

AMERICAN MUSEUM OF NATURAL HISTORY

A BRIEF HISTORY OF
ANTARCTIC EXPLORATION

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ANTARCTIC EXPLORATIONS

JEAN CHARCOT

FRENCH ANTARCTIC EXPEDITION, 1908-1910

Pourquoi Pas

During his second expedition Dr. Charcot passed south of the Palmer Archipelago, discovered Adelaide Island and sighted points on the Antarctic Continent named Loubet, Fallieres and Charcot Lands, perhaps continuations of Graham Land. He sailed westward along the ice-front to long. $128^{\circ} 20' W$.

The party conducted scientific studies of a varied nature. Two antarctic flowering plants were found in bloom on the southeastern extremity of Adelaide Island. Meteorologic and oceanographic observations were made at various places. The work of the *Francaise* was amplified and extended in every direction. On February 11, 1910, the expedition reached Punta Arenas.

ROALD AMUNDSEN

NORWEGIAN SOUTH POLAR EXPEDITION, 1910-1911

Fram

Captain Amundsen left Norway on August 9, 1910, on Nansen's well-known ship the *Fram*, with provisions for two years and ninety-seven dogs. The ship arrived at the Bay of Whales, Ross Barrier, on January 14, 1911.

Winter quarters were constructed on the barrier two nautical miles from the ice-margin and called "Framheim."

From February 10 to April 11, 75,000 pounds of provisions were distributed at three depots, lat. 80° , 81° and $82^{\circ} S$. The sun disappeared on April 21 and returned on August 24. On October 20 the weather was favorable and a start was made for the South Pole along the 164th meridian of west longitude. Ross Barrier proved to be comparatively smooth to lat. $86^{\circ} S$. and long. $163^{\circ} W$. At this point an east-northeastern range meets the mountains of South Victoria Land. The main depot was established at the foot of the mountains on Ross Barrier, lat. $85^{\circ} S$., long. $165^{\circ} W$. The course of the party from the low Ross Barrier to the high Haakon VII. Plateau, 10,000 feet above the sea, was over the long, crevassed Devil's Glacier.

On December 6, the party reached the maximum height of the plateau, 10,750 feet. The surface remained level to lat. $88^{\circ} 25'$, where it began to slope down to the polar area. On December 11, the party arrived at lat. 89° , a region where perfectly fine weather

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existed and the ice was covered with 6 feet of snow. On December 14, reckonings were taken which indicated that the pole was five miles to the south. It was on December 16, 1911, that the party arrived at the South Pole. A small tent was pitched, the Norwegian flag and the *Fram* pennant hoisted, and the spot christened "Polheim." A letter addressed to H. M. King Haakon VII. was left in the tent, which Captain Scott found a month later and started on its long homeward journey. The distance of 750 nautical miles from "Polheim" back to "Framheim" was covered without mishap in 39 days.

During the 99 days that the polar party was absent, Lieutenant Prestrud and two companions explored the surroundings of "Framheim" and succeeded in reaching King Edward's Land, discovered by Scott on a previous expedition.

Captain Nilsen with his companions on the *Fram* succeeded in making an 8,000 nautical mile cruise from Buenos Aires to Africa and back. They made 60 oceanographic observations, and on February 15, 1911, carried the Norwegian flag farther south than a ship had ever floated before.

WILLIAM FILCHNER

GERMAN ANTARCTIC EXPEDITION, 1911-1912

Deutschland

On December 11, 1911, the *Deutschland* left South Georgia and sailed southward. On December 17, heavy pack-ice was encountered. On December 18, lat. $76^{\circ} 48' S.$, long. $30^{\circ} 25' W.$, a gently rising inland ice-cap was sighted, reaching a height of 200-300 meters and ending seawards in a perpendicular wall 20-30 meters high. The ship, following the ice-edge, reached Vahsel Bay a little north of lat. $78^{\circ} S.$ This bay was bounded on the west by a low barrier resembling that of the Ross Sea. At a higher elevation to the south, nunataks appeared through the ice cover. As no landing could be effected on the main ice sheet the party returned to South Georgia in March, 1912, and disbanded December 19, 1912.

R. F. SCOTT

BRITISH ANTARCTIC EXPEDITION, 1910-1913

Terra Nova

On June 1, 1910, the *Terra Nova* left London. On November 29, when the expedition left New Zealand, Captain Scott had with him fifty-nine officers, scientists and seamen, and a full equipment for

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polar work. The nineteen Siberian sledge ponies on board were the first to be used in antarctic exploration.

While passing through the pack-ice, magnetic observations, deep-sea soundings, serial sea temperatures and marine specimens were obtained.

On January 4, 1911, a landing was made at Cape Evans and a base established. Depots of food were established before the antarctic winter set in.

On October 24, the South Pole Party, with four supporting parties, left the winter camp. On January 4, at lat. $87^{\circ} 34'$, the last supporting party turned back.

The Polar Party covered the remaining 145 geographical miles in a fortnight. After passing lat. 88° , Captain Scott came across Amundsen's dog tracks and followed them to the polar area. Scott, Wilson, Oates, Bowers and Seaman Evans reached the South Pole on January 17, 1912, 32 days after Amundsen. All members of Captain Scott's Polar Party perished on the return journey. The records together with the famous death message of Captain Scott were recovered eleven miles from One Ton Camp by the search party.

The short expedition led by Taylor and Wilson to various points in the vicinity of MacMurdo Sound were successful, while the expedition to King Edward VII. Land was a failure.

Many scientific data were collected by the various parties of this expedition.

DOUGLAS MAWSON

AUSTRALASIAN ANTARCTIC EXPEDITION, 1911-1914

Aurora

Dr. Douglas Mawson of the University of Adelaide, Australia, left Hobart, Tasmania, in December, 1911, on board the *Aurora* to explore the long stretch of coast known as Wilkes Land, lying between Cape Adare and Kaiser Wilhelm II. Land. His ship was well equipped for oceanographic and magnetic work. A number of Greenland dogs and Norwegian-built sledges were taken. Dr. Mawson and the main party were landed in Commonwealth Bay, Wilkes Land, on January 19, 1912.

On February 20, Mr. Frank Wild and seven companions, constituting a second party, were landed by Captain Davis of the *Aurora*, 1,000 miles east of the main party. They discovered a tract of land

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having about 350 miles of coast, which they named Queen Mary's Land.

On a sledging journey across King George V. Land, Captain Ninnis was lost in a crevasse and Dr. Bruce died of exposure. Dr. Mawson barely escaped. He and five companions were obliged to remain in the winter camp in Commonwealth Bay through 1913. The *Aurora* returned for them the following spring and Dr. Mawson reached Port Adelaide, South Australia, late in February, 1914.

From a scientific standpoint his expedition was very successful.

A Brief History of Antarctic Exploration

A Guide Leaflet explanatory of the
Spherical Chart of the Antarctic Regions
exhibited in the
American Museum of Natural History

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of the
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EDMUND OTIS HOVEY, *Editor*
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A BRIEF HISTORY OF ANTARCTIC EXPLORATION

INTRODUCTION

The chart (which is a section of the Globe) is designed to illustrate our present knowledge of the geography of the Antarctic regions, and to indicate the courses taken by the principal Antarctic explorers.

The visitor is supposed to be looking down upon the South Pole, and therefore the area of his horizon extends in all directions toward the north, reaching beyond the Antarctic Circle [$66^{\circ} 30'$ south, drawn in red] to the parallel of 60° south. It is a relatively small portion of the earth's surface, as will be seen by examining the small globe.

Since a degree of latitude measures about 70 miles,¹ the concentric circles representing parallels (which are 5° apart) are about 350 miles from one to another.

