

JOYS AND HARDSHIPS OF ANTARCTIC FIELDWORK



Conor J. Ryan*

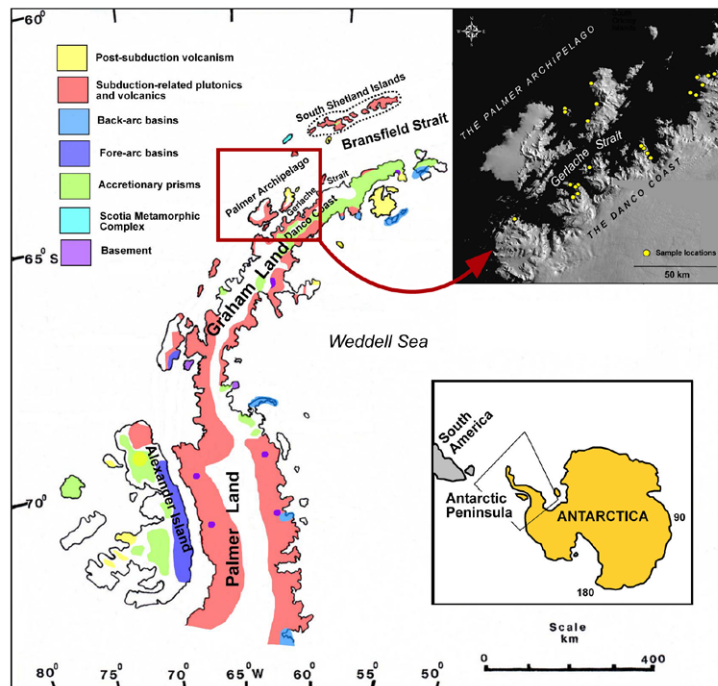
Icebergs off the Antarctic Peninsula. PHOTO BY CONOR RYAN

Being rudely awakened in my coffin-sized bunk at 4 a.m. by a flash-light; trying to stay upright while getting into cold, damp clothes and boots; emerging onto a freezing deck to be greeted by the cold spray of the heaving Southern Ocean; struggling to change the sails with numb hands – this was fieldwork...but not as I knew it!

As part of the British Army Antarctic Expedition (BAAE) 2007–2008, led by Antarctic veteran Major Richard Pattison (Royal Anglian Regiment), I was asked to lead, design and implement a geological sciences fieldwork program. This was in keeping with previous collaboration on fieldwork in the Antarctic, from which I earned my PhD, through BAAE 2001–2002. We were to spend several weeks exploring the Danco Coast and Palmer Archipelago area of the Antarctic Peninsula with the aim of mapping the geology of this poorly accessible region and collecting samples for analysis back home (see map). The results of previous work had already shed light on the geological history of this region over the last 100 million years. Our goal for this expedition was to collect samples to further our understanding of the tectonic evolution of Antarctica. But first we had to get there.

We chose to travel to the Antarctic on a 22 m yacht named *Discoverer* – a very different undertaking to a previous voyage on HMS *Endurance*, a 100 m ice-breaker. We set sail from Mare Harbour in the Falkland Islands in mid-December 2007, with the daunting task of crossing the notorious Drake Passage ahead of us. As this was my introduction to sailing, I was concerned I might have bitten off more than I could chew. The routine for the next six days on that great, grey, heaving sea involved getting used to a watch system that allowed little time for sleep or relaxation. The crossing of the Drake Passage was a test of the stomach for many of the crew...thankfully I found my sea legs fairly quickly, but others were not so fortunate! Changing sails on the fore-deck as the boat pitched and rolled in rough seas, with freezing waves crashing over us, was invigorating work to say the least! The problem with life on the boat was that once something got wet, the cold air ensured that it stayed that way. Life in the galley was also a challenge – we took turns cooking, wrestling with pots and pans in the heavily swaying, tiny kitchen! During the ocean crossing, we got a taste of the wildlife that awaited us further south: huge Mincke whales followed the boat for hours, and we were constantly under the watchful eye of the graceful albatross. It was with some relief that, on Christmas Eve, we reached the calmer waters between the Antarctic Peninsula and the Palmer Archipelago. We were greeted by spectacular scenes as the Antarctic midnight sun hung low on the horizon, casting an orange glow upon the snow-clad peaks, some of which soared to over 2000 m straight out of the sea. Mulled wine took the chill out of the air that evening, while we rang in Christmas Day with the bagpipes.

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Simplified geological map and location map



Working on the deck of *Discoverer* while crossing the Drake Passage. PHOTO BY STEVE AYRES



Sampling by boat off the Antarctic Peninsula. PHOTO BY MARTIN CAREY

On Christmas morning, we moored alongside the wreck of an old whaling vessel – now it was time to get on with the business of geology. A long day was spent visiting islands in Wilhelmina Bay via our motorized inflatable boats, sampling volcanic and plutonic rocks. The sedimentary rocks of the Trinity Peninsula Group eluded us that day, as the only exposure of these interbedded sandstones and siltstones was guarded

by huge ice cliffs, pieces of which plunged into the sea at regular intervals. A memorable moment that day was speeding through a natural arch in an iceberg! We pulled up alongside *Discoverer* that evening, tired, cold and wet, but the fine meal (relatively speaking of course!) that greeted us soon warmed us up.



