Farnham Geological Society

(A Local Group within the Geologists' Association)

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Little did the members of our Society who went on the Scottish Field Trip know what eventually awaited them on their return. The trip itself was a success - we were taught about the joys of Field Mapping in the Strathcarron area by our leader Steve Cribb. How to identify and pinpoint a lichen-covered outcrop in deep heather which one has to wade through as there are often no tracks is quite a problem. Our leader Steve had used a blown-up aerial photograph of the locality when he did his mapping. Those two stalwarts Peach and Horne had no such aid when they produced their first geological map of Scotland early last century. We all loyally followed Steve round in this rough country but no one had told us of a little local problem - Scottish midges! In still air or light winds everyone had their attendant cloud of midges. The old-timers had brought their insect repellents and generously let newcomers use them. At the Post Office and village shop at Kishorn I was offered four different brands of insect repellent and also a booklet on Scottish midges. I did good business with them!

For the rest of our trip we were based at Cullen on the south side of the Moray Firth. Our leader here was Sue Hay and we encountered Regional metamorphism and also gabbro. At the coastal location the sea breeze was enough to keep the midges away. In the neighbourhood of Fraserburgh, an important fishing port, the amount of fishermen's rubbish, bits of net, ends of rope and plastic containers was nobody's business and evidently nobody's business to remove. One wonders how far seawards District Council's ambit extends.

We all arrived back at Farnham on schedule thanks to the steadfast driving of Brian Tones.

On Saturday the 18th of November about twenty of our members who had gone on the Scottish Field Trip attended a Scottish Reunion at the Cresswell's house. Photographs taken on the Scottish Field Trip were examined but instead of the expected buffet supper we were treated to a proper sit down dinner of three courses, beautifully cooked and much appreciated. We are all in Dorcas and David's debt.

We have to thank Lyn Linse for allowing us to print another letter from Ivan Dyreng. He certainly seems to fall on his feet. Perhaps our society should undertake a similar trip. There's bound to be some geology on Mt. Kilimanjaro!

We thank Cath Clemesha for a report on a trip to Bornholm Island where besides trace fossils there are surprisingly four different varieties of granite.

We thank Peter Cotton for the report on the Scottish Field Trip which was printed in the Farnham Herald on the 6th of October.

Ivan Dyreng's letter of 10 August to Lyn Linse is printed and we thank her for Astronomical Geology Holiday in Portugal's Algarve.

And finally, some items taken from church bulletins.

David Caddy.

From: Ivan Dyreng

Dear Lyn and John

It was great to hear from you again. I have just gotten a new E-mail server. I have been without a server for many months now. I just signed up with ATT.

We're so pleased that you are both doing well after all the trials you have gone through. It sounds as if that new liver has given you a new lease on life. Elaine has just undergone surgery for cancer. She is recovering nicely. The doctor said that is she had to get cancer the one she had is the one you want. Fortunately the doctor said they got the entire cancer, and that there is no need for radiation or chemotherapy. They pronounced her cured after the surgery .

We have been busy, as usual. In February, Elaine and I had a wonderful 10 day tour of Israel. What started out to be just a tour of Israel turned into something much greater. We had our tickets for our flights, and our daughter Karen (Manager of the Morris Murdock Travel office in Draper, about 10 miles south of the city center) called Elaine to let her know of a special fare on an African cruise. The cruise time was just a few days after we were scheduled to return from Israel, so we booked the cruise back-to-back with our Israel tour. We changed our tickets to return from Charles De Gaulle airport after the cruise. We flew from Paris to Amsterdam, where we met Karen and her eldest brother, Russell. We spent a few days in Amsterdam before they arrived. We flew from Amsterdam to Nairobi, where we had 5 pre-cruise days to go on safari on our own. I took a picture of the Equator as we crossed it. I hope the picture turns out. If it does, I'll send you a copy.

In Nairobi, we hired a 9 passenger Toyota "pop top" van, and a local driver to take us on Safari. We went to Nairobi National Park and a Giraffe Center near Nairobi. Then the highlight of our safari adventure was Amboseli National Park on the north slope of Mt. Kilimanjaro. We stayed in the Oltukai Lodge in the National Park, with nothing more than a low electrified fence between the wild animals and us. We saw all the African wildlife I can imagine, except for leopards and rhinos. We had a herd of 46 African elephants cross the road within a stone's throw from our vehicle. We got some great close-up photos of them. We also saw cheetahs, baboons, Cape Buffalo, giraffes, zebras, hyenas, gnu, hartebeests, lions, ostriches, flamingos, secretary birds, hippos and lot of other animals. That was a thrill of a lifetime.