It is about 2,100 miles from the margin of the chart to the center, or from the parallel of 60° to the South Pole.

Meridians, drawn every 10° apart, intersect at the Pole. The meridian of Greenwich, indicated by three parallel lines, lies vertically.

The degrees of longitude are indicated along the margin, and the degrees of latitude are indicated by numerals placed on the respective parallels.

More readily to understand the historical description, it will be worth while for the visitor to remember

¹ Throughout this Leaflet distances are expressed in "statute" miles, a statute mile being about six-sevenths as long as a geographical or nautical mile.

That were the "meridian of Greenwich" continued northward, it would finally pass through Greenwich, England;

That all points lying to the right of this line are in east longitude;

That those lying to the left are in west longitude;

That were the meridian of 74° west (on the left, represented in red) extended to the north, it would pass through New York;

That the southerly projection of South America lies on the meridian of 70° west, to the left of the chart, about 600 miles from the South Shetlands;

That the southern projection of Africa lies on the meridian of 20° east, above the chart, more than 2,000 miles from the Antarctic ice.

That New Zealand lies on the meridian of 170° east, below the region included in the chart, about 1,700 miles from Victoria Land;

That between these points lie the vast expanses of the South Atlantic, South Indian and South Pacific Oceans, respectively.

The visitor, then, having established his "points of compass," may now with greater profit consult the historical labels which are attached to the rail, in the order of the dates of discovery.

ANTARCTIC EXPLORERS AND THEIR DEEDS

JAMES COOK, 1772-75

Resolution and Adventure

[The course is indicated on the chart by a white line.]

There was little definite knowledge of lands lying in the far south until Captain Cook, a young man of the British Navy (who, by the way, had gained distinction in North America at the siege of Quebec), sailed to the South Pacific (1768-1771) to observe the transit of Venus, and in doing so passed south of New Zealand and thus corrected the belief that this island was a part of an extensive Antarctic continent.

Later, in 1772, Cook was commissioned by the British Admiralty to command two vessels and to examine into the question of the existence of a great southern continent. He sailed from Plymouth in July, reached Cape Town in October, and entered the area of this chart near the 20th meridian of east longitude. He took an easterly course, then one abruptly south, and, on January 17, 1773, was the first person to cross the Antarctic Circle. Further progress being blocked by the ice, Cook took a northerly course. He missed the Crozet and Kerguelen islands (which lie without the area of the present map, but may be noted on the small globe). He then turned to the south, and crossed the 60th parallel near the 90th meridian, the ice

ROUTE FOLLOWED BY JAMES COOK, 1772-1775

6

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considerable land between New Zealand and Cape Horn. He again entered the area here represented at about 120° W., crossed the Antarctic Circle for the third time, in January, 1774, near 110° W., and made his farthest south ($71^{\circ} 10'$), a record that was not broken for half a century. It was here that he saw the solid ice like a ridge of mountains. Cook then sailed north in search of alleged land (Juan Fernandez), which he proved not to exist, and the tired party then spent the winter in the South Pacific.

On the return of the Antarctic spring, November, 1774, Cook left New Zealand and renewed his efforts. He took an easterly course near the 55th parallel until he reached the islands of Tierra del Fuego. He then rounded Cape Horn and, having proved the non-existence of a continent in the South Pacific, began his search for the "Continent of the South Atlantic"—if such should exist. He discovered South Georgia, near the 40th meridian of west longitude, but not sufficiently south to be shown on this chart. This was the first typical Antarctic land that he had found. He then barely crossed the 60th parallel, discovered the Sandwich group (examine smaller globe), which, surrounded by fields of ice, he felt might be a part of the "Southern Land." Cook then left the area of this map, sailed north-easterly, shaping his course for Cape Town, and thence to England, where he ended his extraordinary voyage. It is noteworthy that Cook, the first successful Antarctic explorer, not only circumnavigated the Antarctic regions, but proved the non-existence of any extensive Antarctic land mass extending north of the Antarctic Circle.

1775-1819

From the time of Cook's voyage, 1775, this region remained unexplored and practically unvisited for a period of more than forty years, although it is true that at the

beginning of the nineteenth century several American vessels regularly visited the shores of South Georgia and the neighboring islands off the coast of South America for seals. The more enterprising of these doubtless discovered many Antarctic islands that they never took the pains to chart or even to report upon.

WILLIAM SMITH, 1819

Williams

[The course is not indicated.]

In 1819, Captain William Smith, while sailing a British merchantman, reported the discovery of the South Shetlands (see meridian 60° W.) and sailed along their coast for a distance of 250 miles.

N. B. PALMER, 1821

Hero

[The course is not indicated.]

In 1821, an American sealer, Captain Palmer, sailed south from the Shetlands, discovering volcanic islands which have been named the Palmer Archipelago.

Captain George Powell, a British sealer, accompanied Palmer, and discovered and charted, in 1821 and 1822, the South Orkney Islands (40° – 50° W.).

F. G. BELLINGSHAUSEN, 1820-1821

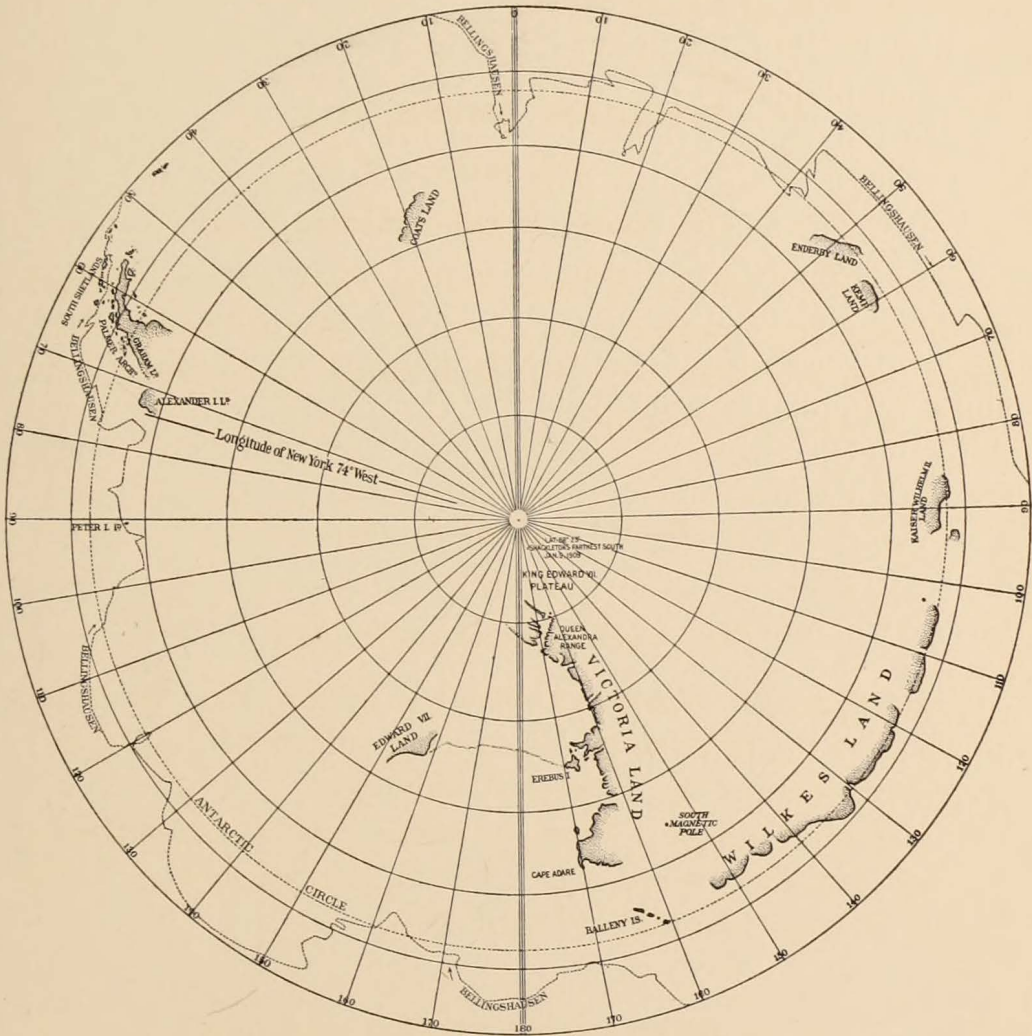
Vostok and Mirny

[The course is indicated by an orange line.]

