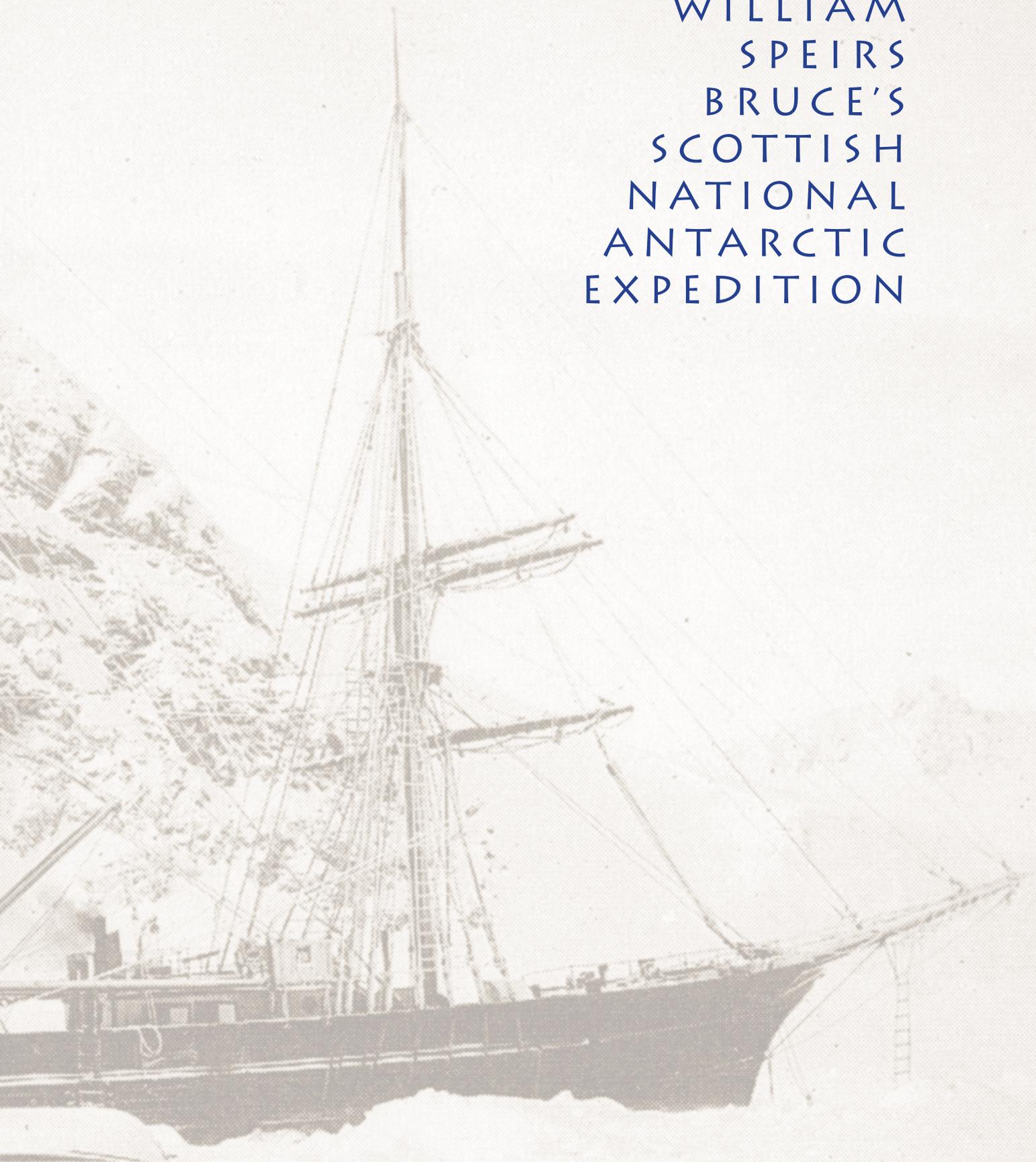


'SCOTIA' AND
WILLIAM
SPEIRS
BRUCE'S
SCOTTISH
NATIONAL
ANTARCTIC
EXPEDITION





SY Scotia in the South Orkneys. From *The Log of the Scotia*.