After our African safari, we flew to Mombasa, Kenya, where we took an 11 day cruise on the Pacific Princess, the original Love Boat. Our ports of call included Zanzibar, Tanzania, the Comoros Islands, the Island of Mayotte, and two small islands off the coast of Madagascar. We took a shore excursion to Nose Be, the Isle of the Lemurs, and another to a nearby island, Nosy Komba. Besides the lemurs, we saw chameleons and other wildlife. The children and adults were very friendly and happy. We gave them candy trinkets. They couldn't speak much English except: "You take my picture?" or "You buy bananas for lemurs?", or "You buy souvenirs?". They always wanted dollars.

We had shore excursions in Durban; Port Elizabeth, and finally in Cape Town, South Africa. In Durban, we went to Shakaland Village, a Zulu tribal village that was used in the film: "ZULU!" We were fascinated by friendly natives who were re-enacting the lives of their Zulu ancestors. They performed dances and taught us about their culture. The young, unmarried women and girls were all "topless". The married women wore hats and a bib, to cover up. In Cape Town we hired a driver to take us on a tour of Cape Town and to the Cape of Good Hope, where we went on out to Cape Point. We even saw the African Penguins that were threatened by the oil spill that was in the news not long ago. Our return flights from Cape Town were tortuous. We only spent 36 hours flying from Cape Town to Johannesburg, to Amsterdam, to Paris, to Cincinnati, to Salt Lake City.

I'm glad to hear that you have more FGS members considering another trip to our area. Approximately when would you want to travel, and how long would you like to be gone. Are you thinking of a trip similar to what you did before? Is your group interested in a more or less extensive trip than we did in 1996? Do you want to include Yellowstone as well as the Grand Canyon?

I look forward to hearing from you. Give my greetings to all our friends at the FGS.

Sincerely,

Ivan Dyreng

Reprint of article in Farnham Herald, 6th October 2000

'Group's voyage of discovery

Farnham Geological Society went on a special millennium trip to the north of Scotland recently. Twenty one members of the society established two centres for their field excursions, one by Loch Carron, north of the Kyle at Lochalsh, and the second on the shores of the Moray Firth in the little town of Cullen.

The geology of the Scottish Highlands and islands is extremely complex and the party had arranged for two geologists familiar with the areas to act as guides.

From the Loch Carron base some of the oldest rocks of the earth were visited. These are the Lewisian Gneiss which take their name from the island of Lewis and range in age from two and half to three billion years.

Over the vast time period to the present day they have been subjected to violent change such that they now form a lowlying base on which other very old rocks called the Torridonian sandstones rest.

These form the Torridon Highlands with their gigantic towering peaks rising to over 3,000 feet and including the nature reserve of Beinn Eighe. Over to Skye on the new bridge to Kyleakin and then on to catch the ferry to the isle of Raasay. A remarkable feature of this island is the presence of Jurassic limestone - as in the Cotswolds - and within this limestone there is a band of ironstone. In the first world war German POWs worked this band and the factory buildings and accommodation blocks are still there in a ruined state on the hillside.

The geology on Skye was done from the coach where members noted the contrast between the Red Hills bordering the coast road, which are formed from granite, and the Black Cuillins behind them formed from another igneous rock called gabbro.

This is a good example of how the underlying geology influences surface features such as colour, type of soil, drainage patterns etc. The early Scottish geologists of whom there were many famous men like Sir Archibald Geikie, recognised this fact when relating their geological investigations to the magnificent scenery of Scotland.

On the sixth day of the visit the group travelled across the country through Inverness and along the southern coast of the Moray Firth to Cullen.

Members visited the Glen Ord distillery and the geology guide, Steve Cribb, who has written a book entitled "Whisky on the Rocks", explained how the type of water used in the distillery process influenced the type of malt whisky; yet another example of how the underlying geology affects things like water.

Also on the way to the north-east members passed over a very significant geological boundary called the Moine Thrust which 500 million years ago pushed rocks in a westerly direction for hundreds of miles and, in the process, forced older rocks over the top of younger ones.

From the base on the shores of the Moray Firth the group was taken by a new guide, Sue Hay, to various sites in Banffshire and Aberdeenshire where rocks of the Dalradian Super group were examined in detail.

These rocks are thought to have been laid down originally when an old ocean named Iapetus spread outwards pushing the land areas either side which at a later time then came together in a mammoth collision causing volcanic activity and building huge mountain chains.

The group spent a whole morning in a large quarry near Huntley in Aberdeenshire where the leader is doing research for her Ph.D and so was particularly suited to explain the origins of this huge gabbro mass dated at 470 million years ago.