After the British expedition of Captain Cook, the first really important expedition to the South Polar regions was under the patronage of the Russian Emperor, Alexander II,

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who appointed Bellingshausen to the command. With two vessels Bellingshausen sailed to the south in January, 1820, near the islands of the Sandwich group (discovered by Captain Cook), then easterly, and entered the area of this chart near the meridian of 10° W.



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ROUTE FOLLOWED BY F. G. BELLINGSHAUSEN, 1820-1821

Bellingshausen turned abruptly south, crossed the Antarctic Circle, entered an absolutely unexplored sea, and stopped only when he met the impenetrable ice of the 70th parallel. He then continued toward the east, and, follow-

ing the edge of the ice, crossed the Antarctic Circle a second time, reaching 69° S., near the meridian of 20° E., in February, 1820. He then retreated, proceeded farther eastward, and crossed the Antarctic Circle a third time, near the spot where Cook made his first crossing.

Bellingshausen then proceeded easterly near the 60th parallel, leaving the area of this map, near the meridian of 90° E., and shaped his course for Sydney, Australia.

In November, 1820, Bellingshausen again sailed to the south, crossed the 60th parallel near the 160th meridian, met the pack ice at the 65th parallel, crossed the Antarctic Circle for the fourth time (164° W.), and was obliged then to take a course north of Cook's. He crossed the Circle the fifth time on the 120th meridian west. The ice drove him temporarily to the north, but he returned, and for the sixth time crossed the Circle, at 100° W., and continuing reached his farthest south— $69^{\circ} 52'$. Near this point he discovered Peter Island, the most southerly land then known. Still farther to the east, he discovered Alexander Island, when he was again forced by the ice to retreat, and, entering the South Shetland group, met there, February 4, 1821, among others, Captain Palmer, already mentioned. Thus ended one of the most successful and important of Antarctic expeditions.

JAMES WEDDELL, 1823

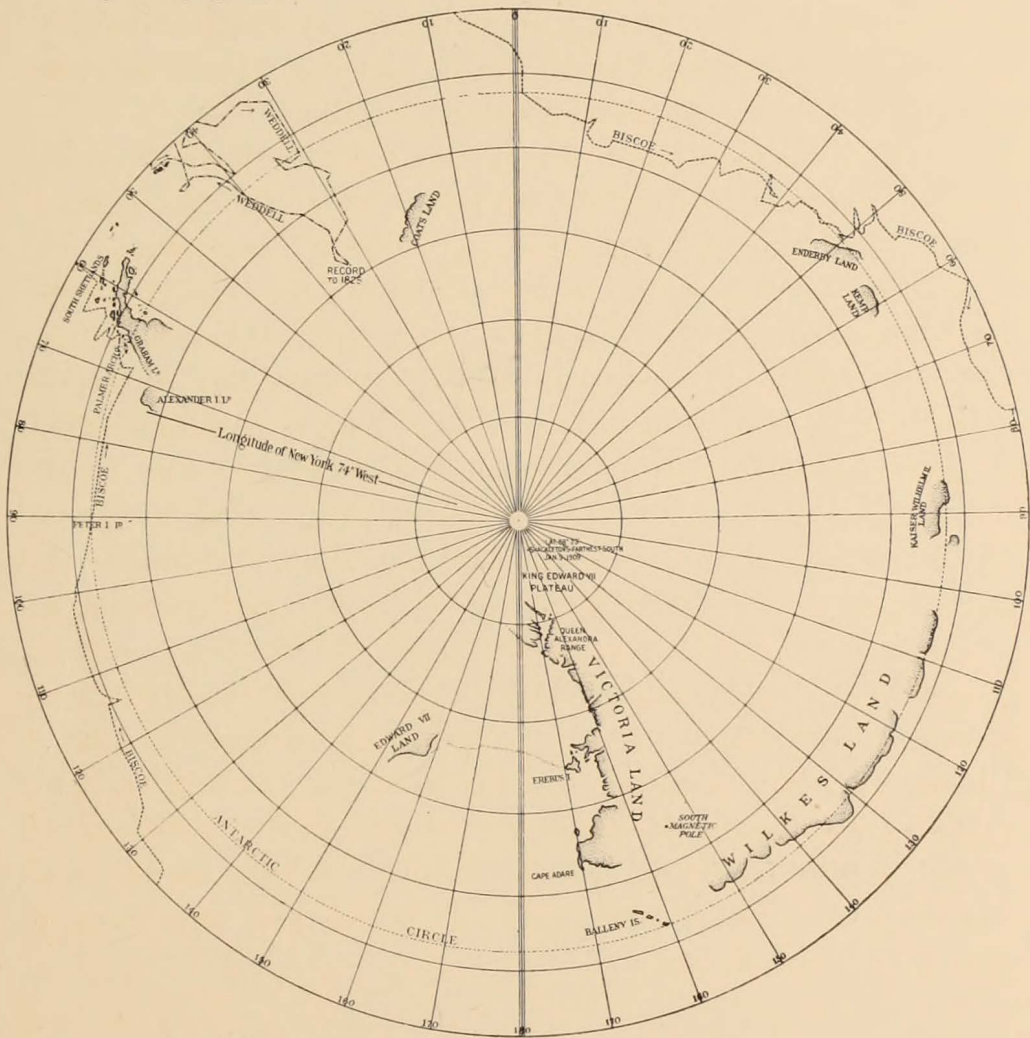
Jane and Beanjoy

[The course is indicated by a pink line.]

In 1823, James Weddell, a brave Englishman, after having explored the South Shetlands and worked around the South Orkneys, forced two small sealing vessels southward through the sea which bears his name, to $74^{\circ} 15'$ S., a point 214 nautical miles nearer the pole than had been

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reached by Cook, thus breaking a record that had stood nearly fifty years.



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ROUTES FOLLOWED BY JAMES WEDDELL, 1823; JOHN BISCOE, 1830-1832

JOHN BISCOE, 1830-1832

Tula and Lively

[The course is indicated by a blue line.]

Enderby Land, lying at the intersection of the meridian of 50° E. and the Antarctic Circle, was discovered in 1831 by Biscoe, a British sealer exploring under a commission

from the merchant firm of Messrs. Enderby, who had entered the South Polar regions by way of the Sandwich group.

The course of Biscoe will be found entering the present map near the meridian of Greenwich; thence passing to the south, across the course taken by Bellingshausen, eleven years earlier, to the point on the 40th meridian east reached by Cook and Bellingshausen, thence along the Antarctic Circle to Enderby Land.

Severe sickness and other trials now compelled Biscoe to turn north, and he left the area of this map near the 80th meridian. He wintered in Tasmania. With the return of warm weather, he sailed from Tasmania east, crossed the 60th parallel near 140° W., followed near the course of Bellingshausen, crossed the Antarctic Circle near the meridian of 80° W. and entered Bellingshausen Sea, where he discovered land, now known as the Biscoe Islands.