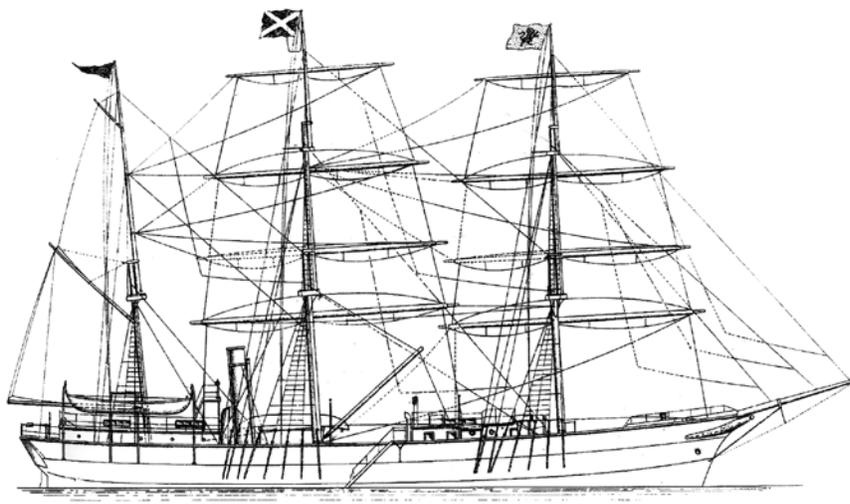
Compiled and produced by Robert B. Stephenson for the
SouthPole-*sium* v.2 in an edition of 100.

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Scotia and William Speirs Bruce's

SCOTTISH NATIONAL ANTARCTIC EXPEDITION

*Excerpted, with permission, from Ordeal by Ice; Ships of the Antarctic by Rorke Bryan
(Sheridan House, Dobbs Ferry, NY, 2011)*



THE fourth expedition resulting from the 1895 International Geographical Conference was another unexpected product of Sir Clements Markham's machinations. As soon as he returned from the voyage of the Dundee whaling fleet, William Bruce started to plan a return to the Antarctic for serious scientific exploration. By 1899, as preparations for 'Markham's' National Antarctic Expedition gathered momentum, Bruce could reasonably claim the greatest polar experience of any scientist in Britain and expected to be invited to join the expedition, if not to be appointed as the leader. In March 1899, he applied to Markham for a position without result.¹

Frustrated by this snub, Bruce decided to organise his own Scottish Antarctic Expedition and set about raising funds. The Royal Scottish Geographical Society lent its support and the Coats family of Paisley contributed £30,000 (\$150,000), so that by March 1900, Bruce could inform Markham that sending a ship was assured and offered to cooperate in oceanographic research with the *Discovery* expedition. This infuriated Markham who, contrary to his own strongly held views, responded that 'A second ship is not in the least required' and regarded this effort as 'mischievous rivalry' which would divert funds from 'his' enterprise. Bruce reacted to this additional snub by adding the word 'national' to the official title for his expedition.²

Bruce first considered the Dundee whaler *Balaena* (formerly *Mjølner*) but she was not for sale and, following the advice of Nansen and Colin Archer, purchased the Norwegian whaler *Hekla* for £2,620 (\$13,100). *Hekla* was built at the Jorgensen and Knudsen yard in Drammen in 1872, where *Antarctic* (formerly *Kap Nor*) and *Balaena* had been built. *Hekla* was a traditional three-masted whaler in design with slab sides, a transom stern, and a somewhat less extremely flared bow than *Discovery* or *Jason*, with an inclination of 25°. She registered 357 gross tons (238 net), measuring 42.68 m (140 feet) long, 8.77 m (28 feet 9 inches) beam and 4.57 m (15 feet) draught, and like most Norwegian whalers, was very strongly built with over 3 m (10 feet) of timber in the bow. Her sides were over 1 m (41 inches) wide at the waterline with 29.2 cm (11½ inch) wide Baltic red pine inner planking on 25.4-30 cm (10-12 inch) thick oak frames, 17.8 cm (7 inch) outer pitch pine and larch planking, and finally a 6.35 cm (2½ inch) thick sheath of greenheart. There were also iron knees on every frame. She was rigged as an auxiliary three-masted barque, with a 28.65 m (94 foot) foremast, 29.57 m (97 foot) mainmast and a 26.52 m (87 foot) mizzenmast. With divided fore and main topsails, three headsails, three staysails, a spanker and a gaff topsail, she could set about 991.92 m² (10,673 square feet) of sail.

