 8 Christine (by proxy), photo 14 Elvire Mortimer and photo 9 Alessio Mesiano and Atlantic Airways.

Part 2. Mineral Collecting

1. BACKGROUND

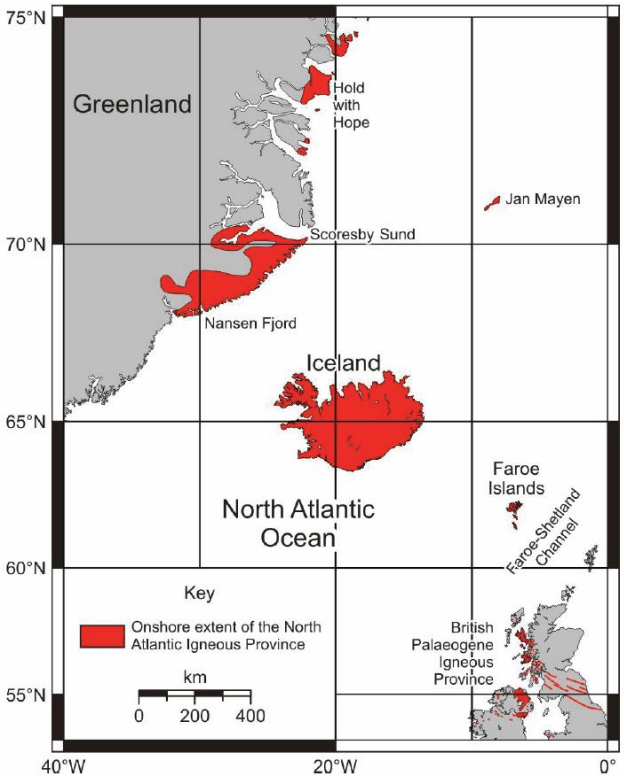

Fig 1 The Tertiary basaltic outcrops

Tertiary basaltic lava flows can be seen in figure 1 to outcrop in Northern Ireland, the west coast of Scotland (e.g. the Isle of Skye), the Faroe Islands, Iceland and SE Greenland and these are all good localities to find zeolites and their allies.

The Faroes have had many basaltic lava flows during the Tertiary Period and the landscape was later sculpted by glacial action during the Quaternary. The resulting landscape contains many steep cliffs where you can see fairly horizontal layers of basalt, slightly dipping, but not folded. Bartal introduced us to the ubiquitous red marker in these strata It consists of a reddened volcaniclastic sandstone and, more importantly for mineral collectors, the red strata is usually just above or below the zeolite zone. The red layer is clearly visible in the cliffs at the Ljósá road-cut in figure 2.
Sometimes we would walk along a road next to a cliff exploring a row of almost horizontal vugs just below this red layer.

The Faroes differ from the Isle of Skye, for example, in that its cliffs descend vertically and steeply into the sea, while classic zeolite sites in Skye, such as Oisgill, Moonen and Talisker Bays and Sgurr nam Boc, also have steep cliffs but any material falling from them collects on the beaches below. As a result we found that we were often collecting in the Faroes from inland quarries and looking for vugs along the roadside rather than visiting many coastal sites.

Communications in the Faroes are excellent. There are two tunnels under the sea connecting Vágar and Streymoy (Fig. 3) and Eysturoy and Bordoy, road tunnels have been blasted through many mountains and the roads themselves are first class. So driving around was fine although to get from a point on one island to a quarry you could see across the water on the next island, might involve a lengthy drive up to the only bridge crossing (see Fig. 4) and then driving back down the other side!

Most of us probably thought of zeolites as forming in spaces resulting from gases condensing in cooling lavas or from emptying lava tubes, followed by percolating mineral waters and the deposition of zeolites and associated minerals. However, Bartal introduced us to the possibility of tree casts being an additional source for zeolites and showed us an example by the side of the road as we drove to Sátan quarry on Streymoy. Tree casts can result if a lava flow encapsulates a tree and after the tree burns it forms a space (a tree cast) and the potential for a large vug of zeolites.