Biscoe, unacquainted with the earlier work of the Russians, supposed that he had discovered land lying farther to the south than that found by any other explorer. He landed on the Palmer Archipelago and described new land which, in honor of Lord Graham, he called "Graham Land." He then returned home.

DUMONT D'URVILLE, 1837-1840

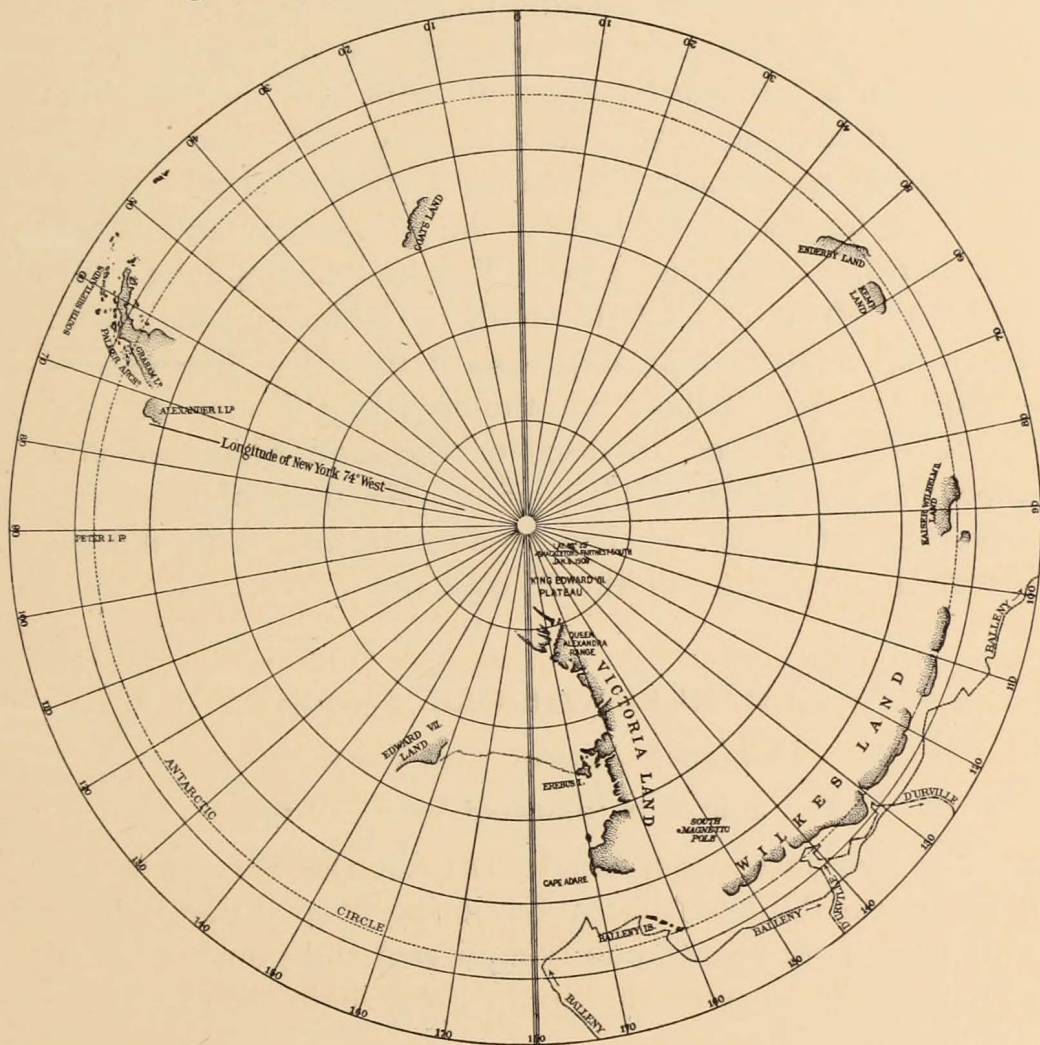
Astrolabe and Zélée

[The course is indicated by a green line.]

In September, 1837, the French sent Commander d'Urville, in charge of two warships, to explore in the south. He attempted to enter Weddell Sea, but ice prevented. He then sailed to the westward and early in 1838 explored the land to the south of the South Shetlands, dedicating it to his sovereign, Louis Philippe. He then

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entered the Pacific, where he remained for two years. Leaving Tasmania and again entering the southern seas, d'Urville found land, stretching indefinitely to the east and west, in the latitude of the Antarctic Circle and near the meridian of 140° E. Landing parties found the rocks to be of granite.



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ROUTES FOLLOWED BY DUMONT D'URVILLE, 1837-1840; JOHN BALLENY, 1838-1839

While in this neighborhood, d'Urville unexpectedly met an American expedition under Wilkes.

With the return of d'Urville, French activity in the Antarctic was brought to a close, until its recent revival.

JOHN BALLENY, 1838-1839

Eliza Scott and Sabrina

[The course is indicated by a brown line.]

In 1838, the Enderbys (who, as before stated, had made it possible for Biscoe to circumnavigate the Antarctic), in conjunction with other London merchants, sent two vessels under John Balleny into the Antarctic, with instructions to push as far to the south as possible. Balleny entered from New Zealand, near the meridian of 180° and crossed Bellingshausen's track. Entering what was later known as Ross Sea, he discovered in 1839 the group of small volcanic islands which bears his name. This was the first land found within the Antarctic Circle south of New Zealand, and its discovery was the first step toward the final discovery of Victoria Land. Balleny left the area of this map at 100° E., failing, however, to discover the land which we now know was just south of his course. Members of this expedition, on returning, reached London in time to meet Ross before the departure of the *Erebus* and *Terror*.

CHARLES WILKES, 1839-1840

Vincennes, Peacock and Porpoise

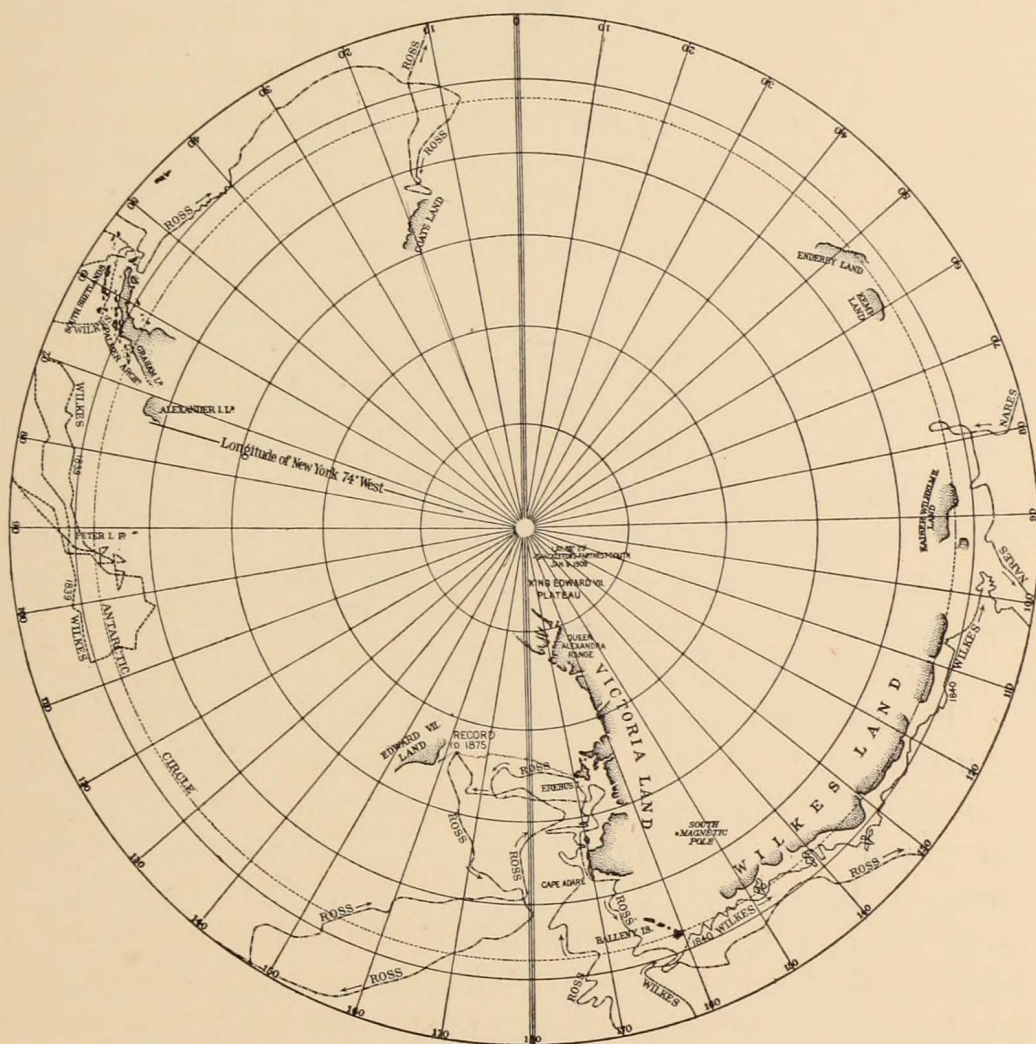
[The course is indicated by a red line.] .