For nearly two decades *Hekla* worked out of Tønsberg as sealer in the Norwegian and White Seas, and East Greenland. In 1890, under the command of Ragnvald Knudsen, she survived a hurricane off the northwest coast of Norway in which her main hatches were blown off and the hold filled 3 m (9 feet 10 inches) deep with water.³ From 1890-1892, she was chartered to the Danish East Greenland Expedition led by Lieutenant Ryder, before returning to active sealing until she was purchased by Bruce in 1902 (the registered new owner was James Coats). She was sailed across the North Sea to Scotland and through the Caledonian Canal to the Ailsa Shipbuilding Company at Troon, where she was put under the care of the famous naval architect G. L. Watson, who provided his services free. Although she was believed to be in good condition, Watson was not impressed at first sight, finding two-thirds of her timbers to be rotten. The best thing to do, Watson said, was 'to fill her with stones and take her to Ailsa Craig and sink her' but added that 'if the money could be found there was the possibility of making a fine vessel of her'.⁴ Bruce was confident that he could find the money and gave the go-ahead for a complete rebuild and conversion of the renamed *Scotia* into an oceanographic research ship. The eventual additional cost was £14,110 (\$70,550), substantially exceeding Bruce's £1,000 (\$5,000) estimate for refitting, so the departure of the expedition was delayed while he searched for more funds.⁵

Watson left the hull and masts unchanged, but a new steam engine of 55 registered hp (320 ihp) was installed by Muir and Houston of Glasgow which gave more than 8 knots on her sea trials and a regular speed of 6 knots with a coal consumption of only 3 tons per day (about half the coal consumption of *Discovery* for the same speed). The decks were completely reorganised providing a large fo'c'sle for the twenty-man crew, adjacent to the officers' and petty officers' messes. Immediately aft was a 9.92 m² (106.68 square foot) laboratory, including a dark room, and then a storage area with two large reels, each of which fitted 6,000

fathoms (10,975 m) of triple-strand wire for the specially designed Lucas sounding apparatus. A large poop house at the stern housed the captain and scientists in eight large staterooms, together with a mess room, pantry and bathroom. The bridge was above the poop house, just aft of the funnel, while a new 17.66 m² (190.13 square foot) deckhouse between the foremast and mainmast contained a 11.16 m² (120.11 square foot) laboratory and the galley. Above this deckhouse was the Lucas sounding apparatus, linked to davits and sounding platforms with a Pettersen-Nansen water bottle on the port side and a Buchanan sounding tube on the starboard, operated by a 40 hp steam winch immediately forward of the funnel casing. The extensive scientific equipment also included a Barr & Stroud rangefinder and a small diameter plankton net which could be trawled while the ship was under way at full speed.⁶

