

Shackleton and Bruce: disentangling Antarctic geological collections at National Museums Scotland

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Abstract

Amongst the Antarctic geological specimens held by National Museums Scotland are those from collections made during early 20th Century expeditions led by William Speirs Bruce and Ernest Shackleton. Historical circumstances and ambiguous labelling led to the Shackleton material, from his 1907–1909 *Nimrod* expedition, being incorporated into the Bruce collection and incorrectly assigned to the latter's 1902–1904 *Scotia* expedition. The recent identification of the Shackleton specimens, examination of their surviving labels and a review of the relevant Polar literature has now allowed the confusion to be resolved and explained. The Shackleton collection proves to comprise ten basaltic rock specimens from Ross Island, from the vicinity of the active Mt Erebus volcano, and two granitic rock specimens from mountains further inland at the western margin of the Ross Sea. The geologists likely to have been involved in the collecting were Tannatt William Edgeworth David, Douglas Mawson and Raymond Edward Priestley. Two additional specimens can be assigned to a subsequent Australian expedition led by Mawson in 1911–1913.

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Introduction

The Scottish Polar explorer William Speirs Bruce (1867–1921) is best known for his organisation and leadership of the Scottish National Antarctic Expedition (SNAE), 1902–1904 (Table 1). Aboard S.Y. *Scotia* the expedition navigated to a furthest south position in the Weddell Sea (74° 01' S, 22° 00' W) and wintered at Laurie Island, one of the South Orkney Islands (Fig. 1A). Despite the success and scientific achievements of the SNAE it remains one of the least celebrated contributions to the 'Heroic Era' of Antarctic exploration. Indeed, for many years Bruce was all but forgotten, even in Scotland, whilst the activities of his contemporary peers, Scott, Shackleton and Amundsen, have been extensively and intensively celebrated, debated or denigrated. This situation has been partially rectified by two recent biographies of Bruce (Speak 2003, Williams and Dudeney 2018) and reassessments of the SNAE geological results (Stone 2017, 2018).

National Museums Scotland (NMS) holds rock specimens collected during Bruce, Scott and Shackleton expeditions. However, at some point, the Bruce and Shackleton collections became conflated, with the latter incorrectly assigned to the SNAE instead of to the British Antarctic Expedition of 1907–1909, led by Ernest Shackleton (1874–1922), which wintered at Ross Island in the Ross Sea (Figs 1A and 1B). Shackleton's base for this, the *Nimrod* expedition, was established at Cape Royds on the west coast of Ross Island, within sight of the active volcano Mount Erebus, 3800 m (Fig. 2). This paper examines the curatorial history of Shackleton's *Nimrod* specimens and restores them to their correct provenance. It demonstrates the potential fate of historically significant collections if left with ambiguous archival detail, a circumstance happily now resolved in this particular case.

Bruce and the Scottish Oceanographical Laboratory

When the SNAE returned to Scotland in 1904, Bruce established a Scottish Oceanographical Laboratory in Edinburgh to house his collections and enable them to be scientifically developed and written-up. The establishment was formally opened in 1906 by His Serene Highness Prince Albert I of Monaco, with whom Bruce had previously enjoyed oceanographical collaboration in the Arctic: the scientific and civil establishment of Edinburgh turned-out in force for the ceremony.

Despite that auspicious beginning, Bruce's venture was always short of funding. To keep the laboratory open he often had to rely on the benevolence of his friends, whilst the drain on his own resources left him so personally impecunious that he lived in relative poverty. By 1919 the situation had become impossible, and Bruce was forced to close the Scottish Oceanographical Laboratory and dispose of his collections. Over the next two years, his extensive Polar library and miscellaneous papers went to the University of Edinburgh, maps and photographs went to the Royal Scottish Geographical Society, and specimen collections went to the Royal Scottish Museum, now, as the National Museum of Scotland, a part of National Museums Scotland. An additional paper and photographic archive held by Bruce's solicitor was subsequently acquired by the Scott Polar Research Institute, Cambridge.