Skiing on Anvers Island. PHOTO BY ROB HADFIELD

During the next few weeks, we explored various areas along the Danco and Graham coasts of the Antarctic Peninsula, places such as Waddington Bay, Paradise Harbour, the Reclus Peninsula and Anvers Island in the Palmer Archipelago. The awe-inspiring scenery of these places must be seen to be believed; photos cannot do them justice. Our usual tactic was to establish a camp from which we would explore the area by ski. Moving camp required using the pulk, a canvas-covered sledge that served for man-hauling gear ...and rocks! The pulk had the advantage of reducing the amount of gear on your shoulders, but was an absolute beast to traverse over steep ground; many expletives were uttered during those trying times. We also used pulks to transport snow-coring equipment across the ice. The glaciological work involved using a hollow drill to take cores of snow, up to 10 m below the surface, in order to examine snow-accumulation rates over time.

Pitching a tent in the Antarctic is an art that takes a while to perfect. The routine involves leveling the site, excavating pits for cookers, digging the tent in to improve its stability should the wind pick up, and somehow squeezing three fully grown men into a space that is cozy enough for one! The less said about the palatability of dehydrated rations, the better. The daily effort required to rouse oneself from the warmth of one's sleeping bag to get the cooker going was considerable. A freezing tent is not a nice thing to wake up to! In the evening, after a hard day man-hauling, there was a balance to be struck between re-hydrating properly and avoiding the need to answer the call of nature in the middle of the night, as this necessitated a chilly trip outside.

The wildlife in the Antarctic is magnificent. The comedic behaviour of the various species of penguin is well known; these creatures are completely unfazed by humans and will

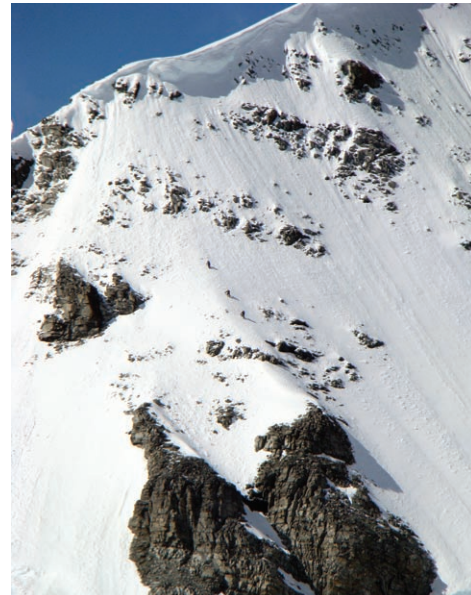
gladly walk up to you to peck at your boot laces. Humpback whales regularly came alongside the yacht, announcing their presence by jetting seawater from their blow-holes. These gentle giants would usually circle the boat for several minutes before diving to the depths, with their characteristic tails breaching the surface. Orcas (killer whales) were also seen from time to time, and seals were everywhere, often warming themselves on icebergs in the Antarctic sun.

Towards the end of the expedition, we finally succeeded in sampling the sedimentary rocks of the Trinity Peninsula Group at Paradise Harbour. In addition, we carried out a vertical traverse on Mount Heogh, collecting samples of granitic rocks for thermochronological studies. We later learned that our exploits on the side of Mount Heogh generated considerable interest at the local Chilean base! Although climbing on the side of Mount Heogh was exciting, collecting in the Trinity Peninsula Group sedimentary rocks was arguably a much more dangerous exercise due to our infringing on the territory of the local leopard seal, who watched our activities at too close a range for comfort. A leopard seal was responsible for the tragic death of a marine biologist in this region a few years ago. We treated its presence seriously.

With our final two sampling goals completed, it was time for the expedition to head north. With mixed feelings of relief and sadness, I stood on deck as we made our way home through the spectacular scenery of the Antarctic Peninsula. The previous month had been the adventure of a lifetime, but the prospect of home comforts, like a hot shower (or indeed any shower!), cheered me.



Cross-cutting mafic dykes (sampling target) at Waddington Bay, Antarctic Peninsula. PHOTO BY CONOR RYAN



Geological party (small figures in the centre of photo) collecting samples on Mount Heogh. PHOTO BY MARTIN CAREY

Life in the Antarctic is tough. The physicality involved in the everyday grind of sailing, man-hauling sledges, ski-touring with heavy packs, and establishing camps takes its toll on the body. However, more than physical fitness, it is mental toughness that allows one to thrive in this environment. The stress of operating in such an unforgiving wilderness places huge demands on the individual, and only those with the mental capacity to endure constant stress and discomfort will leave the Antarctic with a sense of accomplishment. The Antarctic is a place where you stand to lose much more than you could ever hope to gain ...perhaps that is one of its allures. The constant courtship with danger and adversity keeps the Antarctic explorer coming back for more. People often ask me why I would choose to put myself through needless hardship, and I am often left with no answer to give them – I think it is probably a case of the old adage that 'if you have to ask, you will never understand'. Antarctica is a world away from the comfortable lives most of us enjoy in the civilized world. But I found that when times were at their hardest down south, thoughts of home and loved ones kept me positive, and that sentiment was common to all my polar companions.

The rock samples that we collected have now arrived in the UK. They will be curated at the University of Brighton and will be studied at various British and Irish institutions over the coming years.

I would like to thank the Geological Society of London and the Mineralogical Society of Great Britain and Ireland for supporting my participation in this expedition through fieldwork grants. I would also like to thank my fellow expedition members, in particular Major Richard Pattison and Colonel Richard Clements, for their assistance with the geological fieldwork.