The result of Watson's redesign was described by H. R. Mill as 'the beautiful *Scotia*, the most graceful of all the exploring ships',⁷ while the naval architect A. H. Brown called her as 'the most perfectly conceived of all the ships used for Antarctic explorations'.⁸ Bruce said that she 'was better equipped as an oceanographic ship than any Antarctic ship has ever been, and was thus able to carry out most important investigations in very deep water in high latitudes'.⁹ Bruce placed absolute priority on scientific research, and had little interest in the race to the South Pole which obsessed Markham. *Scotia* left the Clyde on 2 November 1902, complete with a piper on the fo'c'sle and the Saltire and the Scottish Royal Standard at the masthead. There were eight scientists and assistants on board together with a crew of twenty, under the command of Captain Thomas Robertson, who had captained *Active* on the Dundee whaling expedition. On the way south *Scotia* visited Ireland (to collect two barrels of stout donated by Arthur Guinness), Madeira (for coal donated by the Union Castle Line), the Cape Verde Islands and St Paul's Rocks, before reaching Port Stanley on 6 January 1903. During the voyage regular soundings, plankton trawls and hourly meteorological observations were carried out, the only mishap being the loss of 1,800 fathoms (3,292m) of wire and a sounding tube off the Rio de la Plata. None of the available accounts record any concerns about *Scotia*.

After taking on stores and eleven collies to join Bruce's Samoyed, they sailed from the Falklands for the Antarctic three weeks later, immediately meeting a full Drake Passage hurricane, but in testament to *Scotia's* seagoing ability, only one wave came on board. On 2 February 1903 they met pack ice unusually far north at 60° 28' S and the following day reached the South Orkneys. After making the first botanical collections on the South Orkneys, and faced by very heavy pack ice, they sailed east to look for better conditions. Bruce intended to carry out oceanographic research far southwards into the Weddell Sea. He was frustrated by the heavy pack ice but numerous soundings were made as far south as 70° 25' at longitude 17° 12' W, with depths consistently over 2,000 fathoms (3,658 m). Two deep trawls were also carried out south of the Antarctic Circle, but by late February extensive new ice was forming. Bruce felt that it would be an inexcusable waste of research opportunities to have *Scotia* beset at high latitudes through the winter, so headed north to reach the South Orkneys again on 21 March. An excellent anchorage was

soon found at Scotia Bay on Laurie Island, which was also a good site for magnetic and meteorological observatories and biological research.

It was hoped that ice conditions would allow oceanographic research well into the winter but *Scotia* was frozen in by early April, only one week later than *Discovery* in McMurdo Sound, though *Scotia* was protected in the anchorage from severe ice pressure. It would be eight months before she was free to move again, but *Scotia* was never as firmly frozen in as *Belgica*, *Discovery* or *Gauss*, and it was not until May that she was rigged down for the winter. Then the sails were unbent, the topgallant yards sent down, boats lowered on to the ice, the boiler fires put out, and a canvas awning rigged over part of the deck. Snow was piled on the remaining deck and a large wind barrier made of snow was built around the ship.¹⁰

Winter activities were not nearly as severely restricted by cold or darkness as farther south and occasional relief also came from warm Föhn winds. Work was immediately started on a meteorological hut—the stone Omond House—and a magnetic hut—the wooden Copeland Observatory—for the continuous research programme. A dredge was set up on the ice with an endless rope between two holes and every morning trawls yielded abundant new marine specimens. Frequent sledge trips were carried out on Laurie Island for biological observations. The main recreational activity was skiing, while midwinter festivities were celebrated with the barrels of Guinness, producing a memorable ‘night of the porter supper’ as the remarkable potency of the small unfrozen portion was discovered.¹¹ Unfortunately, the winter was also marked by the death of the chief engineer, Allan Ramsay, who died of a previously undetected heart ailment.

The plan for the spring was to leave six men to continue observations on Laurie Island, while *Scotia* returned to Port Stanley for coal, supplies and ship maintenance, before returning to pick up the party and sail deep into the Weddell Sea. Bruce expected that this would be possible in September, and at the end of August, *Scotia* was prepared, the boiler was lit, and attempts were made to cut a channel to the open sea. However, the ice in places was up to 8 m (26 feet) thick and even explosives had little effect, while September also proved to be the coldest month of the winter, and no movement was possible. In the meantime, birds had returned in great abundance and numerous seals and penguins appeared on the beach.