Before we set out to the Faroes, Tony and Christine had analysed the available information about minerals and their locations drawing on information from the key reference by Volter Betz (1981), also from Currie (1907), Heddle (1902), Tschnerich (1992), MINDAT and Google Earth.

Fig. 2 Red layer in Ljósá road cut

Fig. 3 Driving under the sea from Vágar to Streymoy

Fig. 4 Bridge joining Streymoy and Eysturoy islands

Fig. 5 Strond quarry, Bordoy

Fig. 6 Bow tie stlbite. (20mm) Strond quarry, Bordoy
Specimen: Colin Brough

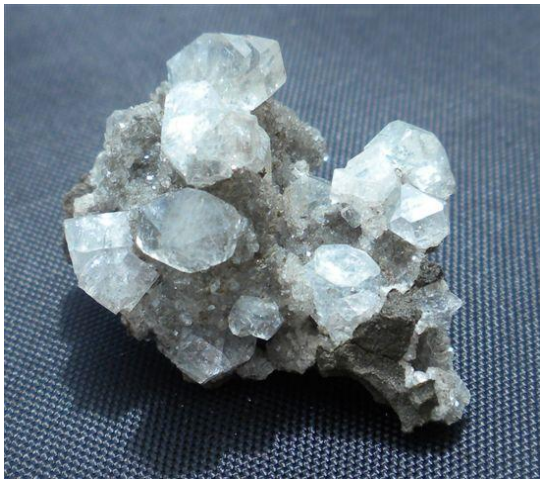

Fig. 7 Apophyllite and heulandite (3 x 3 cm),
Specimen: John Pearce

Bartal also provided two extra papers on our arrival in the Faroes by Jørgensen (2006) and Schmitter (2008). They had also spoken with our UK zeolite specialists Alan Dyer and Oneta Wilson. This enabled them to produce maps showing all potential sites (over130) and a

spreadsheet indicating which minerals had been reported from each of them. Some of the information was very dated and we had far more sites than we could cope with.

Tony selected a list of sites which appeared from their research to offer the greatest potential:

- Sátan, Streymoy
- Mt Haeddin, Eysturoy
- Strond, Bordoy
- Saksuns, Streymoy
- Hestur island
- Leirvik beach, Eysturoy
- Strendur, Eysturoy
- New Sund, Stremoy
- Depil, Bordoy
- Hvítasteinar quarry
  Skalabotnur, Eysturoy
- Haldersvík, Eysturoy
- Dalsnípan and Dalur, Sandoy

Of the most promising sites listed above we did not manage to visit Saksuns on Streymoy, Hestur Island, Depil quarry on Bordoy or Dalsnippa and Dalur on Sandoy Island, but we did manage to visit the remainder and overall we collected at, or explored, 26 sites in 6 days

We liked the idea of splitting our forces on one day and going to three different islands:

- Nólsoy, a stoneôs throw from our hotel, to see the famous zeolite cave, probably using a private boat rather than the ferry.
- Hestur by ferry from Gamlarett harbour. Heddle was very enthusiastic about the quality of zeolites collected from this island over 100 years ago.
- Sandoy, Dalsnípan is the type locality for levyne, but the cliffs looked very steep on Google Earth!

However, after our second dayôs collecting we realised that we would find it very difficult to do justice to the more promising sites on Streymoy, Eysturoy, Bordoy, Vidoy and Vágar, so the õthree island tripò was abandoned. We would need to return for another visit to the Faroes to do this.

2. THE SITES ACTUALLY VISITED (listed alphabetically by island with matching symbols A ï Z on the map). All minerals were identified visually.