Along the south coast of the Moray Firth up to Fraserburgh at the far eastern end there are many delightful old fishing villages situated in coves cut into the magnificent cliffs, very reminiscent of the north coasts of Devon and Cornwall.

Members found plenty of geological interest to explore in the cliff exposures. In the neighbouring countryside the group saw many fields devoted to growing the barley needed for the distilleries of Speyside and surrounding areas.

Altogether a memorable millennium voyage of discovery.

Peter Cotton.'

Bornholm. 18th August to 4th September

Four of us joined a G.A. trip for a week on Bornholm. We stayed in a hostel attached to a converted windmill belonging to our leader, Richard Bromley, and his wife Ulla Asgaard. Both are geology lecturers at the University of Copenhagen.

Bornholm is the easternmost of Denmark's islands. It is about 20 miles east to west and 13 miles north to south, in the Baltic Sea, south of Sweden. It has no high hills, but the countryside is undulating, with woods, fields of cereal crops, farm animals, wind turbines, old windmills, round churches, well-kept roads with very little traffic, empty white beaches, small towns and villages.

It was very free and easy - no locks on the doors, including some of the loos, miles from anywhere and very quiet. The food was abundant, varied, organic and prepared by Ulla and a geology student, Mette. They had no other help.

Many of us had taken far too much Danish money. Everything was included, even beer and soft drinks and we only spent about 1½ hours shopping in Rønne, the capital; otherwise we were at isolated localities, sometimes on the coast (occasionally with ice cream facilities) and sometimes inland.

The weather was sunny and dry for the first four days; one day was showery and the last day, after a very heavy shower at the first locality, was as sunny as ever but with a cold wind.

We were provided with geology guides (in Danish) with a translation of most of the localities by Richard. Danish is impossible, particularly the pronunciation. Luckily they all speak excellent English.

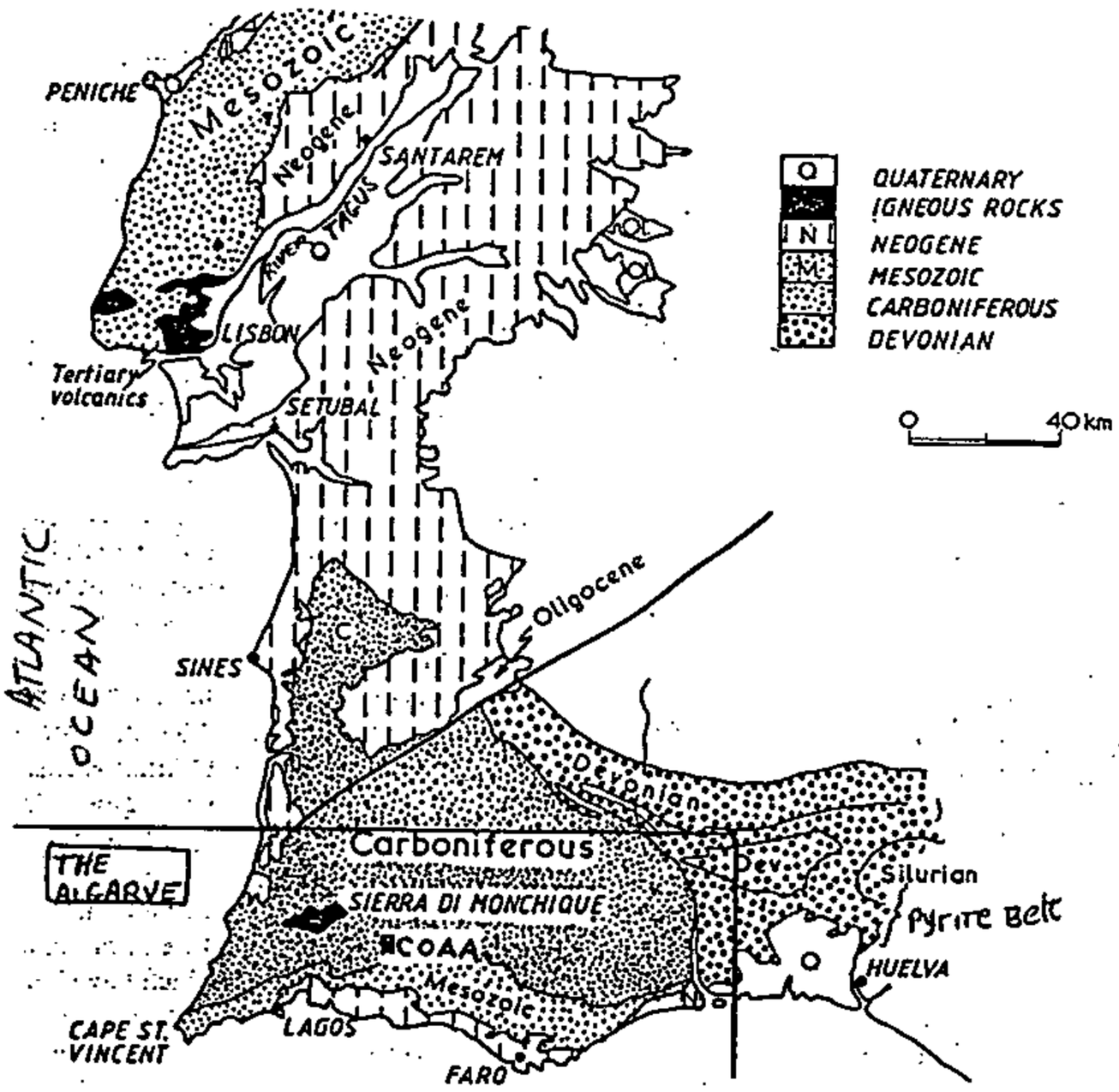
Richard is an ichonologist, so trace fossils featured prominently in our investigations; but he did not ignore the four types of granite, the stratigraphy (from Pre-Cambrian to Quaternary without any Devonian, Carboniferous, Permian or Tertiary) or the hunt for fossils such as trilobites, graptolites and sponges. We visited round churches, a medieval church, a working windmill, a ruined castle, a burial mound, a chambered tomb and saw Bronze Age petroglyphs of ships, now painted to show them up.