It was 23 November before a strong wind broke up the ice and freed *Scotia* to leave for the Falklands. Despite halting for soundings and an accident on the Burdwood Bank when the gooseneck of the derrick holding the sounding gear broke, the voyage took only a week. In Port Stanley they heard about the search for the Nordenskjöld expedition and the voyage by *Morning* and *Terra Nova* to relieve *Discovery*. *Scotia* then left for Buenos Aires to collect Bruce who travelled ahead by steamer. This voyage was bedevilled by contrary winds and *Scotia* ran aground on the Ortiz Bank in the Rio de la Plata estuary because the charts were out of date. The coal supply also ran out and *Scotia* had to be towed into Buenos Aires. The shifting sands of the Rio de la Plata estuary are notorious and four years later the Ortiz Bank was responsible for the total loss of the Argentine Antarctic ship *Austral*.

Scotia was dry-docked in Buenos Aires for a month for minor repairs and modifications to the sounding gear. This stay coincided with the arrival of *Frithjof*

from Sweden and Charcot's *Français*, while *Uruguay* also reached port after rescuing the castaways from *Antarctic*. Bruce also heard that the Coats family had provided funds for a further six months of research. After vainly seeking interest from the British government, Bruce also concluded an agreement with the Argentine government to continue meteorological observations at Omond House after the expedition left; on the return voyage to Laurie Island via the Falklands in February 1904, *Scotia* carried three Argentine scientists to man the station.

Ice in the 1903-1904 summer was unusually light and *Scotia* was able to sail where, in the previous year, she had had to force her way under steam. She reached 72° 18' S, 17° 59' W, where a prominent ice shelf was sighted on 2 March. A strong gale prevented landing so she steamed slowly south down the coast of what was named Coats Land, collecting seals and Emperor penguins and taking soundings. A sounding of only 159 fathoms (291 m), some 3 km (1.86 miles) off the coast, confirmed that the coast was, indeed, land. By 7 March *Scotia* had reached 74° 01' S, 22° 00' W, handily passing Ross's farthest south at the same longitude in 1843 and almost reaching Weddell's record from 1823. However, now she became stuck in heavy pack ice, with ice floes driven up onto the deck before a northeasterly gale, but luckily most of the ice passed under the keel, lifting *Scotia* 1 m (3 feet 3 inches) out of the water without damage.¹² Once the gale subsided attempts were made to blast with tonite and gunpowder, and to kedge the ship out with a large ice anchor, without any effect. The risk of emulating the fate of *Antarctic* was real, but suddenly on 13 March the ice cracked, freeing the ship.

It was clearly time to retreat and *Scotia* forced her way out of the pack under steam to head north, stopping only to sound the 'Ross Deep' at 68° 32' S, where a depth of 4,000 fathoms (7,317 m) had been recorded on the *Erebus* and *Terror* expedition. Several new deep-sea species were recovered, but the deepest sounding was only 2,660 fathoms (4,866 m). *Scotia* now was very lightly laden with little coal left and, having been washed out of his bunk, Bruce described her as being 'very lively' in a sequence of gales, but said that 'she behaved splendidly'.¹³ The voyage was unpleasant and dangerous as *Scotia* headed north across the prevailing winds. The weather was continually bad for twenty-three days as they headed from 65° S to 42° S towards Gough Island, but some soundings were still attempted, one of which showed extension of the Atlantic Ridge at least 1,600 km (993 miles) farther south than previously known. A brief landing was made on Gough Island through heavy surf on 21 April before continuing to Cape Town. From there, *Scotia* had an uneventful voyage up the Atlantic, with stops at St Helena, Ascension Island, the Azores and Ireland before reaching the Clyde on 21 July to a tumultuous welcome led by Sir John Murray, who presented Bruce with the Gold Medal of the Royal Scottish Geographical Society and Robertson with the Silver Medal.