In February, 1839, Lieutenant Charles Wilkes, at the head of the United States Exploring Expedition, with a squadron of six vessels poorly equipped and poorly adapted to polar work, entered the South Polar regions from Tierra del Fuego.

He first made an effort to explore land to the south of the South Shetlands, in the neighborhood of 60° W., and then in the neighborhood of Cook's farthest south, 105° W. These efforts were unsuccessful. Four of the vessels then proceeded to Sydney, Australia, whence two under

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Wilkes and two under Ringgold roughly explored the strip of land, or lands, lying near and parallel to the Antarctic Circle, which extends from the Balleny Islands (165° E.) to 95° E., a distance of 1500 miles, a tract now known in



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ROUTES FOLLOWED BY CHARLES WILKES, 1839-1840; JAMES CLARK ROSS, 1839-1843; G. S. NARES, 1874

general as Wilkes Land. He thus took a course in this area more southern than that of any previous explorer known to him, although d'Urville, in a quick sail to the south from Tasmania, had discovered Adélie Land on the

140th meridian at about the same time. The American and French expeditions met each other near this point. The course of Wilkes, as he returned from the Antarctic, will be found to cross the 60th parallel near the meridian of 100° E.

JAMES CLARK ROSS, 1839-1843

Erebus and Terror

[The course is indicated by a purple line.]

James Clark Ross, a nephew of Sir John Ross, the Arctic explorer, and one who had had several years of Arctic experience (indeed it was he who in 1831 had sledged to the North Magnetic Pole and planted there the British flag), left Tasmania in 1840 in command of the *Erebus* and *Terror*. The primary object of the expedition was to make certain magnetic explorations in the extreme south. In less than five months Ross returned to report the extraordinary results of his expedition.

Fully informed concerning the discoveries of Wilkes, he determined to seek high latitudes to the east of the Balleny Islands, and with little difficulty sailed into a new sea and discovered land extending from Cape Adare to the volcanoes of Erebus and Terror, 77° S.,—a distance north and south of approximately 400 miles. He thus reached a point considerably farther south than that attained by any previous explorer. These discoveries, taken conjointly with those of Wilkes, indicated the probability of the existence of a large polar land mass.

Ross plotted a part of the shore line of that portion of the Antarctic Continent now known as Victoria Land. Returning, he crossed the Antarctic Circle near the meridian of 170° W. His course leaves the area of this map at 140° W., reenters it at 130° W., again passes out to the

north, enters it anew near 50° W., and skirts the ice barrier across the mouth of Weddell Sea to the meridian of 20° W. He finally reached England in September, 1843, having been absent for more than four years.

G. S. NARES, 1874

Challenger

[The course is indicated by transverse red and white bands.]

In 1874, the British steamship *Challenger*, equipped for scientific work and carrying an able scientific staff, entered the Antarctic from Kerguelen Island, crossing the Circle near the 80th meridian east, and then followed the drift ice easterly as far as Wilkes Termination Land. The *Challenger* was the first steam vessel to enter the Antarctic, and the first provided with adequate sounding and dredging apparatus. As a result of the *Challenger's* investigations, the existence of an Antarctic continent was proved and the fact that a wealth of animal life covers the floor of the Antarctic seas was established.

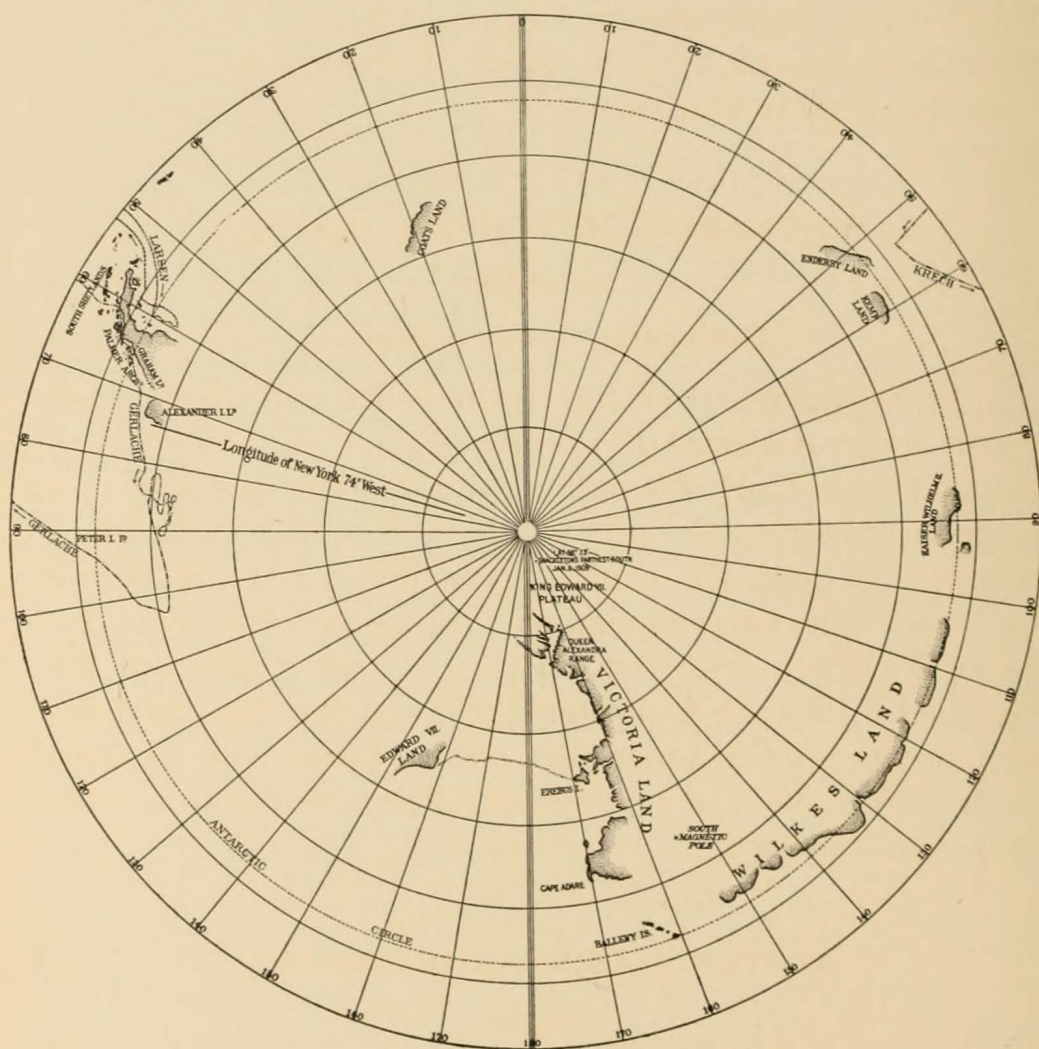
C. A. LARSEN, 1893-1894

Jason

[The course is indicated by red, yellow and blue bands.]

