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From Bo'ness to Svalbard: the coal mining ambitions of the Scottish Spitsbergen Syndicate (1909-1952)

By Phil Stone and Peder Aspen

The Scottish Polar explorer William Speirs Bruce (1867–1921) is best remembered for his leadership of the 1902–1904 Scottish National Antarctic Expedition. Though that celebrity is well-deserved, a much greater proportion of Bruce's career was dedicated to the Arctic rather than the Antarctic, and particularly to Prince Charles Foreland and Spitsbergen, the western islands of the Svalbard archipelago (Speak 2003; Williams and Dudeney, 2018). His interest there was sparked by visits in 1898 and 1899 (he had previously worked in Franz Josef Land and Novaya Zemlya) and once back from his Antarctic expedition, in 1906 he again turned his attention northward. He was eventually to visit the islands seven more times between 1906 and 1920, leading expeditions for topographical survey and assessment of mineral resources (Fig. 1).

Bruce's return to Svalbard in 1906 was sponsored, as for the previous visits, by the Prince of Monaco and utilised the prince's yacht *Princess Alice*. Survey work was commenced on Prince Charles Foreland (Fig. 2). Although the driving force of his explorations was always scientific curiosity, Bruce was not a wealthy man and hoped that from the geological resources of Spitsbergen he might finally make his fortune. During his earliest visits to Prince Charles Foreland, he had found coal in the Tertiary (Paleogene) succession and elsewhere had noted coal, gypsum and, possibly, oil shale, in the Carboniferous and Mesozoic sedimentary succession. Hoping to capitalise on that knowledge, early in 1909, he established a private prospecting company, the Scottish Spitsbergen Syndicate, and later that year a small team headed north to establish the Syndicate's claims in what was at the time internationally regarded as *terra nullius* – unclaimed and ungoverned territory. This 1909 expedition, led by Bruce, included surveyors and two geologists, Harray Hannay and Angus Peach (Ben Peach's son).

Building on the 1909 investigations, further Syndicate expeditions followed in 1912 and 1914 with Robert Craig, the geologist on the latter occasion, publishing an account of the geology of Prince Charles Foreland in the *Transactions of the Edinburgh Geological Society* ((1916, Vol. 10, 276-288). Claims were extended from Prince Charles Foreland into other regions of western Spitsbergen where Upper Carboniferous and Tertiary coals were already being worked, most successfully by American entrepreneurs who, from 1906, had been mining the Tertiary coal outwith the Syndicate's claims, at Longyearbyen, now the principal settlement of Svalbard. Russian, Norwegian, Dutch and rival British prospectors were also active and by 1914 several other coal mines were operating (Fig. 2).

The First World War prevented further activity by the Syndicate and when work was resumed in 1919, significant new investment was required. Accordingly, early in that year the private syndicate was wound-up and shares in a public company were offered on the London Stock Exchange (Kruse 2013). The Directors of the new company were mostly Scottish businessmen and included Henry Moubray Cadell (1860-1934), a remarkable man who had worked for the Geological Survey between 1883 and 1888, mapping in the Highlands (Mendum 2010). Thereafter, following the death of his father, he managed the family business interests in the Bridgeness Coal Company, with mines in West Lothian and connections with the Carron iron works and oil shale extraction. He was to be instrumental in the expansion of the new Spitsbergen Syndicate's first field expedition, in the summer of 1919, to include mining trials for coal and the sinking of exploratory boreholes.

That 1919 expedition was particularly well endowed with geological expertise. Two of Bruce's team were veterans of Ernest Shackleton's ill-fated 1914–16 Antarctic expedition: James Wordie from the Weddell Sea (*Endurance*) party and Alexander Stevens from the Ross Sea (*Aurora*) party; Wordie (later Sir James) went on to become Chairman of the Scott Polar Research Institute and Master of St John's College, Cambridge; Stevens became the first professor of geography at the University of Glasgow. Also involved were Douglas Allan, who became Director of the Royal Scottish Museum (now National Museum of Scotland) from 1945 to 1961, John Charlesworth who went on to be professor of geology at Queen's University, Belfast, and George Tyrrell who enjoyed an eminent geological career at the University of Glasgow. By a curious coincidence, Shackleton himself had become involved in a 1918 Spitsbergen expedition on behalf of the London-based Northern Exploration Company, but he only got as far as Tromsø, Norway, before he was recalled.