The Scottish National Antarctic Expedition was an outstanding scientific success, which dramatically increased biological and oceanographic knowledge of Antarctica and appropriately received great praise from the complete scientific community.¹⁴ Sir John Hooker said that 'no Antarctic expedition ever brought back

a richer harvest of collections or observations'.¹⁵ The Royal Geographical Society, still dominated by Sir Clements Markham, was lukewarm and the expedition never received great public acclaim. Bruce was a modest man who lacked the flare for publicity of Scott or Shackleton, and the meticulous science carried out did not catch the public imagination in the same way as a dash for the South Pole. Perhaps because of Markham's influence, no member of the expedition was awarded the Polar Medal. Markham later dismissed the expedition as having been primarily concerned with deep-water sounding.¹⁶ In fact, apart from discovering Coats Land, one of Bruce's most enduring contributions was to initiate the longest continuous meteorological record in Antarctica, which is still in progress 106 years later. The Argentine Base, Orcadas del Sul, was established on Laurie Island, complete with the first Antarctic post office and postmaster. It is ironic that one result of Markham's opposition to Bruce would be the establishment of an Argentine presence in the South Orkneys which now provides important support for Argentina's territorial claims in this sector of Antarctica.

The expedition was also financially successful with an eventual cost of only £36,405 (\$182,000), against Bruce's original projection of £35,000 (\$175,000). This compared very favourably with the extremely expensive *Discovery* expedition; the expedition has been described as 'the most cost-effective and carefully planned scientific expedition of the Heroic Age'.¹⁷ Undoubtedly the decision to purchase an old whaler from Norway rather than commission a new specially designed ship was a major contribution to this success. *Scotia's* outstanding performance in the Antarctic is a testament both to the original design and construction at the Jørgensen & Knudsen yard in Drammen, and the modifications undertaken by G. L. Watson. *Antarctic* might have been just as successful if Nordenskjöld could have afforded a similar refit. It is particularly noteworthy that *Scotia* was significantly better suited for Antarctic exploration than the specially designed, much more expensive *Discovery* and *Gauss*, and suffered none of the obscure leakage problems which plagued both these ships.

Shortly after the expedition, *Scotia* was sold to Robert Kinnes of Dundee and returned to sealing and whaling off East Greenland, still under the command of Thomas Robertson. She was laid up in 1910 because of declining catches. After the sinking of *Titanic* in 1912, an ice patrol to monitor ice conditions in the North Atlantic was recommended by a special conference in London,¹⁸ and *Scotia* was selected for the initial experimental cruise, chartered from Kinnes for £750 (\$3,750) plus crew costs. During the fifteen-week 1913 cruise in the ice-hazard waters, ice reports were transmitted daily to the nearest wireless stations and widely circulated to shipping companies. The cruise was so successful that a permanent International Ice Patrol was established later in the year. Shortly after this, *Scotia*, like *Discovery*, was sold to the Hudson's Bay Company which chartered her to the French government during the First World War. On 18 January 1916, while carrying coal and ammunition from Bristol to Bordeaux, she caught fire and was beached on Sully Island in the Bristol Channel where she burned for more than ten days and became a total wreck. ❧