2.1 Bordoy

A. **Strond quarry** 62° 16ô18òN 6° 35ô33òW

A working quarry by the side of the causeway to Kunoy Island. A very muddy, water-logged quarry (Fig.5), but it was probably our best site in terms of the suite of minerals found, their abundance and quality. The quarry appeared to be active judging by the plant and stockpiles. We were quickly able to locate good hand specimens from the many vugs available, stilbite as cabinet-sized specimens with crystals typically to 1cm were common, some associated with other minerals including chabazite and apophyllite. Colin found a small (20mm long) but superb bow-tie stilbite (Fig. 6). Unlike most other sites chalcedony and opal were present, but probably the best find was a large plate (30cm x 15cm) of bright clear, lustrous apophyllite with heulandite from the face of a large boulder. Unfortunately some of the specimens crumbled after being extracted, but a fragment is shown in figure 7. Yellow and orange rhombs of calcite were also common, but many were overgrown by heulandite and it was difficult to extract a reasonable specimen.

Fig 8 Sites visited

2.2 Eysturoy

B. **Eidi** 62° 17ô43ðN 7° 04 ô46ðW.

A large road cut, but only a couple of vugs of thomsonite with balls up to 5mm and minor apophyllite were found.

C. **Funningur road cut** 62° 14ô24ðN 6° 56ô39ðW

Not promising initially but this was an unscheduled stop in response to a previous disappointment at Skipagjogv Quarry. We only had about an hour so we split up to cover about 1.5km of road side and three small quarries. Much of the roadside was overgrown, but there was enough basalt evident to show numerous vugs. Fresh vugs were quickly located at more than one horizon. All contained thomsonite as farolite, the classic Faroesô spherical habit, but now a discredited species name. Some of the specimens recovered (fig. 9) had crystals to about 2cm in diameter.

We were about a kilometre away and out of sight from Allan and Clive when we heard a strange noise and after a discussion about possibilities, realised it could not be mechanical and we were not sure what type of bird or small mammal would make such a sound. Ruling these possibilities out, we then realised it sounded like someone yodelling with a Scots accent! (A call to return to the cars may be?).

D. **Hvítasteinar Quarry, Skalabotnur** 62° 11ô13ðN 6° 50ô21ðW

A large quarry not recently used and in part being landfilled. This was a priority site for us to visit and we were not disappointed, in fact one group made a return visit. Several good specimens were recovered from vugs in stockpiled rock and several new vugs were opened. The apophyllite and stilbite, combinations or separately, were very good with a number of cabinet size specimens.

Fig. 9 Thomsonite (2cm diameter) Funnigar road cut
Specimen: Tony Lee

Fig. 10 Heulandite (10 x 10cm) Hvítasteinar quarry
Specimen: Colin Brough

Fig 11 Chabazite(8 x 6cm) Hvítasteinar quarry
Specimen: Nick Hawes

Fig. 12 Micro-heulandite on celadonite,(6 x 8cm)
Hvítasteinar quarry Specimen: John Pearce

Fig 13. Mesolite fan (crystals 5 ï 8cm)
Hvítasteinar quarry Specimen: John White

Fig. 14 Thomsonite variety farolite, (8 x 4cm)
Ljósá, Eysturoy Specimen: John Pearce

John P broke into a very large vug at the back of an apparently empty vug, and extracted around 8 superb specimens of heulandite before considering the vug to be totally empty. Sometime later Colin came along, took the front off this same vug and extracted a museum specimen 25 x 10cm (Fig. 10) - the best find of the day! Nick opened up a vug of very attractive orange chabazites (Fig. 11) with crystals up to 12 mm on edge

Tony examined a very large vug which had previously been opened and used a handy piece of 1.2m steel rod left by a previous visitor to widen and deepen the hole. He and Colin collected some lustrous green stalactitic specimens, typically 10 x 15 Cm, with celadonite inclusions in micro heulandite crystals (Fig 12), some with isolated stilbite crystals. It was the best celadonite we found all week.

Also a superb fan-shaped mesolite (Fig. 13) with needles 5 to 8cm long was extracted by John W from the middle of a huge boulder. We insisted that a photograph should be taken before he reduced the size of the boulder, but the extraction was a total success.