Bruce's 1919 expedition was intended to be much more than a geological reconnaissance. The Syndicate's claims covered parts of the Carboniferous outcrop and to open trial workings in the previously located coal seams a team of experienced miners was recruited, a process readily facilitated by Henry Cadell. Amongst the mines operated by his Bridgeness Company was the Carriden Mine at Bo'ness where production had been paused whilst a new shaft was sunk. Hence there was labour available and seemingly no shortage of volunteers for an Arctic adventure; the headline in the *Bo'ness Journal* for 20 July 1919 read "Bridgeness miners for Spitsbergen". Thirteen Bo'ness men were included in Bruce's expedition (Fig. 3) and a remarkable memoir of their experiences was provided by the team's foreman, George Miller, who recorded his reminiscences in 1978 when aged 90; the audiocassette and its transcription are held by the Callendar House Museum, Falkirk.

What with the scientists, surveyors, miners, borehole engineers and all the necessary support staff the size of the 1919 expedition swelled to about 85 participants. Miller (1978) recalled that the total included an official piper and "several whose occupation in the expedition always eluded me". There were four technicians for the two drilling rigs, supplied by Andrew

Kyle & Co of Galston, Ayrshire. As for the Bo'ness men, George Miller lists his colleagues as follows (Fig. 3 A and B): practical miners – George Carr, Annan and John Grant, Thomas Laffay, Thomas and Walter Stanners, Andrew Thomson; general workers – James Shanks, Walter Stanners; fitter – John Ferrier; cooks – Richard Bell, Alexander Ferrier. There were apparently two men called Walter Stanners, and common surnames suggest other family connections.

Whilst the miners opened-up cuttings and drove adits (Fig. 3 C and D) a complementary series of boreholes was sunk (Fig. 3 E) but drilling through permafrost proved difficult and the planned depth was seldom reached. Conversely, the permafrost assisted the work of the miners, obviating the need for pit props in the adits and eliminating the risk of flooding. The 1919 expedition also saw the erection of prefabricated huts at various points on the Syndicate's by-then extensive claims as a means of reinforcing ownership. Two such huts accommodated the miners at the ambitiously named Bruce City (now Brucebyen) established at the head of Klaas Billen Bay, close to the Nordenskjold Glacier (Figs 2 and 4). It is worth remembering that Bruce also had visions of Spitsbergen tourism of the hunting-shooting-fishing kind, and even thought that an Alpine-style sanitorium might be established to take advantage of the clean fresh Arctic air.

Despite the disappointing results from the boreholes, the 1919 geological reconnaissance was regarded as successful, with a number of additional promising coal prospects identified in the west Spitsbergen claims. Accordingly, another large expedition was sent out in 1920. Tyrrell and Wordie again provided the geological expertise, and another party of miners was recruited from Cadell's workforce, though it is not known if any of the 1919 men returned. Another series of boreholes were sunk with mixed results; although coal seams were commonly encountered, they all proved to be thin and impersistent. The miners opened-up large excavations and an adit was driven for at least 43 ft into one coal seam with over 20 tons of coal extracted. Unfortunately, it proved to be of relatively poor quality.

The 1920 summer also saw a visit to Spitsbergen by the Syndicate's Directors, including Cadell, with a view to assessing the future administration of their properties. Cadell was not impressed by his first view of Spitsbergen on 21st July: "a dismal prospect, cold, inhospitable and bleak to the last degree … the place was not quite so pleasant at first sight as I expected" (Kruse 2013, p. 378). Nevertheless, Cadell painted several watercolour landscapes and sketched numerous profiles accentuating the geological detail of the country (Figs 4, 5 and 6); all are now held at the National Library of Scotland in an extensive Cadell archive. His field drawings were then developed to illustrate a summary of the coal prospects of Svalbard in a paper for the *Transactions of the Institution of Mining Engineers* (Cadell 1921) (Fig. 7). It was a positive and enthusiastic promotion and probably helped the Syndicate's share price, but circumstances soon became less promising as the post-war economic depression worsened.

