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### The story of the Antarctic

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# THE SCOTTISH GEOGRAPHICAL MAGAZINE.

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## ANTARCTIC EXPLORATION.

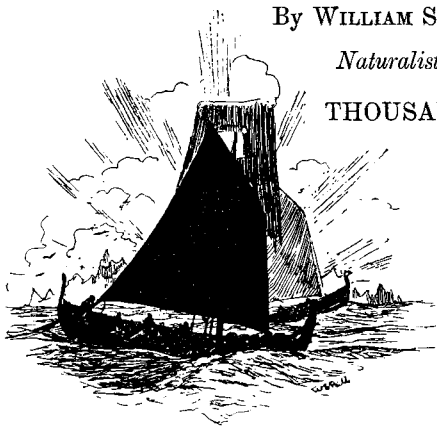
(*Papers read at a Meeting of the Society in Edinburgh, Jan. 1894.*)

(*With Illustrations by Mr. W. G. Burn-Murdoch, and a Map.*)

### THE STORY OF THE ANTARCTIC.

By WILLIAM S. BRUCE,

*Naturalist to S.S. *Balena*.*



THOUSAND years ago Norsemen founded Arctic colonies in Greenland, and still they push to the North. Nor have they been alone, for Holland, Russia, Britain, and in recent years America, have all vied with one another for Arctic fame. Scores of expeditions, hundreds of crafts, thousands of men have sought to reveal the mysteries of the North; but few have ventured to the South. The Arctic is, perhaps,

more hospitable than the Antarctic; as far north as man has penetrated he has found rich floral realms, and has seen reindeer and hares basking in the summer sun. There, too, can be tracked the stealthy footsteps of the fox, while endless flocks of puffins, looms, gulls, terns, and ptarmigans seek sacred nooks to hatch their young. The snowy raiment of winter

is cast aside, and the deep fiords are green and warm. Not so in the South: there eternal winter reigns and the snow never melts; no plant is known to live within the Southern Circle, no living thing roams the snow-clad land, except a few strange birds that build in some comparatively sheltered spots. To the florist the South has few attractions, and no Castrèn need seek his life-work there.

Moreover, the winter of the South is very generally believed to be more severe than that of the North, though I believe the contrary may possibly be the case; but no man has ever wintered within the Antarctic circle. Look, also, how much more distant from the great exploring nations of the world the South Polar regions are, compared to the North Polar regions. But none of these circumstances appears to me to account for the great amount of work done in the North compared to that done in the South. Not Russia mapping out the northern coasts of Europe and Asia in order that she might know the extent of her empire, nor Britain doing the same for her American dominions, accounts for so considerable an amount of Arctic work,—but India. India's fragrant wealth has stimulated so much Arctic exploration, so much heroism in Arctic lands. Lives and ships have been sacrificed in the Arctic, not so much in the attempt to reach the Pole as to discover the NW. and NE. passages. Everything has been done to assure success; fleets laden with cargo have sailed from Holland and Britain seeking for a route to India by the North; time after time they have been repulsed, and, the greater the repulse, the greater the outburst of renewed energy for another trial. At last both the NE. and NW. passages have been forced; and to what avail, it is said, since the cutting through of a sandbank has given us a shorter and less perilous route? To what avail! See the fleets of whalers and sealers that leave Scotland, Norway, and America year after year, bringing home the richest cargoes in the world. Look also at the rich treasures which science has gained. But more than this is the romance, is the heroism, these adventures have called forth. For this reason alone, let us advance: Nansen, God speed thee!

The history of the North Polar regions fills volumes, but it is easy to give a brief outline of the history of the South Polar regions. To Peru belongs the honour of sending out the first Antarctic expedition, more than three centuries ago. In 1567 the Governor sent out an expedition under the command of his nephew, Alvaro Mendaña, to discover "Terra Australis Incognita;" and a second Peruvian expedition was sent out in 1605, and discovered an island of the New Hebrides group in 1606.