E**. Leirvik** 62° 12ô39ðN 6° 41ô57ðW

There was a very large stockpile of rock, probably extracted from the construction of the nearby under-sea tunnel and now being used for harbour sea defences. A few vugs containing minor stilbite and thomsonite were found, but were too weathered to collect. The nearby road construction produced some bright, sharply terminated apophyllite, which resembled quartz, but not much else.

F**. Ljósá** road cutting 62° 16ô00ðN 7° 05ô00ðW

Information on this location was vague and this was not a priority site for us but from the evidence we had it was well worth a visit if we were in the area. The main interest should have been large analcimes. The old road cuts did not look very promising but almost exactly on the described location in the literature new quarrying was being undertaken This small quarry (Fig 2) produced abundant apophyllite, thomsonite, variety farolite (Fig 14) gyrolite (Fig. 15), chabazite and possibly, mordenite and Harry found a small specimen of saponite (5mm crystals), also a micro chalcocite (1mm) with some blue copper staining. Strangely not a single analcime was recovered. Again this quarry attracted a second visit.

G**., Mt Haeddin**, **Lambareidi**, **Hustoft Quarry** 62° 08ô00ðN 6° 43ô00ðW

This is a large working quarry located near the top of a mountain. The quarry has three parts and we had useful guidance from Bartal that the lowest levels would be the most interesting. Allan found good chabazite in an interesting variety of phacolite (Fig. 16) with crystal growths on its faces (crystals to 35mm) with analcime. The range of minerals was limited but the quality of the thomsonite in the form of farolite was very good with balls to 1cm.

Although we had permission to go into this quarry at a weekend, we still had to squeeze under a metal gate to reach the zeolite rich zone in the lower level of the quarry. Figure 17 shows Colin leaving the quarry under the gate as six cameras were pointed at him by members of the group positioned outside, not to mention the quarryôs CCTV security camera! It should keep the quarrymen amused on Monday morning!!

H. **Selatrad Quarry** 62° 08ô16ðN 6° 50ô54ðW

A small quarry which appeared to be worked intermittently. Clive found a good boulder containing large clean thomsonite (2cm diameter crystals). We also recovered modest specimens of apophyllite, heulandite and celadonite. The large number of vugs

and the presence of weathered specimens suggested that the site continues to have good potential if further quarrying takes place.

I. **Skipagjogv quarry** 62° 14ô41ðN 6° 56ô23ðW
An old quarry with a few small vugs but very overgrown. Weathered stilbite was obvious but nothing warranted any serious attention.

J. **Strendur Quarry** 62° 06ô04ðN 6° 46ô43ðW
A small old quarry, Allan found a nice hand specimen of stilbite (6 x 8cm), which appeared to be from a recent rock fall but otherwise nothing.

2.3 Streymoy

K. **Gamlarett Qy** 61° 57ô45ðN 6° 49ô05ðW
This was not a planned visit but an attempt to avoid the rain. It is an old quarry excavated to form the ferry terminal and harbour. Most found chabazite but these were either weathered or shattered when being extracted. After an hour or so several fresh vugs were located and some produced large fresh clear and milky chabazites. Peter and Nick found good clear and milky chabazite groups with crystals to 3 cm on edge (Fig. 18). It was interesting to note that the chabazite only occurred as three or four large crystals in an otherwise empty vug. The only other zeolites found were heulandite, thomsonite and mesolite, but a small piece of blue chalcedony (2 x 2 cm) was found in the boulders to the south of the terminal.

L. **Haldersvík, Vikarnes quarry, ,** 62° 15ô43ðN 7° 04ô49ðW
A large quarry which appeared to have been recently quarried. Although there was little material loose on the floor, what was there contained good analcime, heulandite, mesolite (10 x 15cm) and stilbite. Nick found a huge vug above the red sediment containing a great deal of mesolite with sprays to 8cm. He had to build a stone scaffold so he could reach the vug (Fig. 19). Harry found a cavity containing some very attractive green apophyllite,1cm long (Fig. 20) The quarry walls provided several new vugs, some containing rich coatings of mesolite but unfortunately, much was saturated with water and matted.