During the last quarter of the nineteenth century, with the waning of the whaling industry in the north and with the report of the existence of large numbers of whales in the south, the small steam whalers of Scotland and Scandinavia made several expeditions into the Antarctic. Among these was the *Jason*, commanded by C. A. Larsen, the same vessel and the same captain that a few years before had left Nansen on the east coast of Greenland. The *Jason* landed south of the South Shetlands and Larsen discovered the

first Antarctic fossils (mollusks and coniferous wood). Previous to this, samples of rock from the Antarctic had been igneous in origin. The fossils proved that at least part of this region was not volcanic.



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ROUTES FOLLOWED BY C. A. LARSEN, 1893-1894; ADRIEN DE GERLACHE, 1898-1899; ADALBERT KRECH, 1898-1899

The following year Larsen returned to the Antarctic, discovered King Oscar II Land, and forced the *Jason* (the second steamer to cross the Antarctic Circle) to a point $68^{\circ} 10' S.$, roughly exploring the eastern coast of

Graham Land. He discovered two active volcanoes near 65° S.

The *Jason* subsequently was renamed the *Stella Polare* and carried the Duke of the Abruzzi's Arctic expedition to Franz Josef Land, whence Captain Cagni, in 1900, made the nearest approach to the North Pole that had been accomplished up to that time.

LEONARD KRISTENSEN, 1894-1895

Antarctic

[The course is not indicated.]

In November, 1894, the steam sealer and whaler *Antarctic*, under Leonard Kristensen, sailed south from New Zealand with C. E. Borchgrevink, who took passage as a common sailor, and entered Ross Sea. The *Antarctic* followed, in part, the course taken fifty-five years before by Ross. The party landed on Possession Island and discovered a lichen—the first evidence of terrestrial plant life obtained within the Antarctic Circle. A few days later the first landing on the Antarctic Continent was made at Cape Adare. As whales of commercial value were not found, the *Antarctic* returned.

ADRIEN de GERLACHE, 1898-1899

Belgica

[The course is indicated by red, yellow and black bands.]

Belgium now entered the field of Antarctic work. Adrien de Gerlache, a lieutenant in the Belgian navy, left Tierra del Fuego on the *Belgica* in January, 1898, with several scientists and with Dr. F. A. Cook of Brooklyn as ship's surgeon. The Belgians ran the first line of soundings from Cape Horn to the South Shetlands. The naturalists made

many landings, taking photographs and collecting natural history specimens from the shores of Palmer and Graham Lands. In their zeal to explore still farther south, they were caught in the ice at $71^{\circ} 30' \text{ S.}$, and were the first explorers to pass the winter within the Antarctic Circle.

ADALBERT KRECH, 1898-1899

Valdivia

[The course is indicated by diagonal red, white and black bands.]

The *Valdivia*, of the Hamburg-American Line, commanded by Adalbert Krech, was carefully fitted out for scientific work by Professor Chun of Leipzig. Her first important problem was to determine the existence or non-existence of Bouvet Island, which had been sought in vain by Cook, Ross and Moore, and had not been seen for seventy-five years. It was found $54^{\circ} 26' \text{ S.}$, $3^{\circ} 24' \text{ E.}$ The *Valdivia* then proceeded towards Enderby Land, and thence to Kerguelen Island, making important soundings and dredgings.

C. E. BORCHGREVINK, 1899-1900

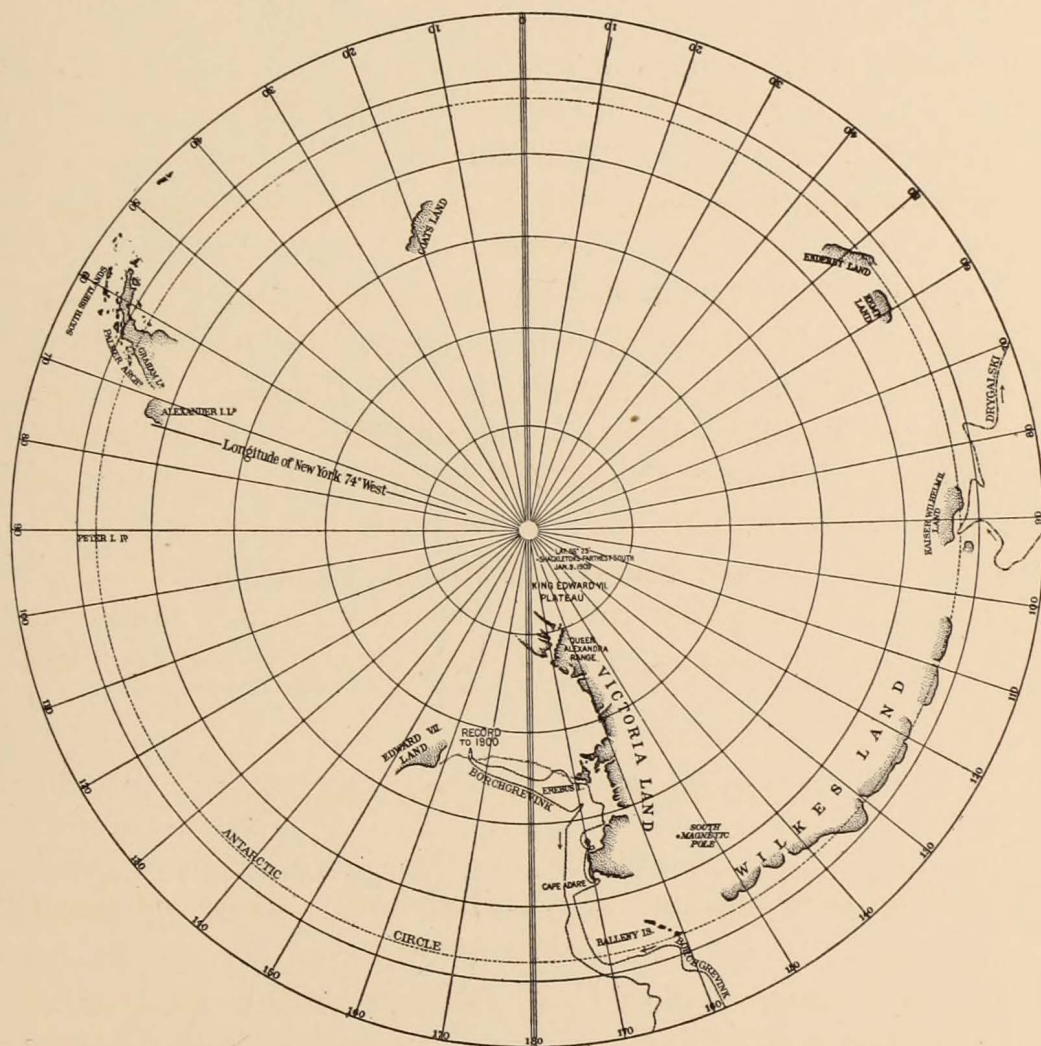
Southern Cross

[The course is indicated by red, alternately narrow and broad, and white bands.]