Officially, the 1920 expedition was again hailed as a great success with a bullish report issued, but it was a very much smaller party that ventured north in 1921, only 10 men and of those three were miners, presumably again drawn from Cadell's Bo'ness workforce. By this time Bruce was seriously ill and died on 28 October 1921. The Syndicate probably lost momentum without Bruce as a driving force, but nevertheless a party of 15 was sent to Spitsbergen in 1922, with the principal objective of sinking more boreholes, this time the work being carried out by the Thomson company of Dunfermline. None of the seven boreholes completed found exploitable coal, and although gypsum was widely encountered it was thought unlikely to be a commercially viable commodity. Very small parties continued to make annual visits to Spitsbergen until 1925, simply to maintain the claims, but thereafter activity ceased until the end of the Second World War. Reassessment then was not encouraging, with a realisation that the Scottish claims did not cover the best of the coal-bearing outcrop. Also, by that time, the political status of Svalbard had been agreed internationally, and in 1952 the Syndicate's interests were taken over by the Norwegian Government.

Apart from coal, Bruce's great hope was that his Syndicate's Spitsbergen claims would contain oil shale or even free oil. He had been encouraged by a 'Broxburn smell' at one locality but an examination by Tyrrell and Wordie disappointed him. Recent explorations for oil over the old Scottish claims have been no more encouraging. Perhaps the best results fell to George Tyrrell, who completed a University of Glasgow PhD thesis on the geology of Spitsbergen in 1923 and enhanced his scientific reputation with a series of substantial papers on Svalbard geology and glaciology. And, of course, to the Bo'ness miners who seemingly took part 'more as a sporting venture and for the sake of experience' (*Bo'ness Journal* 20 June 1919) and were hopefully paid a decent bonus by Henry Cadell. Cadell lost money but got a mountain named after him (Fig. 4): Cadellfjellet (300 m) 78° 37′ N, 17° 00′ E.

Acknowledgements

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Figures

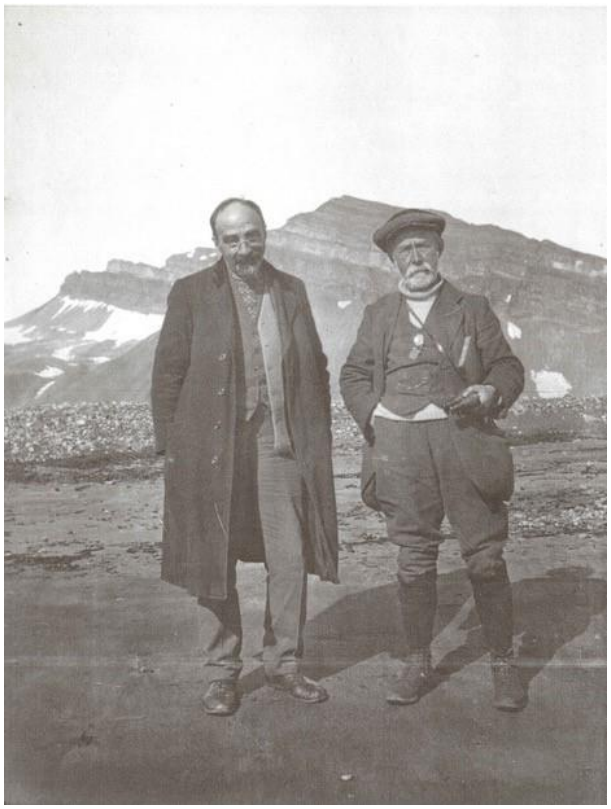

Fig. 1. Wiliam Speirs Bruce (left) and his chief surveyor, John Mathieson. Bruce is smartly dressed, presumably for the Scottish Spitsbergen Syndicate's Director's visit in 1920. Reproduced with permission from Callendar House Museum, Falkirk,

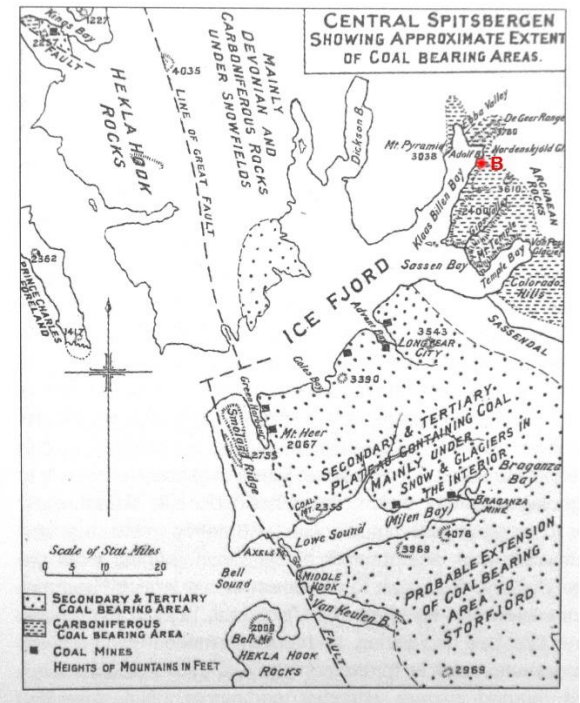

Fig. 2. A location map of the Spitsbergen coalfields published by Henry Cadell in a 1921 paper, annotated to show the location of Brucebyen (B, in red). *Transactions of the Institution of Mining Engineers*, Vol. 60, p. 122.