M. **Haldersvík, Gasafelli,** 62° 15ô22ðN 7° 04ô34ðW
A chance sighting of roadside vugs (Fig.21) produced several pearly transparent stilbite clusters (Fig. 22) to 18cm with single crystals up to 3cm

N. **Kvivik** road cut 62° 06ô54ðN 7° 03ô43ðW
Some vugs in the roadside contained stilbite. Chris and David found a vein containing aragonite needles to 1cm. Also we explored a large pile of dumped rocks at Sunnaragjógv on the hillside north of the main road, about 1km west of Kvivik. Some mesolite, orange heulandite and pink chabazite were found but there were few vesicles in any of the rocks and it was difficult to be sure where the rocks had originated.

O. **Leynavatn** 62° 07ô42ðN 7° 00ô43ðW
A site noted by Currie in 1907 for levyne and recent tunnel waste, but little was found. The location and the size of the vugs was not promising. However, a beautiful spot for a stroll by the water accompanied by Hooper swans and fulmars, but nothing to collect.

P. **Nesvik** 62° 13ô21ðN 7° 02ô27ðW
At first appearance this was not promising, it was a working recycling depot in an old quarry (Fig. 23). Bartal, who was travelling with us on this day, spoke with the manager

so we could enter the quarry and collect. We possibly spent too much time trying to get at the cliffs behind the dump of waste metal. Weathered specimens of calcite and

Fig. 15 Gyrolite & thomsonite (45x30mm)

Fig 16 Overgrowths on the phacolite faces on celdonite. Mt Haeddin Quarry, Esysturoy Specimen: Allan Mortimer

Fig. 17 Colin Brough leaving Mt Haeddin Quarry Esturoy

Fig.18 Milky chabazite, Gamlarett quarry, Streymoy Up to 2cm on edge Specimen Peter Nancarrow

Fig. 19 Nick improvising in Vikarnes quarry

Fig. 20 Green apophyllite (1 cm) Vikaranes quarry, Haldersvik Specimen: Harry Critchley

Fig 21. Peter and John P examining a large vug Gasfelli, Haldersvik

Fig. 22 Tony holding a large Stilbite (18cm high) Gasafilli, Haldersvik

Fig. 23 Nesvik quarry, Streymoy

Fig. 24 Thomsonite, Nesvik quarry Streymoy

Fig. 25 Old Sund quarry, near the power station, Streymoy

Fig. 26 John B opening a vug in Old Sund quarry, Streymoy

Fig. 27 Mesolite on analcime (8cm FOV) Old Sund quarry, Streymoy

thomsonite soon revealed where fresh cavities could be located and we found large calcite crystals, both dog tooth and rhombs and balls of thomsonite up to 1 cm in diameter. One specimen contained thomsonite in three different habits: one with spiky terminations, one as smooth balls of farolite and the third as interwoven blades (Fig.24). In the open part of the quarry there was little loose rock so most of our attention was on the quarry walls and analcime, calcite gyrolite, mesolite, chabazite, heulandite, thomsonite: var. farolite were collected over a wide area. Nick obtained a large, good quality apophyllite. (crystals up to 2cm).

Q. **Sátan Quarry, Hundsarabotynur** 62° 05ô24ðN 6° 58ô02ðW

A large working quarry which Bartal had kindly arranged access for us and Jónleif Joensen showed us his extensive rock testing laboratories. Based on the evidence before our trip this should have been one of our best chances for quality minerals if not variety. We were able to visit about half the quarry and saw a collection of minerals in the quarryôs laboratories. Zeolites were not common in this collection and were even scarcer in the quarry. However David did pick up a 12x8cm chabazite group, but that was it.

R. **Sund Old quarry** by the power station. 62° 05ô05ðN 6° 51ô25ðW

This will probably be considered by many as the best site of the trip. It was not revealed by research of any published material and seems to have been overlooked in recent years although in the quarry there was some evidence of previous collecting. The site was found by a careful examination on Google Earth. The decision to visit this quarry was entirely providential as one of the two cars returning after a full dayôs collecting at five previous sites, decided to return to base. However with an hourôs collecting time left, the other carôs occupants decided to have a quick look.