In February, 1899, C. E. Borchgrevink, a member of Kristensen's expedition of 1894, determined to spend the winter in the Antarctic and again crossed the Circle—this time not as a sailor, but in command of an English expedition. He landed with his party of ten on Victoria Land, near Cape Adare, and bade adieu to his vessel, the *Southern Cross*, which sailed for warmer latitudes, to return at the close of the Antarctic winter. The unhappy members of the

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Belgian expedition on the opposite side of the Pole were endeavoring to extricate themselves at the very time Borchgrevink and his companions entered winter quarters. The season was severe and the *Southern Cross* was most welcome on her return, January 28, 1900. A course was then



ANTARCTIC REGIONS

ROUTES FOLLOWED BY C. E. BORCHGREVINK, 1899-1900; ERICH VON DRYGALSKI,
1902-1903

taken still farther to the south along the coast of Victoria Land. Landings were made and the shore of Ross Sea ($78^{\circ} 21' S.$) was reached. A brief sledge trip reached $78^{\circ} 50' S.$ The party then sailed north for Auckland.

ERICH von DRYGALSKI, 1902-1903

Gauss

[The course is indicated by transverse red, white and black bands.]

Professor Drygalski's expedition was made in the German barkentine, *Gauss*, which was designed for strictly scientific work. She was modeled on the lines of the *Fram* and manned by men who had had polar experience. The *Gauss* sailed from Kerguelen Island and in February, 1902, entered the pack near Wilkes Termination Land. Land was soon sighted, but the vessel was caught in the ice and Drygalski was compelled to enter winter quarters. Sledge parties and views from a balloon located Kaiser Wilhelm II Land. The party was liberated the following February and returned to Germany. The collections of the *Gauss* are now being worked up.

OTTO NORDENSKJÖLD, 1902-1903

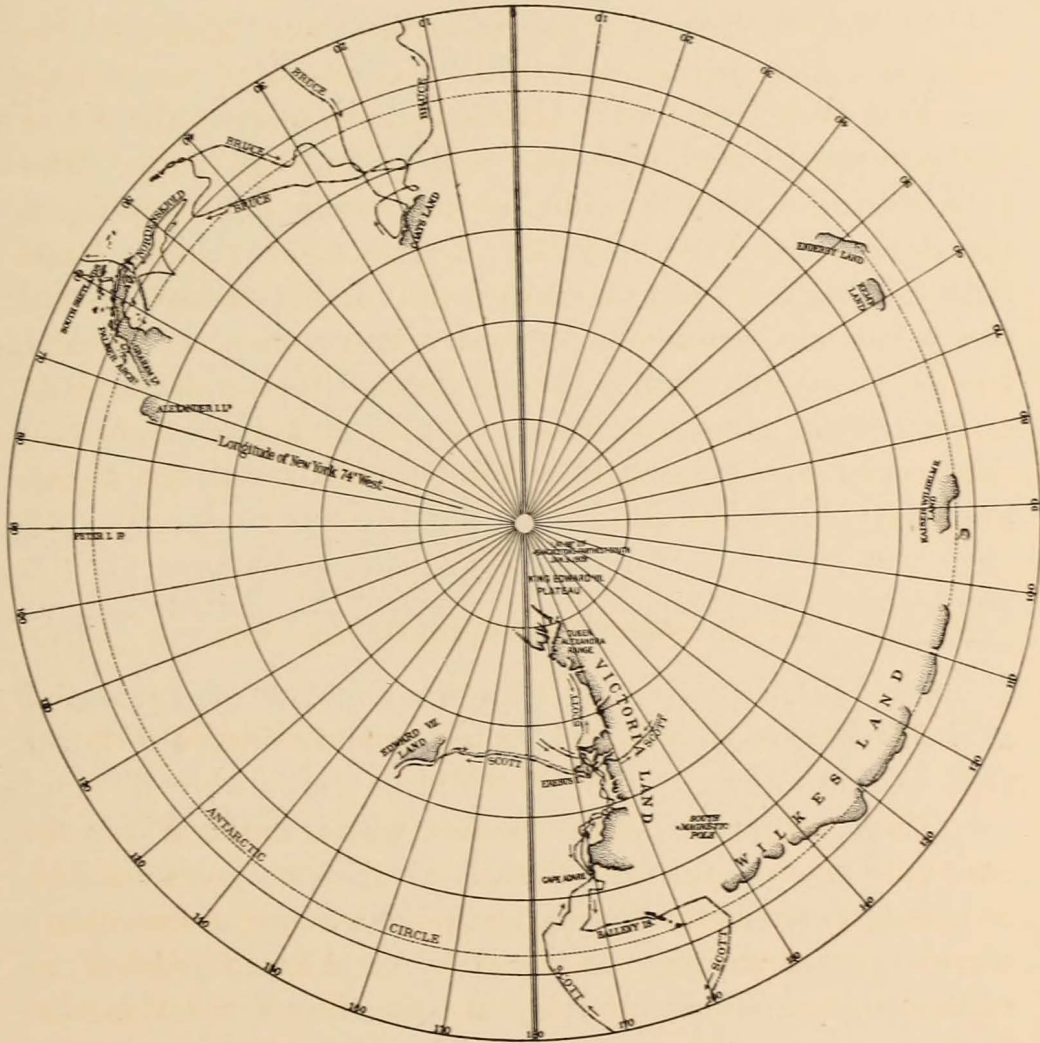
Antarctic

[The course is indicated by red and blue bands with yellow dots.]

The geologist, Otto Nordenskjöld, nephew of the Swedish Arctic explorer, Baron A. E. von Nordenskjöld, obtaining funds from his countrymen, secured Kristensen's vessel, the *Antarctic*, engaged C. A. Larsen (earlier attached to the *Jason*), and leaving the South Shetlands in January, 1902, explored in the neighborhood of King Oscar II Land. Landing with three companions to spend the winter on Snow Hill Island, he directed the *Antarctic* to explore in lower latitudes and to return the following spring. The season was very severe. The following spring the *Antarctic*, unable to reach Snow Hill Island, was crushed in the ice and lost. In the meantime, the *Uruguay*, a relief vessel which had been sent out by the

ANTARCTIC EXPLORATION

Argentine Government, reached Nordenskjöld on November 8, 1903. The same day Larsen appeared in camp with five of his companions and reported the fate of the *Antarctic*.



ANTARCTIC REGIONS

ROUTES FOLLOWED BY OTTO NORDENSKJÖLD, 1902-1903; R. F. SCOTT, 1902-1904; W. S. BRUCE, 1903-1904

It may be of interest to the visitor to know that Mr. Frank Wilbert Stokes, the artist of the mural paintings in the Eskimo Hall, was a member of this expedition.

R. F. SCOTT, 1902-1904

Discovery

[The course, in part, is indicated by diagonal white and red bands.]

The *Discovery*, under Captain R. F. Scott, a new and well-equipped vessel, manned by officers of the British navy and bearing a scientific staff of well-qualified men, crossed the Antarctic Circle in January, 1902, proceeded to Cape Adare, along the coast of Victoria Land, thence east beyond the point reached by Ross, and discovered Edward VII Land. Captain Scott then returned and placed the *Discovery* in winter quarters near Mount Erebus, where the season was pleasantly spent. On November 2, Scott, Shackleton and Wilson began their heroic sledge journey over the polar ice cap to the south, a distance of 380 miles from their ship. They planted the British flag at 82° 17' S.

