

Shackleton's geologist - James Mann Wordie (1889-1962)

A hundred years ago, on August 30th, 1916, James Mann Wordie was one of the Imperial Trans-Antarctic Expedition team rescued from Elephant Island, off the coast of Antarctica, following the sinking of their ship Endurance. Wordie was Shackleton's geologist and a graduate of St John's College (1912) who became its Master forty years later.

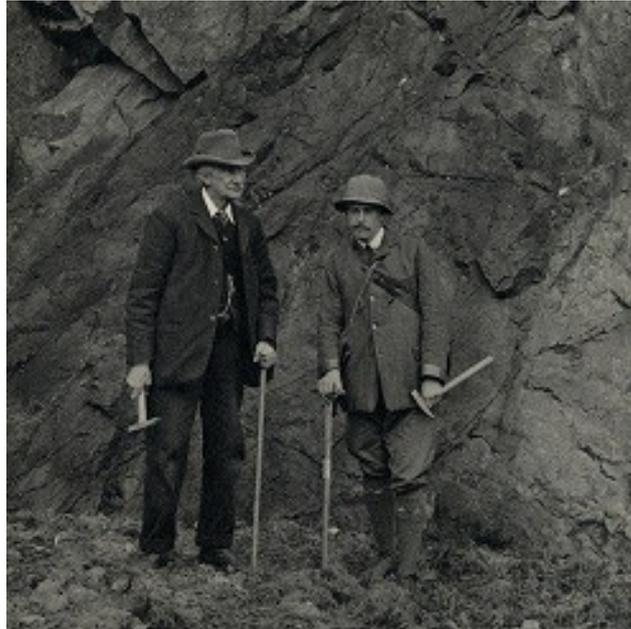
A polar explorer in the making

It was whilst climbing the rocky landscapes of the Scottish Highlands that Scots-born James Mann Wordie determined to study geology in his home University of Glasgow (1906-10). With a first class degree and encouragement from his professor, John W. Gregory (1864-1932), a well known explorer in Africa, Australia and the Arctic, Wordie took the low road south to St John's College, University of Cambridge (1910), where he gained another B.A. in geology in 1912.



A Harkness Scholarship and encouragement from fellow 'Johnnians', Dr Alfred Harker (1859-1939) and Dr John E. Marr (1857-1933), initially pushed the talented young Wordie towards a career in petrology in Cambridge but he was diverted by an encounter with

fellow enthusiasts of mountaineering and polar exploration, including the Australian geologist Frank Debenham (1883-1965) and the English glaciologist Raymond Priestley (1886-1974).



The tragedy of Scott's *Terra Nova* expedition to the South Pole (1910-12) did not lessen Wordie's desire for extreme exploration and in 1914 he was recruited as geologist for Ernest Shackleton's Imperial Trans-Antarctic Expedition. After nearly a year trapped in the pack-ice of the Weddell Sea, their ship *Endurance* sank on November 21st 1915. Shackleton (1874-1922), Wordie and the rest of the 28-man expedition were lucky to escape in the lifeboats to Elephant Island. There, Wordie and 22 others survived four months of incredible hardship, whilst Shackleton sailed on to South Georgia. It was a remarkable feat of seamanship and after four attempts, Wordie and the others were recovered alive and returned to Britain in November 1916 - to a country in the throes of war.

Penguin geology

For Wordie, as a geologist, being stranded on the ice of the Weddell Sea, far from the nearest outcrop of rock, was extremely frustrating. However, being resourceful, he found an unusual source of geological information - penguin gizzard stones.

As Wordie noted in his journal on 4th January 1915 'I have been looking more closely at the pebbles got from the Emperor Penguin on Dec 31st.... I noticed two kinds of granite, a grit, purple sandstone, very micaceous sandstone and two kinds of dyke rock'.



Many penguin species swallow stones, technically known as gastroliths, as an aid to digestion. For Emperor penguins, the stones may also reduce their buoyancy whilst diving for their fish prey. The buoyancy is caused by fat layers, which protect them against the cold. These penguin gastroliths were amongst the few geological samples Wordie recovered whilst 'stranded' in the Weddell Sea and he argued that they provided evidence for a complex geology in Antarctica.

World War I

Within a week of returning from the Antarctic, Wordie joined the armed forces. By March 1918, 2nd Lieutenant Wordie of the 3/4th Lowland Brigade of the Royal Field Artillery was part of the 11th Army Brigade stationed near Armentieres on the French-Belgian border when the German's launched one of their last major offensives on the Western Front.

On April 9th, Wordie was wounded during the early stages of the Battle of Lys, in which some 50,000 men lost their lives. As his field gun was moving into position, an exploding shell blasted him from his mount and killed the other riderless horse of the team, which fell on Wordie and broke his leg.

Evacuated back to England, a surgeon warned him that he might never regain full use of his leg and he was still unfit for duty when the war ended on November 11th, 1918. Wordie was demobbed on January 9th, 1919 and returned to Cambridge.