The quarry (Fig. 25) near the power station was very wet, weathered, overgrown and recently used as a storage yard and now a paint ball venue. A search of the quarry revealed little of interest but as the group was leaving, a second dig at a spot we had noted in our first sweep revealed some very modest analcime. This was only interesting because little analcime had been found and we decided to extract a few small thumbnails. However we quickly found weathered mesolite and John B located a particularly rich area of fresh mesolite (Fig. 26) that he developed and found it was part of a pipe 15cm wide and at least 30cm long containing fine clear mesolite crystals up to 20mm on analcime

Two subsequent visits were made on the following days by other members of the group and the pipe was developed considerably and a second adjacent pipe was opened up. This site certainly produced the richest and largest specimens (if not the longest) of mesolite recovered on this trip. Over 20 hand-sized good quality specimens (Fig. 27) were eventually recovered.

S. **New Sund Quarry -** Industrial estate 62° 02ô53ðN 6° 48ô41ðW

A working quarry, probably part of the expansion of the adjacent industrial estate. Zeolites were almost completely absent apart from some very poor chabazite. The only mineral of note was evidence of copper which was relatively common but only as green staining on joint planes.

T. **Vestmanna, Válur** opposite headland 62° 08' 08ðN 7° 09' 37ðW

Nick opened up a large roadside vug (Fig. 28) and stilbite, mesolite, green celadonite, apophyllite and heulandite were collected. Specimens were typically 12cm x 9cm and the mesolite crystals were up to 1.5cm.

U. **Vestmanna** behind the recycling unit 62° 09ô01òN 7° 10ô54òW

We managed to get permission to go through the fence to reach the cliff face. There is a row of large but slightly weathered vugs in the steep quarry face containing heulandite, stilbite and mesolite. We only collected for a short time as we had to catch our boat at the port for our 2 hour cruise along the Vestmanna bird cliffs.

2.4 Vágar

V. **Midvagur, Hóssá** 62° 02ô40òN 7° 10ô45òW

Currie reported the presence of levyne in 1907 at this site and this was our target for the day, but a careful search indicated that the site had been lost to the development of an adjacent marina.

W. **Midvagur, south side of bay** 62° 02ô37òN 7° 10ô43òW

A small working quarry. Vugs were not as plentiful as at other sites, but careful searching produced fresh vugs in the quarry face which contained excellent stilbite with single crystals to 8cm and groups to 12cm. The quarry also provided heulandite, calcite, apophyllite, small crystals of laumontite (Fig. 29) plus a specimen of a single salmon pink chabazite to 2cm.

X**. Oyrargjogv road cut,** 62° 06ô22òN 7° 09ô03òW

The site recorded by Betz in 1981 is by the stream beyond the ferry terminal at the west end of the road. A quick search here and along the beach revealed many large vugs that were either empty or badly weathered. The road is about two kilometres long and the basalt is almost horizontal. Walking eastwards along the road for several hundred metres, several old and empty vugs were visible, but on careful inspection several new vugs were located and this produced particularly large and fine stilbite crystals up to 8cm and assembled groups of crystals to 18cm. (Fig. 30).

Y**. Sandavagur, quarry north of village** 62° 03ô50òN 7° 08ô48òW

A large disused quarry. It appears unlikely that it will be quarried again as it appears to be a builderôs store. John P extracted a good specimen of stilbite and heulandite (10 x 6cm), but little else was found.

Z. **Sorvagur, airport quarry**

We were unable to get access as it is within the airport boundary. The quarry was accessible until 2010 when the extension of the runway strip started.

3. SUMMARY AND CONCLUSIONS

3.1 Proximity to sites

Looking at the sites we visited in the 6 days we were in the Faroes (see Fig. 8), it is clear that we visited those nearest to our base in Torshavn. May be next time we should have a base, say in Klasvík in Bordoy and visit some of the other islands.