The geological part of the Bruce Collection, as now held by NMS, contained an abundance of Arctic rocks and fossils in addition to the SNAE specimens, which included some from the Falkland Islands and some from Gough Island (part of the Tristan da Cunha group) in addition to those from the South Orkneys. There were also Antarctic specimens that Bruce had acquired by donation, but as time went by the provenance of some of these became confused. Although the collection had arrived at what was

then the Royal Scottish Museum by 1921 (Stace *et al.* 1987), formal registration of the specimens did not take place until 1954. In the intervening period, geological specimens had to be packed into crates and moved to safe storage for the duration of the Second World War; many were not unpacked and registered until long after the war had ended. But by that time Bruce's specimens had already been labelled as "Bruce Collection", as shown by an example with the 1954 registration label stuck on top of a pre-existing "Bruce Collection" label (Fig. 3). Whilst strictly correct, that association also had the effect of linking all the specimens thus labelled with Bruce's own expeditions. In 1954, it would have been perfectly reasonable for the museum curators – who cannot be expected to have had detailed knowledge of Antarctic geography – to assume that the Ross Island rock specimens had been collected during the SNAE.

Thirty years later, that assumption was formalised by Stace *et al.* (1987) whose list of the SNAE geological specimens included twelve specimens from Ross Island, 1902-1904, "[c]ollected by the geologist of the expedition, Dr J.H.H. Pirie". However, the SNAE operated in the Weddell Sea area, south of the Atlantic Ocean, whereas Ross Island (named after its 19th Century discoverer James Clark Ross) is on the opposite side of the Antarctic Continent in the Ross Sea, south of New Zealand (Fig. 1A). The SNAE and did not visit the Ross Sea, hence the statement by Stace *et al.* is a geographical improbability. Confusion may have arisen from Alastair Ross (1881–?) having been a participant in the SNAE, but no island was named after him. Given this background, Stone (2017) suggested that the Ross Island specimens originated from the British Antarctic Expedition of 1907–1909, Shackleton's *Nimrod* expedition, rather than the SNAE. That possibility was supported by the NMS catalogue, which detailed the specimens as igneous rocks appropriate to the Ross Sea area but dissimilar to the meta-sedimentary lithologies of Laurie Island. Subsequent rediscovery and examination of the specimens, and their associated labelling, has confirmed the *Nimrod* provenance, although only ten of the twelve specimens are from Ross Island, all mafic volcanic rocks, whilst the remaining two, granitic rocks, are from the Victoria Land mountains to the west the Ross Sea (Fig. 1B).

The evidence from the surviving labels

Bruce did not assist the future curation of his specimens by using left-over SNAE stationary when labelling the subsequently acquired Antarctic specimens. For all but one of the 'Shackleton' rocks, the location details and lithology are inscribed on the back of small (7 cm by 3.5 cm) cards printed with the caption S.Y. *Scotia* and designed for the recording of seafloor dredge samples (Fig. 4). Accompanying these labels in all but one specimen box are carefully inscribed slips carrying much the same information, which appear to have been made as formal captions for the display of the

specimens. None of these individual labels mention Shackleton or the *Nimrod* expedition, but that information is provided on a larger, separate title card reading “Ross Island. Shackleton Antarctic Expedition. 1907–1909” (Fig. 5). The collection had evidently been on display, or had been prepared for display, in the Oceanographical Laboratory.

Although the surviving labels confirm the *Nimrod* expedition as the ultimate source of the specimens, they do not establish the route by which they came into Bruce’s possession. Bruce and Shackleton are known to have enjoyed a cordial relationship, regularly corresponded, and met on several occasions (Speak 2003, Williams and Dudeney 2018). It must be at least possible that the specimens were passed on personally by Shackleton as a contribution to the Oceanographical Laboratory’s Antarctic collection.

Two other Antarctic rock specimens are also labelled with recycled *Scotia* record forms, with their provenance data given in what appears to be Bruce’s handwriting (Fig. 6). There are unambiguous references to Adelie Land (Fig. 1A) and a presentation by Captain Davis, but these specimens are not included in the Stace *et al.* (1987) inventory. John King Davis (1884–1967) had been captain of *Nimrod* but subsequently commanded the *Aurora*, the ship used by the 1912–1914 Australian Antarctic Expedition to Adelie Land led by Douglas Mawson (1882–1958); Mawson had been one of the geologists on the earlier *Nimrod* expedition. The Australian association is confirmed by another display caption board accompanying the specimens that reads “Mawson’s Antarctic Expedition 1912–1914”. Like the ‘Shackleton’ rocks, the ‘Mawson/Davis’ rocks would seem to have been prepared for display in the Oceanographical Laboratory, appropriately identified. The association of Mawson’s name with some of Bruce’s specimens may go some way towards explaining the remarkably inaccurate obituary for J.H.H. Pirie (1879–1965), the SNAE geologist, published by the Royal Society of Edinburgh, of which he was a Fellow (Mason 1966). The SNAE is not mentioned and instead Pirie is described as ‘a medical scientist with the Mawson Antarctic Expedition’. However, Mason appears to have been writing from South Africa, where Pirie spent most of his career and where he died, so alternative confusions are possible.