Things that stand out in my memory, geologically are: 1) a "beach" of ripple marked sandstone complete with "worm casts" in a quarry of Lower Cambrian sandstone; 2) walking along stream beds looking for Silurian graptolites; 3) scraping the sides of river cliffs with a spade to reveal clearly defined sediments with faults and worm burrows (upper Cretaceous); 4) standing on a beach which could have been Beachy Head except that the "chalk" was a hard, platey, siliceous limestone which rang when walked on, rather like slate; 5) the four very different granites, pegmatites and migmatites (details on application); 6) finding dictyonema fossils in upper Cambrian alum shale in a quarry near the mill and, of course; 7) TRACE FOSSILS.

Richard was a very good leader, taking into consideration the interests of all the participants, well-informed, patient, good-natured and well organised. I think we all got a lot out of the trip and came away with a whole new set of stratigraphic names to remember.

Cath Clemesha

AN ASTRONOMICAL GEOLOGY HOLIDAY IN PORTUGAL'S ALGARVE



Earlier this year I set off to Portugal with my husband, John, who is an amateur astronomer. I had no expectations as far as geology was concerned. We had booked to stay at Centro de Observação Astronómica No Algarve (COAA) which is run by a delightful couple from England, Bev and Jan Ewen-Smith. What Bev doesn't know about astronomy perhaps could fill a small page in one's appointment diary. Besides that he is a wealth of knowledge from everything from flora and fauna, earth sciences and even archaeology. Jan is a superb hostess and cook.

Their villa, Casa Adeline, is nestled into a hillside, in the rugged Portuguese landscape amongst gardens cascading with flowers and filled with prolifically fruited citrus trees. Our en-suite accommodation was very comfortable and spacious. There was a well stocked library, covering many topics, in the communal lounge/dining room. There wasn't all that much on geology in English so I had to do my own research. Bev kindly loaned me some good geological maps and books all in the Portuguese language. With great effort I made some sense out of the jumble of strata and rock formations. First, some background.

Land and Resources

The frontiers of Portugal are defined by mountains and rivers and the interior is largely mountainous. In the west and south the mountains descend to a large coastal plain that is intensively cultivated, The highest range is the Sierra da Estrela in central Portugal, rising to almost 2000 m (almost 6562 ft). Portugal is traversed by three great rivers, which rise in Spain and empty into the Atlantic Ocean. The Tagus, with Lisbon situated at its mouth, is the largest river; followed by the Douro, with Oporto at its mouth; and the Guadiana, which forms part of the eastern frontier.

Natural resources

Minerals are the most valuable of Portugal's natural resources. We saw a few working quarries and mines during our travels. Among the minerals found are coal, copper, gold, iron ore, kaolin, tin, and wolframite, which is a source of tungsten. The land is not particularly suited to agriculture but there was an abundance of citrus groves near where we stayed. Grapevines flourish in the arid soil. The most abundant trees are the evergreen oak, cork oak, poplar, eucalyptus and olive. Birdlife and insects abound. Wild animals include the wolf, lynx, wildcat, fox, wild boar, deer, and hare. They must be very shy as I only saw the occasional hare during our two week stay.