3.2 Vugs

Although we have found the occasional large vug in the Isle of Skye over a 10 year period including a pipe of superb stilbite crystals on Sgurr nam Boc beach (45 cm in diameter and now in the Oxford University museum - Pearce, 1991), in the Faroes we were all finding numerous vugs of zeolites and their allies, breaking into cavities which could best be measured in metres and some of which were big enough to crawl in. Nick commented that it canôt be bad to work, on average, two ñvirgin vugsòon each of the days. And the quality of the minerals from these vugs was exceptional. Tony has amazing eyesight and could spot vugs even as we drove slowly along the road and even more as he strode purposefully along the roadside, detecting, opening up and extracting fine mineral specimens!

Fig 28 Nick opening a vug at Válur, Vestmanna, Streymoy

Fig. 29 Laumontite, Midvagur, Vágar (17mm)

Fig 30 Stilbite, (18cm high) Oyrargiogv, Vágar Specimen: Tony Lee

Fig. 31 Christine's map, summarising our visit to the Faroe Islands

3.3 The most interesting and best minerals found on this trip (see section 2)

Apophyllite. The best material came from Strond quarry.
Chabazite Excellent specimens were found at Gamlarett terminal and Hvítasteinar quarry , while the best phacolite came from Hustoft quarry, Mt Haeddin.
Celadonite The green mineral celadonite can line and fill some vesicles and as inclusions can colour some zeolites green. The best material came as inclusions in the stalactitic micro-heulandites from Hvítasteinar quarry, Skalabotnur.
Gyrolite Ljósá quarry.
Heulandite Hvítasteinar quarry
Mesolite This mineral was found at many sites, but good large white, spiky mesolite was found at Vikarnes quarry, Haldersvík, while the finest long, slender, clear crystals were found in the old Sund Quarry
Stilbite Oyrargjogv road cut, Hvítasteinar quarry and Strond quarry.
Thomsonite var: Farolite (spheroidal thomsonite) Funningur road cut, Selatrad Quarry, Nesvik and Ljósá

3.4 The Best Collecting Sites for us on this trip were:
Haldarsvík (M); Hvítasteinar quarry, Skalabotnur (D), Ljósá (I), Hustoft quarry. Mt Haeddin (G), Strond (A), Nesvik (P) and the Sund Old quarry (R) (the symbols refer to Fig 8). Four of these (50%) were on Tonyôs original list of sites offering the greatest potential (see above).

3.5 Reflections

Although we visited eight of the twelve sites we identified as priorities based on our research, events on the ground dictated flexibility as cliff and beach sites found by Heddle and Currie proved difficult to locate or access and in many cases lacked fresh material owing to the absence of cliffs or beaches. Road cuts are by nature transient and quickly become depleted, overgrown or weathered, while the operation of quarries is linked with economic activity and infrastructure projects and quarries commonly seem to be used for landfill. Some of our priority sites proved to be very good, but a significant number of good sites were discovered by simply driving around and getting out of the cars and looking carefully. By observation in the field and from the researches of Currie and Heddle, it appears that those sites in the lower levels of the basalt probably contain the most numerous and largest vugs and the best specimens of the most common zeolites. Based on our finds chabazite, heulandite. mesolite, stilbite and thomsonite, were the most common zeolites while, unlike the Isle of Skye, analcime joined the comparatively rare list.

3.6 We were sorry not to have found levyne or gismondine and we would have liked to visit and collect on Vidoy, Nólsoy, Hestur. Sandoy and possibly Suderoy on any future trip.

3.7 The detailed map in Figure 31 was constructed by Christine, before, during and after our trip, and contains information about potential sites (e.g. C43 is a specific Currie site and B7 a Betz site) as well as the sites we actually visited each day. Individual car journeys are indicated by the different coloured smiles. It even shows the two under-sea and various road tunnels. A fantastic resource and a work of art in its own right, it provides a superb summary of our trip to the Faroes.

An amazing experience, a thoroughly enjoyable trip, good collecting and great company.
We shall return.

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Fig. 32 View of Kunoy

John Pearce and Tony Lee