The ‘Shackleton’ Specimens from the Bruce Collection

There are twelve specimens originating from Shackleton’s *Nimrod* expedition, the British Antarctic Expedition 1907–1909. They are individually boxed with the original labels enclosed. Text below is reproduced verbatim. A “G.” prefix was added to Geology Department register numbers in the late 1980s and now forms part of the official NMS register number.

G.1954.4.1

Written on box lid: Kenyte, Cape Barne, Ross Island, Bruce Coll.

Information on label(s): Kenyte acted on by hot gases, Cape Barne, Ross Island, Antarctica.

G.1954.4.2

Written on box lid: Kenyte, Cape Royds, Ross Island, Bruce Coll.

Information on label(s): Kenyte, Cape Royds, Ross Island.

G.1954.4.3

Written on box lid: Kenyte (weathered), Cape Royds, Ross Island, Bruce Coll.

Information on label(s): Typically weathered Kenyte, Cape Royds, Ross Island.

G.1954.4.4

Written on box lid: Kenyte, Cape Royds, Ross Island, Bruce Coll.

Information on label: An unusual form of Kenyte, Cape Royds Peninsula, Ross Island, Antarctica.

G.1954.4.5

Written on box lid: Kenyte with pitchstone base, Cape Royds, Ross Island, Bruce Coll.

Information on label: Kenyte with pitchstone base, Cape Royds, Ross Island.

G.1954.4.6

Written on box lid: Olivine-augite-basalt, Cape Barne, Ross Island, Bruce Coll.

Information on label(s): Olivine-augite-basalt, Cape Barne, Ross Island.

G.1954.4.7

Written on box lid: Feldspar-olivine-augite-basalt from an erratic Cape Royds, Ross Island, Bruce Coll.

Information on label(s): Feldspar-olivine-augite-basalt from an erratic, Cape Royds, Ross Island (part of Erebus Series).

[Note that a 1954 registration label is stuck on top of a pre-existing 'Bruce Collection' label (Fig. 3)].

G.1954.4.8

Written on box lid: Alkali-trachyte, South of Ross Island, Bruce Coll.

Information on label(s): Alkali-trachyte from the southern portions of Ross Island.

G.1954.4.9

Written on box lid: Trachy-Doleritic Lava, Cape Royds, Ross Island, Bruce Coll.

Information on label(s): Trachy-Doleritic Lava, Cape Royds, Ross Island. From an erratic (Erebus Series).

G.1954.4.10 (Fig. 7)

Written on box lid: Trachy-Dolerite, Near Skuary, Ross Island, Bruce Coll.

Information on label(s): Trachy-Dolerite, form of Kenyte. From the vicinity of the Skuary, Ross Island, Antarctica.

[The manuscript label may be in Bruce's handwriting. "Skuary" was used as an informal name for an area with an abundance of skuas, a large, brown, scavenging and predatory sea bird. It is now known formally as Cape Evans.]

G.1954.4.11

Written on box lid: Syenite [f]rom Complex, Royal Society Range in Ferrier Glacier Region, S. Victoria Land. Bruce Coll.

Information on label(s): Syenite. Part of the Royal Society Range, Antarctica. From an erratic mass at Ferrier Glacier, S. Victoria Land.

[Ferrier Glacier is a mistranscription of Ferrar Glacier, perhaps from original handwritten notes. James Ferrier, an Edinburgh solicitor, had acted as secretary to the Scottish National Antarctic Expedition, 1902-1904, so his was a well-known name to Bruce and colleagues. Hartley Ferrar (1879–1932), after whom the glacier was named, was a geologist accompanying Scott's 1901–1904 *Discovery* expedition].

