

## Tales from a Geological Adventurer... by Catherine Pennington



Colin carrying out his PhD fieldwork in Corsica on his moped.

[Dr Colin Waters](#) joined BGS in 1988 straight after completing his PhD from Cardiff University and is currently Acting Chief Geologist for [Geology and Landscapes England](#). He has worked on a wide range of projects over the years, several of which have included adventures in the vast remote corners of the world...

### **Struck by lightning and shot**

One of Colin's earliest tastes of geological adventure took place on the Island of Corsica where he was studying metamorphic and structural geology for his PhD. It was here that he celebrated his 22nd birthday by being struck by lightning!

*"I was riding along on my moped, on my way to the next site, when the engine suddenly cut out. I was bent over the bike trying to fix it when all of a sudden I was blown off my feet by a*

*lightning strike, despite sunny skies above. When I came to, the telegraph pole next to me was steaming, a thunder storm had blown up and I had to take shelter!”*

As if this wasn't bad enough, the very next day he was shot at by a hunter who mistook him for an animal in the undergrowth. After all, why on earth would any human walk through such thick and thorny vegetation? They would if they were looking at the geology in there! Luckily, the thick clothes Colin had chosen to wear to protect him from the dense scrub meant that none of the lead shot drew blood.

### **A safer time in his career...**

Once Colin had joined BGS, things seemed a little safer. He adapted from researching [blueschists](#) formed at 40 km depth to working on [artificial ground](#) deposits in the Black Country (not much call for animal hunters there!). The geological mapping process received considerable funding in those days and it was customary for BGS geologists to be out in the field from April to November without returning to the office at all. On his first day of mapping for BGS in Dudley, in April 1989, it snowed!

Colin went on to manage the Bradford Metropolitan District thematic mapping project for the Department of the Environment and parallel mapping campaign. This led to work on a series of maps that run through the spine of the country –Glossop, Huddersfield, Hexham, Rochdale, Barnsley, and currently Pateley Bridge – and some 20 summers were spent, unscathed, in the Pennines.

As fieldwork in the UK dwindled, Colin escaped the cold winters from 1998–2004 by working overseas in Morocco and subsequently Mauritania, neighbouring countries with similar geology.

### **Donkeys and a narrow escape**

The Moroccan Ministry of Energy and Mines wanted to understand the detailed geology to expand mining industries. Colin and the BGS team were sent to map parts of the Anti-Atlas mountain range. One of the most important things to be done before mapping can begin is to establish links with the Wāli (governor of the region). The discussions, as traditional in the region, were carried out with endless servings of mint tea, the “Whisky of the desert”. *“He asked about our accommodation and with the customary generosity shown in this part of the world, ended up offering us the use of a house. However, when we arrived at the new village our house was already occupied not by people, but by donkeys!”*

Once the work had started, Colin and the team were working in some remote areas. On one particular occasion he and a colleague were working in a wadi (a dry river valley that contains water only during times of heavy rain) and were at least two hours' walk from the vehicle. They had been looking at the geology and taking samples for part of the morning when they noticed the sky had gone dark and then they heard lightning (yes, again!). If the rain was heavy enough, they knew that they could be in serious trouble as the route back to the car was down the path of the wadi. They returned to their vehicle as fast as they could. The rain was absolutely torrential and the storm lasted the rest of the afternoon and night.

The next day, expecting to carry on working in the wadi, they were met by a sight they were not expecting. There had clearly been an enormous flash flood and such was the force of the

water that boulders the size of cars had been dumped in the old river bed. Another narrow escape, but they were now isolated from the rest of the team and had to make a long journey to get back to the others...

## **The battle for survival in the desert**

The work in Mauritania for the [World Bank](#) involved making a geological map of nearly half of the huge country. Large areas of ground had to be covered and one of the best ways to do this systematically was to follow great traverses across the country.



A typical camp in Mauritania.

Colin is in the middle with colleagues [Dr Sue Loughlin](#) and Dr Roger Key. Colin needed to map and sample the area across which the only way was to follow a 1000 km route to Néma via the [old Foreign Legion outpost of Tichit](#). There are no roads and the terrain is a tough desert environment. Very few people had ever made it across in vehicles and in 2001 represented one of the most challenging stages of the Paris-Dakar Rally. The route was more regularly travelled by camel trains.

It was decided that although the route was challenging, they would attempt it and turn back should it become too difficult. Colin and his team of Mauritians including a geologist, two drivers, a cook and a local guide to get them through the dunes departed with two 4x4s.

The first part of the journey was across rocky desert which while not making a smooth ride,

was at least passable. Beyond this, it was sand dunes: very difficult terrain for vehicles that have a tendency to sink and become stuck.

*“We saw some amazing sights over these few weeks. One of my favourites was when we came to a natural triple arch that stood out of the remotest part of the desert. It was a logical place to camp with a cool breeze and a wonderful view. It was here that we realised that we weren’t the only ones who thought it logical and we saw graffiti and arrow heads dating back thousands of years”.*

In the 40°C heat, they drove up to 150 kms a day taking samples as they went. They saw no other humans for several days. The weight of fuel and increasing numbers of samples limited how much water supply they could carry so they started to rely on well water (a warm drink with the unmistakable tang of iodine purification tablets). They had travelled 750 kms with only 250 left to go. It was at this point that the clutch broke on one of the vehicles.

What were they to do? Split the party up and leave some behind whilst the others went for help? Try to get everyone into one vehicle that would be more likely to sink in the sand? Things were getting desperate; the sampling and geological interpretation was no longer a priority.

### **It was now a matter of survival...**

They decided to attempt to tow the broken vehicle. This was a huge gamble as it meant the vehicles could not stop at any point as, should they both get stuck in the sand, there would be no getting them out. The guide who had come with them had specialist knowledge of the dunes and ran ahead of the cars and guided them through. They successfully managed to get to a village where they met a taxi driver who had been sent from the capital by BGS with, what turned out to be, the last remaining clutch for their particular 4x4 in the whole of Mauritania! Such is the welcoming hospitality of the Mauritians that, a local man not only fitted the clutch for them, but also fitted new mud guards!

*“It was situations like this that one appreciates how teams can pull together in adversity. The cook, Oumar, who was also chief geological hammer carrier, was amazing and when I asked at the end of the last campaign how he had managed in such difficult circumstances and not one of us had been ill (there were no fridges), he told me that the trick was always to wash the meat in bleach...”*

### **Thoughts of working for BGS**

Colin has always enjoyed working for BGS and has so far had an extremely varied (and adventurous!) career.



Dr Colin Waters (right) teaching BGS staff and students  
on his field mapping training course

*“The thing I enjoy most about working here is that I have always worked on different projects spanning widely different aspects of geology. I have been able to learn new skills and gain expertise in areas I hadn’t expected to encounter. It’s a great place to have a career”.*

Colin became an expert on Carboniferous geology and has published 23 papers and 28 book chapters on the subject. He has also developed an expertise in the Anthropocene, including involvement in 11 papers, and is the Secretary of the [Anthropocene Working Group](#), tasked to determine if this new epoch should be formalized. Since 2005 Colin has also run the BGS mapping training course, taken by many new recruits and PhD students.

You can read some of his [numerous papers](#) over on NORA.

Catherine