On January 25, 1903, Captain Colbeck of the relief ship *Morning* sighted the *Discovery* and, since the latter vessel could not be freed from the ice, stores were left and the *Discovery* party spent its second winter in the Antarctic. The cold was intense—frequently 50° below zero, and even 68°, was registered. During the spring, Scott and his party traveling westerly reached a position on the elevated plateau of the Antarctic Continent 9,000 feet above sea level. On January 5, 1904, the relief ship *Morning* again appeared, accompanied by another and larger vessel, the *Terranova*. For a while it was thought that the *Discovery* must be abandoned, but on February 16 she was released and sailed for home, thus concluding what must be considered an expedition of extraordinary success.

ANTARCTIC EXPLORATION

W. S. BRUCE, 1903-1904

Scotia

[The course is indicated by red and blue bands.]

In 1902, the Scotchman, W. S. Bruce, who was in the Antarctic in 1893 and in the Arctic on the Jackson-Harmsworth expedition in 1894-1897, induced certain of his countrymen to provide funds to equip the *Scotia*, a small Norwegian whaler. He left the South Orkneys early in February, 1903, crossed the Antarctic Circle and made extensive soundings. He wintered on the South Orkneys. In January, 1904, additional soundings were begun and, proceeding south, land was discovered in 74° 1' S., 22' W. It was named Coats Land, in recognition of support furnished the expedition by the Messrs. Coats, the famous thread manufacturers.

JEAN CHARCOT, 1903-1905

Français

[The course is not indicated.]

Dr. Jean Charcot, anxious because Nordenskjöld had been obliged to spend a second winter in the south, built the *Français* and organized a relief expedition. He met the Argentine Relief Expedition as it was returning with the Nordenskjöld party. Determining, however, that the *Français* should do some Antarctic work before her return, he remained in the South during the seasons of 1903 to 1905, charting the western coast of the islands of the Palmer Archipelago.

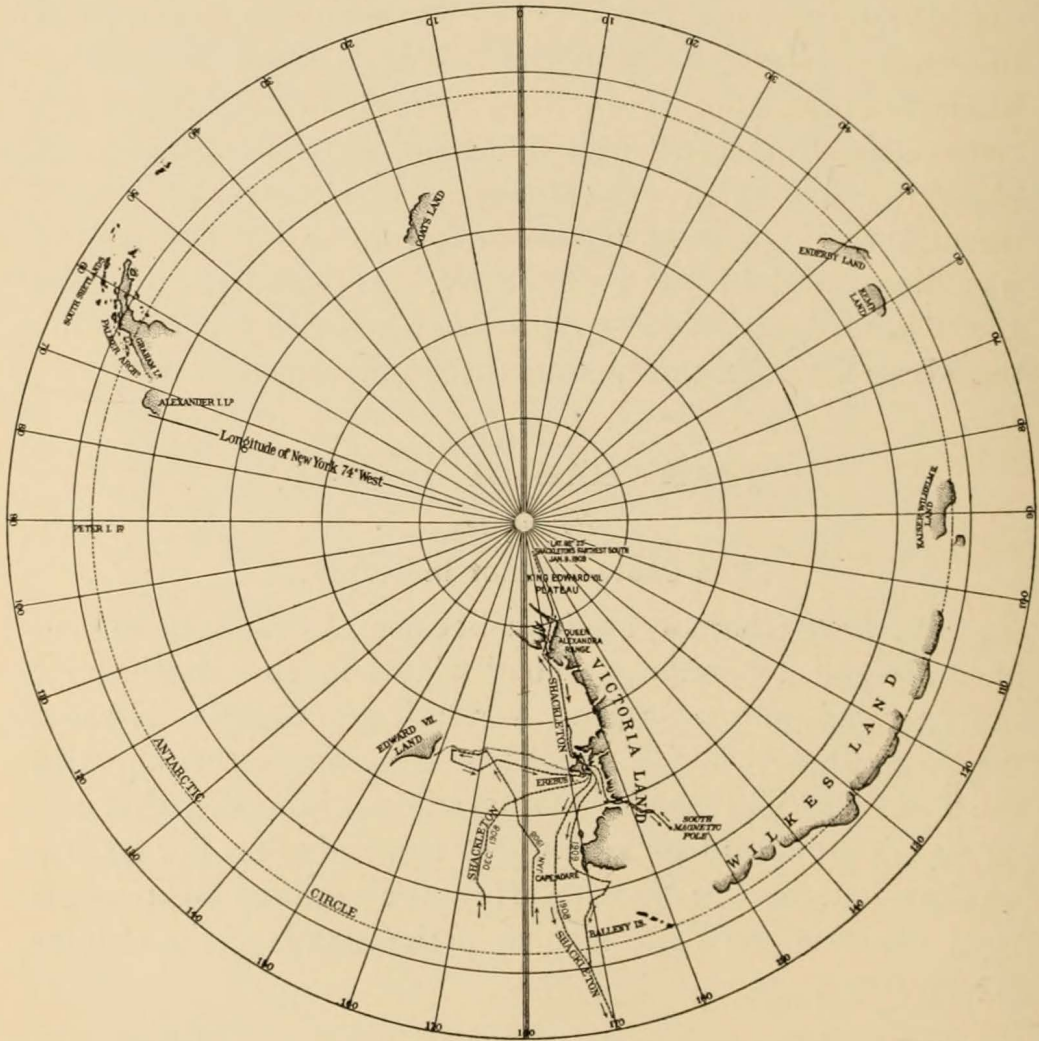
E. H. SHACKLETON, 1908-1909

Nimrod

[The course, in part, is indicated by red, white and narrow blue bands.]

Early in 1908, Lieutenant Shackleton on board the *Nimrod*, with a party of about fifteen men, dogs, Siberian

ponies, a motor car and other equipment, entered the Antarctic regions near the 180th meridian. Passing through Ross Sea and along the edge of the great ice barrier, they almost reached King Edward VII Land, but found further progress in that direction blocked by impenetrable



ANTARCTIC REGIONS

ROUTE FOLLOWED BY E. H. SHACKLETON, 1908-1909

pack-ice. They then proceeded to Cape Royds near the volcano, Mount Erebus. Here the *Nimrod* left them and went north, to return the following spring. Relatively elaborate winter quarters were established at Cape Royds

in a specially designed hut made of cork. In March, 1908, a party of six ascended Mount Erebus to its summit, 13,500 feet above sea level.

On October 5, 1908, a party of five started on its journey to the South Magnetic Pole, which was reached on January 16, 1909. The position of the magnetic pole was determined to be $72^{\circ} 25' \text{ S.}$, $155^{\circ} 16' \text{ E.}$ The south point of the compass always turns towards this point. Therefore, between the South Magnetic Pole and the South Geographic Pole the south point of the compass is directed due north. This party, returning to the coast February 3, was picked up by the *Nimrod* and taken to Cape Royds.

On October 29, 1908, Shackleton and three others—with a supporting party of five, which turned back November 7—set out for the South Geographic Pole. They followed, roughly, the 168th meridian east until in late November they reached Scott's farthest south— $82^{\circ} 17' \text{ S.}$ Christmas day found them at $85^{\circ} 55' \text{ S.}$, and by 9:00 A.M., January 9, 1909, they had reached $88^{\circ} 23' \text{ S.}$ Beyond this point they could not go on account of the hard traveling and the exhaustion of their food supply. No mountains were visible beyond, and it is probable that the South Pole is situated on a level plateau 10,000 to 11,000 feet above sea level. After an extremely hard return journey on short rations, Cape Royds was reached March 4, 1909. The *Nimrod* and the supporting and relief parties were there waiting, and the next day all started for home.

In addition to discovering the South Magnetic Pole and reaching a point within 110 miles of the South Geographic Pole, the main results of the journey were the finding of coal (showing that in the past this region enjoyed a mild climate), the procuring of a complete meteorological record and the discovery of eight distinct mountain ranges varying from 3,000 to 12,000 feet in altitude.

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