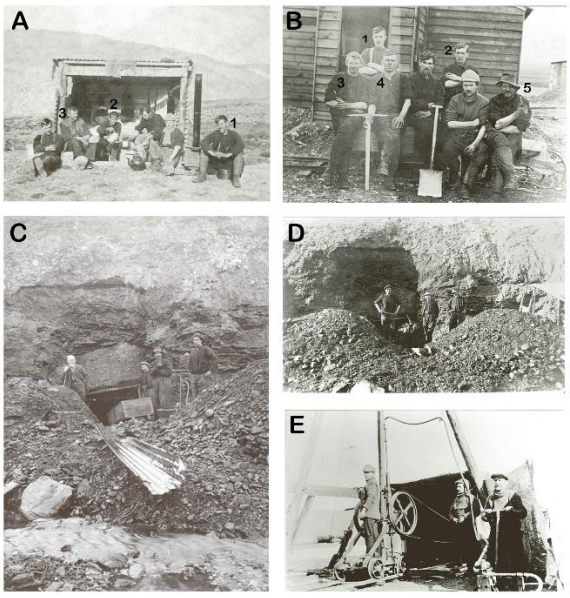

Fig. 3. Photographs of the Bo'ness miners in Spitsbergen, reproduced with permission from Callendar House Museum, Falkirk. A. Lunch in a field shelter. B. Outside one of the huts at Brucebyen. Some of the men can be identified: 1 George Miller, 2 Alexander Ferrier, 3 Walter Stanners, 4 Thomas Laffey, 5 Thomas Stanners. C and D. Driving an adit. E. Operating the drilling rig with John Ferrier on the right.

Fig. 4. A detail from a watercolour painting by Henry Cadell of the Nordenskjold Glacier; Brucebyen was established at the right-hand margin of the view (Fig. 2). A piper stands in the dinghy, and at top right a pencil note by Cadell has identified, with an arrow, ‘Mt Cadell 2600 ft’ as the right-hand of the two peaks shown. The height was subsequently fixed at around 300 m, less than 1000 ft. Reproduced with permission from National Library of Scotland.

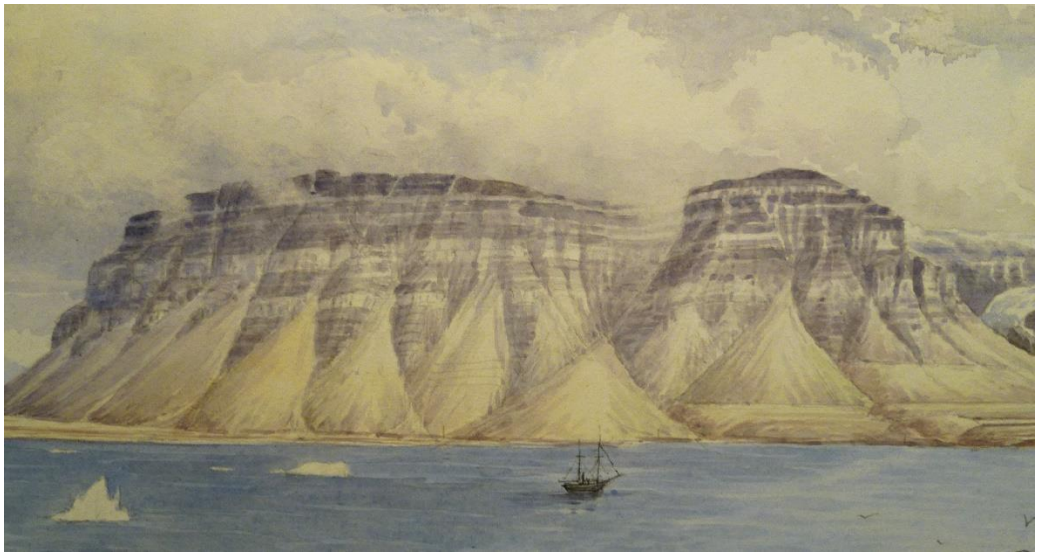

Fig. 5. A detail from one of Cadell’s watercolours titled ‘Bjona Haven and Mount Temple’, part of the Carboniferous outcrop to the south of Brucebyen (Fig. 2). Reproduced with permission from National Library of Scotland.