G.1954.4.12 (Fig. 8)

Written on box lid: Granitite from Complex, Royal Society Range in Ferrier Glacier Region, S. Victoria Land. Bruce Coll.

Information on label(s): Granitite. Part of the Foundation Complex of the Royal Society Range, Antarctica. Specimen from erratics in the Ferrier Glacier Region, S. Victoria Land.

[For the Ferrier/Ferrar confusion see note above for 1954.4.11].

The 'Mawson/Davis' Specimens from the Bruce Collection

Two specimens originating from Mawson's Australian Antarctic Expedition to Adelie Land, 1911–1913, which were presented to Bruce by John Davis, who was Captain of the expedition's support ship *Aurora*. Davis had previously captained *Nimrod*, so was very familiar with Shackleton. The specimens and original labels (probably in Bruce's handwriting) rest on individual open trays.

1954.16.1

Label reads: Adelie Land, presented by Captain Davis, May 1913.

Described in museum catalogue as a red sandstone boulder.

[The rounded ‘boulder’ of coarse-grained sandstone has a maximum dimension of 100 mm so, strictly speaking, is a small cobble].

1954.16.2 (Fig. 6)

Label reads: Adelie Land, presented by Captain Davis, May 1913.

Described in museum catalogue as serpentine.

[Perhaps a metamorphosed limestone].

The *Nimrod* expedition geologists

Amongst the personnel of Shackleton’s *Nimrod* expedition was a strong scientific cohort that included the British geologist Raymond Priestley (1886–1974) and two Australian geologists, Tannatt William Edgeworth David (1858–1934) and Douglas Mawson (1882–1958) (Table 1). All three went on to enjoy illustrious careers for which all three were knighted. David and Priestley (1914) wrote-up the official account of the expedition’s geological results. Sir Philip Brocklehurst (1887–1975) was officially listed as Assistant Geologist (Shackleton 1909) but had little in the way of geological training or background.

One of the expedition’s early achievements was the first ascent of Mount Erebus, with David and Mawson members of the party that reached the summit on 9 March 1903 (Shackleton 1909). However, none of Bruce’s ten volcanic specimens are described as originating from Mount Erebus itself. Instead, eight of the ten came from the vicinity of the expedition’s base, either Cape Royds itself or the nearby Cape Barne (Fig 1B), so could have been collected by David, Mawson or Priestley, or indeed any other member of the expedition. Of the remaining two volcanic rock specimens, one is vaguely located to the ‘southern portions of Ross Island’, with the other assigned to the ‘Skuary’. This informal name, sometimes presented as Skuary Point, arose from a local abundance of skuas and was used for a location about 10 km SE of Cape Royds; it was renamed Cape Evans by Scott who established his base there for the 1910–1912 *Terra Nova* expedition. Again, any of the *Nimrod* expedition team could have collected either of these two specimens.

Shackleton (1909) credits David with the identification of the feldspar phenocrysts in the Ross Island and Mount Erebus volcanic rocks as anorthoclase and applying the name *kenyte* from a similarity to rocks from the African Rift Valley. However, David would have been familiar with the previous

geological work on Ross Island carried out during Scott's 1901-1904 *Discovery* expedition by Hartley Ferrar (Table 1) which he cites in the geological appendix to Shackleton's book (David and Priestley 1909). Ferrar had identified some of the volcanic rocks from the south side of the island as kenyte (Ferrar 1907) but for that he may have been advised by G. T. Prior of the British Museum who examined and described his rock specimens (Prior 1907). However, kenyte is no longer used to describe the Ross Island and Mount Erebus rocks, with phonolite preferred in the modern literature (Smellie and Martin 2021). National Museums Scotland hold another specimen from Cape Evans (G.1961.21) amongst a collection of rocks from Scott's 1910-1912 *Terra Nova* expedition and that has been identified as phonolite.

The two specimens of granitic rock are more readily associated with a specific collector. During the expedition's main programme of exploration in the 1908–1909 austral summer, Priestley was a member of a 3-man team that surveyed the Ferrar Glacier region in the Royal Society Mountains of South Victoria Land (Fig. 1B). He was an assiduous collector and it is highly likely that he was the geologist responsible for recovering the specimens of syenite and granite subsequently passed on to Bruce.