NOTES

- ¹ Markham eventually offered the subordinate position of biology to Bruce, but by that stage plans for the Scottish National Antarctic Expedition were already well advanced.
- ² Speak, P., 2003. *William Speirs Bruce: Polar Explorer and Scottish Nationalist*, National Museums Scotland, Edinburgh.
- ³ Erskine, A. B. and Kjaer, K-G, 2005. 'The Polar Ship *Scotia*', *Polar Record* 41 (217), 131-140.
- ⁴ Wordie, P., 2003, 'Scottish National Antarctic Expedition, 1902-04. Leader: W. S. Bruce (1967-1921)', *Polar Post*, 35(1), 12-22.
- ⁵ Speak, P., 2003, *ibid*.
- ⁶ Rudmose Brown, R. N. , Mossman, R. C., and Harvey Pirie, J. H., 1906, *The Voyage of the 'Scotia'*, William Blackwood & Sons, Edinburgh.
- ⁷ Mill, H. R., 1944, cited by Erskine, A. B. and Kjaer, K-G, 2005, *ibid*.
- ⁸ Millan, A. H., 1907, cited by G. Millot, 1986, 'J-B. Charcot et ses Navires', *Chasse-Marée*, 24, 28-53.
- ⁹ Bruce, W. S., 1911, *Polar Exploration*, Williams & Norgate, London.
- ¹⁰ Rudmose Brown, R. N. et al., 1906, *ibid*.
- ¹¹ Bruce, W. S. (ed. P. Speak), 1992, *The Log of the Scotia Expedition, 1902-04*, Edinburgh University Press, Edinburgh.
- ¹² Rudmose Brown, R. N., et al. 1906, *ibid*.
- ¹³ Bruce, W. S. (ed. P. Speak), 1992, *ibid*.
- ¹⁴ As in the case of the Discovery expedition, British government parsimony in providing funds hindered the publication of the scientific results. Eventually, bowing to international pressure, £3,000 was granted. This compares with the grants of £20,000, £15,000 and £5,000 to the Gauss, Belgica and Antarctic expeditions for the same purpose by their respective national governments (P. Wordie, 2003).
- ¹⁵ Wordie, P., 2003, *ibid*.
- ¹⁶ Markham, Sir C. R., 1921, *ibid*.
- ¹⁷ Speak, P., 2003, *ibid*.
- ¹⁸ Erskine, A. B. and Kjaer, K-G, 2005, *ibid*.

Members of the Expedition

Henry Anderson, *Able Seaman*
Robert Neal Rudmose Brown, *Scientist*
William Spiers Bruce, *Expedition leader*
William Cuthbertson, *Artist*
Robert Davidson, *Second mate and ice master*
Alexander Duncan, *Fireman*
John Fitchie, *Third mate, promoted to first mate in Stanley*
Edwin Florence, *Chief cook, promoted to first steward, Buenos Aires January 1904*
Henry Gravill, *Second engineer, promoted to chief engineer on the death of Ramsey*
Andrew Greig, *Able seaman, left ship in Buenos Aires January 1904*
James H. Harvey Pirie, *Scientist*
Gilbert Kerr, *Ordinary seaman, lab assistant and piper*
David Low, *Fireman*
John Macmurchie, *Able seaman, left ship in Buenos Aires January 1904*

Thomas Mackenzie, *Chief Steward, discharged sick, Buenos Aires January 1904*
Robert Mackenzie, *Able seaman, discharged for misconduct, Buenos Aires January 1904*
William Martin, *Able seaman, scientific staff October 1903 - February 1904*
James McDougall, *Third mate and Bo'sun*
Robert Cockburn Mossman, *Scientist*
William Murray, *Second cook, promoted to chief cook, Buenos Aires January 1904*
David Patrick, *Boatswain and quarryman, joined in Buenos Aires January 1903*
Allan Ramsay, *First engineer, died on board Scotia 6th August 1903*
James Rice, *Carpenter, left ship in Buenos Aires January 1904*
Alexander Robertson, *Able seaman, left ship in Buenos Aires January 1904*
Thomas Robertson, *Captain*
Alastair Ross, *Taxidermist*
James Smith, *Able seaman, carpenter's mate, left ship in Buenos Aires January 1904*
John Smith, *Ordinary seaman*
William Smith, *Second steward*
Bryce Allan Thomson, *First mate, left at Stanley January 1903*
Alexander John Walker, *Able seaman, skinman and lampman*
Robert Wilson, *Fireman and blacksmith*
David W. Wilton, *Scientist*





Omond House, Scotia Bay, South Orkneys. Scottish and Argentine Scientific Staffs.
The six to the left are the Scottish Party, the five to the right are the Argentine Party.
Mr. Mossman and Wm. Smith (steward) serving with both Expeditions.
(From volume I of the *Scientific Results of the "Scotia"*.)



The Saltire (St Andrew's Cross), the national flag of Scotland.