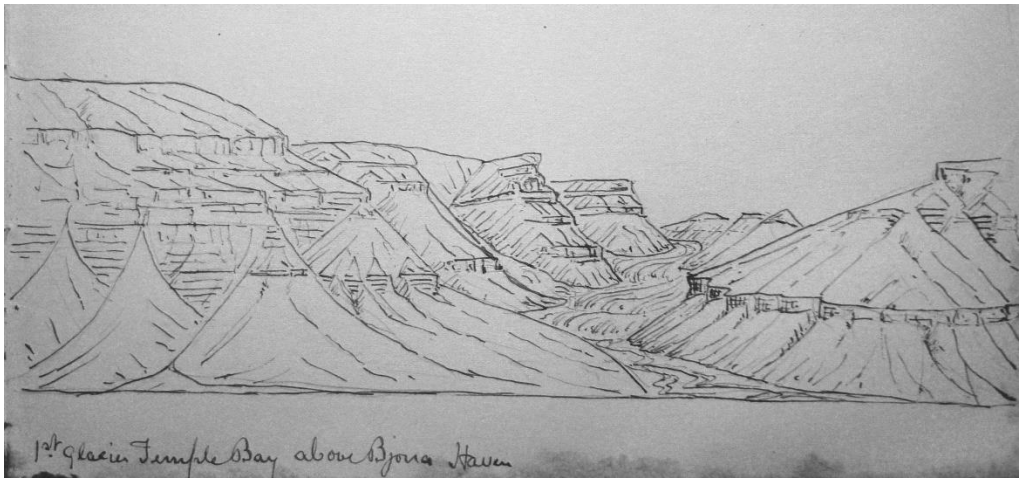

Fig. 6. A sketch in one of Cadell's field notebooks accentuating the Carboniferous strata in another part of the Mount Temple area (Fig. 2). Reproduced with permission from National Library of Scotland.

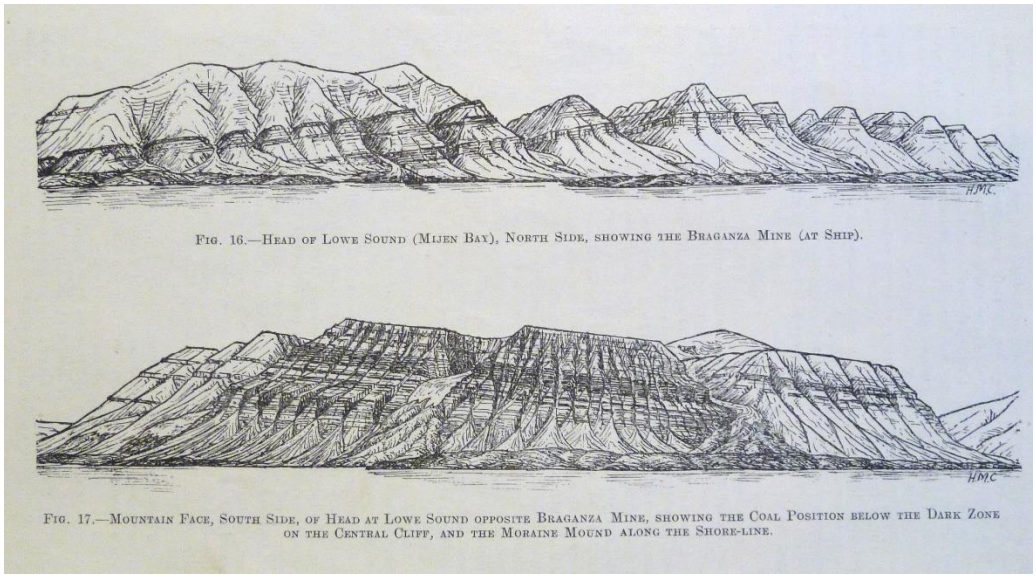

Fig. 7. Illustrations of Tertiary (Paleogene) strata developed by Cadell from his field sketches to accompany his 1921 paper describing the Spitsbergen coalfields. For the location of the Braganza Mine see Fig. 2. *Transactions of the Institution of Mining Engineers*, Vol. 60, p. 140.