Two important outcomes

The principal geological collection arising from Shackleton's *Nimrod* expedition is held by The Natural History Museum, London: Bishop *et al.* (1971) record 61 specimens from the vicinity of Ross Island and 127 from South Victoria Land. The 12 Shackleton specimens held by NMS, hitherto incorporated into the Bruce Collection, can now be correctly aligned with that material. There will undoubtedly be other small subsets held elsewhere. An online search reveals Shackleton *Nimrod* specimens at the Hunterian Museum in Glasgow and the Sedgwick Museum in Cambridge, with others known to be held by the Bristol City Museum and the National Museum of Wales, Cardiff (T. Sharpe pers. comm. 2023). Further afield, *Nimrod* specimens are illustrated online from the Powerhouse Collection, Museum of Applied Arts and Sciences, Sydney, Australia, whilst Carrasquero (2021) notes a Shackleton collection held by the Museo de La Plata, Argentina. These, and probably other collections not located, some perhaps still misidentified, are likely to have arrived at their holding institution by diverse routes, which has the potential to create additional barriers to their correct correlation. At NMS, the digitised records proved their worth, enabling the suspected Shackleton specimens to be quickly located despite their covert history and their resulting physical misplacement within the museum's collections.

The successful confirmation that the Shackleton *Nimrod* specimens held by NMS in Edinburgh had, for many years, been hiding in plain sight within Bruce's *Scotia* collection, has two important

outcomes. Firstly, in terms of National Heritage, it restores the correct historical provenance to material recovered during two of the early ‘Heroic Era’ Antarctic expeditions, to the benefit of the scientific legacy of both. Secondly, it demonstrates the way in which confusion can arise when the details provided for historically significant collections, which would have seemed more than adequate when they were originally collected and deposited, lose their definition over time and especially if passed between institutions. The circumstances described in this article show how a fortuitous coincidence of historical, geological and geographical special interests came to resolve one such situation.

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Figures 1–8 and Table 1

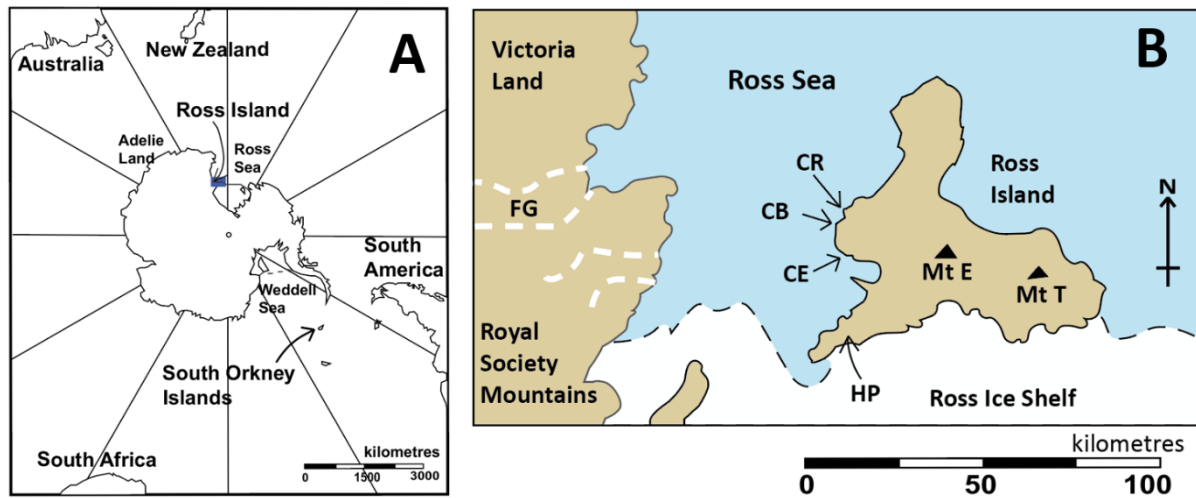


Fig. 1. Location maps. A. Antarctica, showing the areas of activity of Bruce's *Scotia* expedition in the Weddell Sea and South Orkney Islands and Shackleton's *Nimrod* expedition in the Ross Sea and on Ross Island. B. Ross Island and the adjacent Victoria Land coastal region: CB, Cape Barne; CE, Cape Evans (The Skuary); CR, Cape Royds; FG, Ferrar Glacier; HP, Hut Point peninsula; Mt E, Mount Erebus; Mt T, Mount Terror. Image © National Museums Scotland.