Geology of the Algarve

Part of the Algarve lies in the Portuguese Lowlands and partially in the Iberian Pyrite Belt. The Portuguese lowlands can be divided into two areas of different character. North of the Tagus River has a backbone of Mesozoic rocks separating troughs of Tertiary and Quaternary. South of the Tagus is a broad plain of young sediments rising to the Palaeozoic plateau of the Algarve, with a further strip of younger sediments along its southern edge. Variscan-folded rocks are exposed at the surface over a large area in the south. For the most part the coastal plain and plateau has a flat vegetated interior dropping steeply at the coast to delightful bays and colourful fishing ports.

Rocks of the Algarve

The Devonian is a shallow-water sequence of sandstones and limestones which have been quite intensely folded along north-westerly trends. In the Carboniferous succession the Dinantian, Namurian and Westphalian are all in a Marine facies. The Upper Carboniferous can be seen in roadside exposures featuring greywacke and shales.

Mesozoic rocks of the Lowlands consist largely of Jurassic and Lower Cretaceous deposits, although some Trias is seen. Triassic red beds, for example, are seen below the Jurassic on the headland of Cape St. Vincent. This windblown area was famous for its sea battles. It is dominated by sandy deposits and evaporites, the latter giving rise to diapiric structures on the south and west coasts. The Jurassic is characterised by dolomites and limestone/shale alternations. The south-west corner and parts of the west coast have some of the best records of the lowermost Jurassic of western Europe. Around the Cape Vincent area I found trace fossils which may indicate it was once covered by deep water.

We saw a wonderful variety of rock formations ranging from stack and cliff formations to rock bridges and grottos at the coast. Some areas reminded me of Dartmoor type landscape. Inland there were deposits of granite and diorite being quarried for building and roadstone. Most interesting was a volcanic area a few miles from the Astronomy Centre, Sierra di Monchique. There is a road going through forests of cork oak and eucalyptus to the top of the mountain ending at a car park and café and viewpoint. Yes, the views were spectacular.

There are some igneous outcroppings near Lagos on the south coast east of Cape St Vincent. Nearby I found great fossil beds of bivalves and a few brachiopods. We also found geodes embedded in the rock with large quartz and calcite crystals. Highlight of my visit was a flight in a lightplane over the areas we had visited. There is nothing that can compare with a bird's eye view to get an overall picture of landforms and to establish geological relationships.

Some of the activities one may pursue during a stay at the Astronomy Centre are bird watching, botany, archaeology, visiting historical sites and museums. During the evenings one could observe heavenly bodies through Bev's powerful telescopes. There is also golfing, fishing and rambling on offer besides visiting interesting towns and eating freshly caught fish at waterfront restaurants. The weather is mostly glorious although it does get very hot in summertime. February, March or April can be excellent. Perhaps we could arrange a field trip sometime in the near future.

Lyn Linse

The lines below were all pulled out of Church bulletins and newsletters from around the country. No disrespect intended.

1. Don't let worry kill you - let the Church help.

2. Thursday night - potluck supper. Prayer and medication to follow.

3. Remember in prayer, the many who are sick of our church and community.

4. For those of you who have children and don't know it, we have a nursery downstairs.

5. The rosebud on the altar this morning is to announce the birth of David Alan Belzer, the sin of Rev. and Mrs. Belzer.

6. This afternoon there will be a meeting in the South and North ends of the church. Children will be baptised at both ends.

7. Tuesday at 4 p.m. there will be an ice cream social. All ladies giving milk will please come early.

8. Wednesday, the ladies Liturgy Society will meet. Mrs. Jones will sing, "Put Me in My little Bed" accompanied by the pastor.

9. Thursday at 5 p.m. there will be a meeting of the Little Mothers Club. All wishing to become little mothers, please see the minister in his study.

10. This being Easter Sunday, we will ask Mrs. Lewis to come forward and lay an egg on the altar.

11. The service will close with "Little Drops of Water". One of the ladies will start quietly and the rest of the congregation will join in.

12. Next Sunday a special collection will be taken to defray the cost of the new carpet. All those wishing to do something on the new carpet will come forward to do so.

13. The ladies of the church have cast off clothing of every kind and they may be seen in the church basement on Friday.

14. A bean supper will be held on Tuesday evening in the church hall. Music will follow.

15. At the evening service tonight, the sermon topic will be "What is Hell?" Come early and listen to our choir practice.