The beginnings of a Polar Research Institute

Back in the University, he met up with Ray Priestley and Frank Debenham and together they drew up proposals for a Polar Institute

in Cambridge. By 1920, a grant of £6,000 from the Scott Memorial Fund allowed the Scott Polar Research Institute (SPRI) to be established with Debenham as Director and a temporary home in the Sedgwick Museum Building.

Meanwhile, determined to prove his surgeon wrong, Wordie joined the 1919 Scottish Spitsbergen Syndicate Limited Expedition, set up by his fellow Scot William Bruce (1867-1921) to the Arctic archipelago of Svalbard. Bruce, a pragmatic scientist and experienced explorer of Arctic waters, had raised money to prospect for coal and oil in Spitsbergen. Wordie was Second in command of the expedition and one of several scientists but they found neither oil nor coal within the search area. Over a decade later, detailed geological investigation of the Svalbard archipelago was pursued by a later generation of Cambridge geologists led by W. B. (Brian) Harland (1917-2003).



Despite the commercial failure of Bruce's expeditions, Wordie was impressed by his scientific approach and the following year turned down a return trip to Antarctica with Shackleton in order to lead a more scientific based exploration of another Arctic island, that of Jan Mayen. Used for centuries as a whaling station, the island's bleak rocky terrain is dominated by the huge, 2,277 m high, snow-capped Beerenberg volcano. It was first climbed on August 11, 1921 by Wordie, Tom Lethbridge (1901-71), a 20 year-old Cambridge undergraduate and Paul-Louis Mercanton (1876-1963), a Swiss mountaineer and professor at Lausanne University.

Back in Cambridge, Wordie's academic duties in the Department of Mineralogy and Petrology and his election to the fellowship of St John's College in 1921, prevented further polar exploration until 1923, when he led the first of five expeditions to Greenland over the following 15 years. Their findings stimulated British interest in the geology of the region, subsequently pursued by a young Cambridge geologist, Lawrence (Bill) Wager (1904-65), who discovered the Skaergaard layered gabbroic complex intruded 55 million years ago during the initial rifting of the North Atlantic.



By 1927, SPRI moved out of the Sedgwick attic into Lensfield House and then into new building in 1934 with Wordie was appointed chairman of its management committee in 1937. He was 48 years old and returned to the Arctic for the eighth and final time for the mapping and geological exploration of Ellesmere and Melville islands. A number of Cambridge scientists were recruited, including the Scots born geologists T.T. Paterson (1909-94) and H.I. Drever (1912-75), assisted by E.D. Leaf (1918-44). And, a major pioneering study of cosmic rays in the upper atmosphere, using high altitude balloons, was carried out by the Scottish physicist and fellow Johnian, Hugh Carmichael (1906-1995), and E.G. Dymond from Edinburgh University; a study that was

subsequently put to good use in the development of wartime communications.

At War again

As the momentum towards war gathered in 1939, the Admiralty was keen to collect geographical, geological, meteorological and other useful data on the terrains over which forthcoming battles were likely to be fought. SPRI effectively became an outpost of the Admiralty with Wordie acting as part-time director of some 90 experts in Cambridge and another team in Oxford. All were working on cold-climate terrains and produced 58 volumes of Admiralty Geographical Handbooks, otherwise known as the 'Blue Books'.

However, by 1943 Wordie had moved on to another wartime project, called 'Operation Tabarin', which aimed to ensure a British presence in the Antarctic, discourage enemy activity and strengthen British claims to sovereignty of the Falkland Islands Dependencies. Permanent bases were set up on Deception Island and on the Antarctic Peninsula, where the Port Lockroy base evolved into a research station. Now one of the most popular tourist destinations in Antarctica, it is operated by the United Kingdom Antarctic Heritage Trust. With the end of hostilities in 1945, 'Operation Tabarin' evolved into the Falkland Islands Dependencies Survey (FIDS) and subsequently, in 1962, the British Antarctic Survey (BAS).

Peace regained and a mountain to climb

Between 1934 and 1938 Wordie had been Honorary Secretary of the Royal Geographical Society (RGS) and, in 1951, was appointed President at a critical moment in the history of mountain exploration, as Mount Everest had yet to be conquered. Decades earlier, he had applied to be part of the 1922 British attempt on the mountain but had been turned down because of his blood pressure, which could be a problem at high altitude.

By the 1950's international competition to conquer Everest had intensified. Wordie was deputy chairman of the Mount Everest Committee set up by the RGS and Alpine club in the 1920's to manage British assaults on the mountain. In 1952, the Swiss got close but had to give up at 8,600m, giving the British another chance to take the prize in 1953. Tenzing Norgay (1914-86) and Edmund Hillary (1919-2008) reached Everest's 8,848m high summit on

May 29th but news of their success was delayed until June 2nd and the Coronation of Queen Elizabeth II.

Wordie's pinnacle of achievement

For such a keen mountaineer it literally was the pinnacle of his career, along with the Mastership of his college, St John's, to which he was elected in 1952. After nearly fifty years in the College, James Mann Wordie retired in 1959 and died in Cambridge in 1962.

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