Fig. 2. View of Mt Erebus with Shackleton's *Nimrod* expedition hut in the foreground. Image by John Smellie © and used here with his permission.

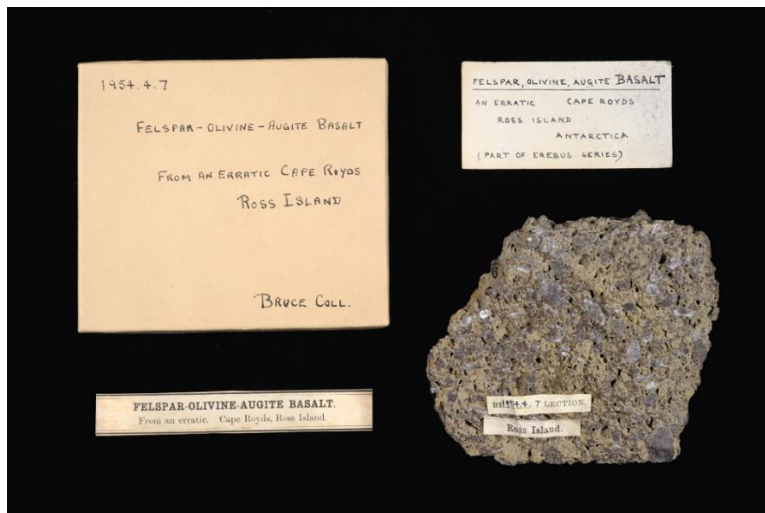


Fig. 3. Specimen G.1954.4.7, basalt from a Cape Royds erratic together with its original labelling which includes (bottom left) a probable display caption from Bruce's Scottish Oceanographical laboratory. Note that the rock specimen has an NMS registration number pasted on top of an earlier label reading 'Bruce Collection'. The label card at top right measures 7 cm by 3.5 cm. Image © National Museums Scotland.



Fig. 4. The front and back of an original label for a 'Bruce Collection' specimen. The details of a Shackleton specimen from the *Nimrod* expedition have been written on the reverse side of stationary printed for use during Bruce's *Scotia* expedition. Image © National Museums Scotland.

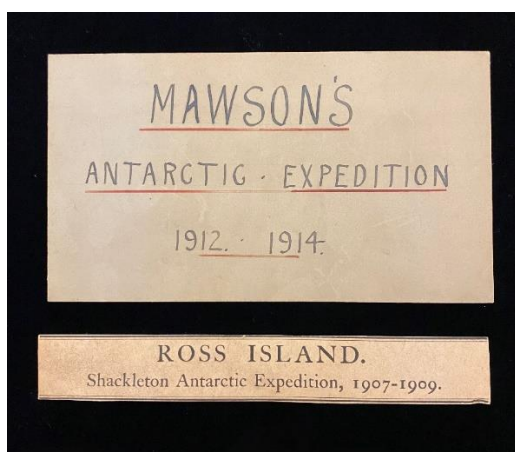


Fig 5. The two caption boards (both 16.7 cm long) referencing Shackleton and Mawson expeditions that were probably prepared by Bruce to accompany specimen displays in his Scottish Oceanographical Laboratory. Image © National Museums Scotland.

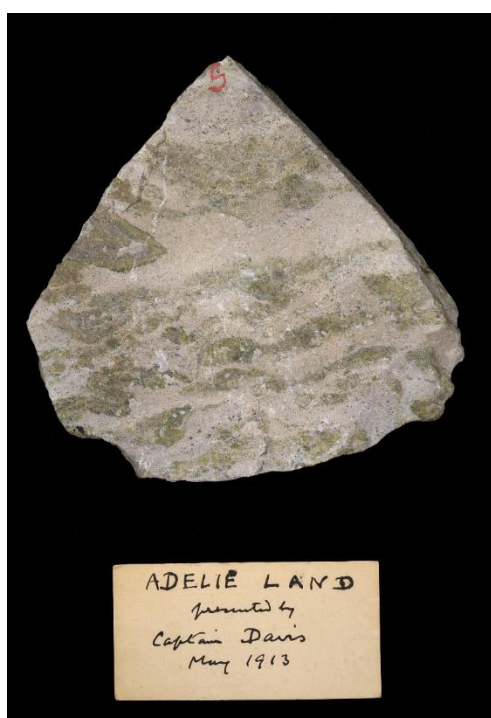


Fig. 6. G.1954.16.2, a specimen collected during Mawson's Australian Antarctic Expedition and described in the NMS catalogue as 'serpentinite'. The manuscript label, which measures 7 cm by 3.5 cm, may be in Bruce's handwriting. Image © National Museums Scotland.

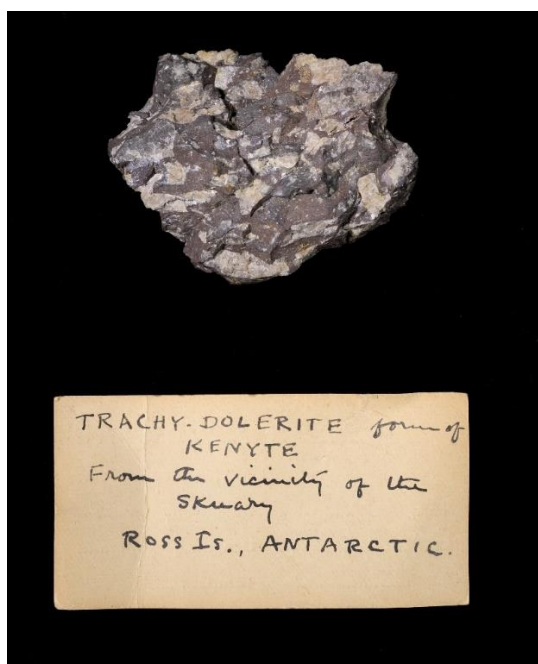


Fig. 7. G.1954.4.10, a specimen of porphyritic dolerite from Ross Island, together with its original label, which may be in Bruce's handwriting. The label card measures 7 cm by 3.5 cm. Image © National Museums Scotland.

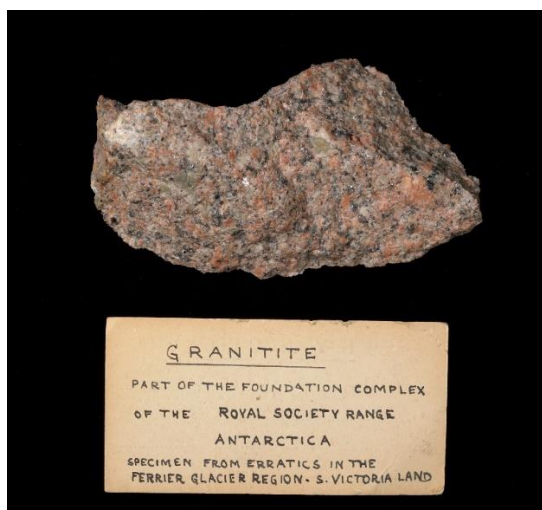


Fig. 8. G.1954.4.12, a specimen of a granitic rock probably collected by Raymond Priestley during his exploration of the Ferrar Glacier region; note the misspelling of Ferrar. The label card measures 7 cm by 3.5 cm. Image © National Museums Scotland.

Table 1.

A summary of the Antarctic expeditions and the participating geologists responsible for, or relevant to, the collections discussed in this paper.

British National Antarctic (*Discovery*) Expedition, 1901–1904

Led by Robert Falcon Scott

Based at Hut Point, Ross Island

Geologist: Hartley Travers Ferrar.

Scottish National Antarctic (*Scotia*) Expedition, 1902–1904

Led by William Speirs Bruce

Based at Laurie Island, South Orkney Islands

Geologist: James Hunter Harvey Pirie.

British Antarctic (*Nimrod*) Expedition, 1907–1909

Led by Ernest Shackleton

Based at Cape Royds, Ross Island

Geologists: Tannatt William Edgeworth David, Douglas Mawson, Raymond Edward Priestley.

British Antarctic (*Terra Nova*) Expedition, 1910–1913

Led by Robert Falcon Scott (after Scott's death by Edward Leicester Atkinson and later by Victor Lindsey Campbell)

Based at Cape Evans, Ross Island

Geologists: Raymond Edward Priestley, Thomas Griffith Taylor, Frank Debenham.

Australasian Antarctic Expedition, 1911–1914

Led by Douglas Mawson

Specimens from Adélie Land donated by John King Davis, Captain of the expedition's support ship *Aurora*.