Dirk Gerrits in the meantime, in 1598, had set sail from Amsterdam accompanied by a small fleet, and, being separated from his companions by heavy weather, near the Straits of Magellan, discovered some high land now known as the South Shetlands. Gerrits and his crew were eventually captured by the Spaniards. France was next in the field, La Roche discovering the island of South Georgia in 1675, and Kerguelen in 1772 what he at first believed to be the Antarctic continent, but returning in the following year found to be only a small island. This island now bears his name. Britain, however, was the first nation to do any real work in the Antarctic, and that work is associated with the

name of Captain Cook. He was the first to cross the Antarctic Circle, in 1773, and, crossing it again in 1774, he attained as high a latitude as  $71^{\circ} 15' S$ . In a second voyage he circumnavigated the globe in high southern latitudes, twice crossing the Circle, and was thus the first to confine the Southern continent within the Antarctic Circle. Cook described the terrors and inhospitality of these regions, and firmly believed that no higher southern latitude would ever be attained. In 1819 William Smith of Blyth rediscovered the South Shetlands, the discovery being confirmed by Bransfield in the following year, who also sighted Bransfield Land. In 1820 the Russian Bellingshausen crossed the Antarctic Circle, and crossed the latitude of  $70^{\circ} S$ . in  $1^{\circ} 30' W$ .; he also discovered the Peter and Alexander Islands, then the most southerly land known. In the following year Powell discovered the South Orkneys. In 1823 our brave and distinguished countryman, Captain James Weddell, beat all former records, sailing as far south as  $74^{\circ} 15' S$ . in  $34^{\circ} 17' W$ . Here, on the 20th of February, he found a sea clear of field-ice, with only three icebergs in view. Two days previously, two degrees farther north, Weddell says, "In the evening we had many whales about the ship, and the sea was literally covered with birds of the blue petrel kind; NOT A PARTICLE OF ICE OF ANY DESCRIPTION WAS TO BE SEEN."

John Biscoe, in the service of Messrs. Enderby, twice effected a landing: he was the first to put foot on land within the Antarctic Circle; this was on Adelaide Island in 1831. It was he who discovered the western coast of Graham's Land, the Norwegians and ourselves first seeing, last year, what in all probability was the eastern coast. Several other masters sailing under Messrs. Enderby made discoveries, notably Balleny, who discovered the Balleny Islands and Sabrina Land. After these, D'Urville the Frenchman, Wilkes the American, and Ross, our own countryman, during the years 1839-43, can alone be classed as Antarctic explorers. The *Challenger* paid a flying visit in 1874, and in 1892-3 Norway and Scotland despatched a whaling-fleet to which was attached a scientific staff, and Norway is again to the fore this year.

But of all the expeditions to the Antarctic, that of the *Erebus* and *Terror*, under the command of Sir James Clark Ross, during the years 1839-43, is by far the most important. With the most indomitable courage and perseverance, Ross crossed the Antarctic Circle in three successive years. On two of these occasions he attained far higher latitudes than any of his predecessors. He discovered Victoria Land, the vast mountainous tract extending away to  $78^{\circ} S$ . in the longitude of New Zealand, and terminating with Mount Erebus, which, from a height of over 12,000 feet, lights up the winter darkness of the snowy desert. From this point, in about  $78^{\circ} S$ ., he sailed along an icy barrier running westward for 300 miles, the termination of the ice-cap of the great Antarctic continent. In 1842-43 he visited the region of Erebus and Terror Bay, lying to the south of Cape Horn, and became entangled in impenetrable pack; pushing farther eastward, he again crossed the Circle, attaining a latitude of  $71^{\circ} 30' S$ ., between Bellingshausen's and Weddell's tracks. Ross believed he could have landed and travelled over the continent.

"To the north-westward," he says, "we observed a low point of land, with a small islet off it which we hoped might afford us a place of refuge during the winter, and accordingly endeavoured to struggle through the ice towards it until 4 P.M., when the utter hopelessness of being able to approach it was manifest to all, the space of fifteen or sixteen miles between it and the ships being now filled up by a solid mass of land ice. . . . Had it been possible to have found a place of security upon any part of this coast, where we might have wintered in sight of the brilliant burning mountain, and at so short a distance from the magnetic pole, both of these interesting spots might easily have been reached by travelling parties in the following spring. . . . It was nevertheless painfully vexatious to behold at an easily accessible distance under other circumstances the range of mountains in which the pole was placed, and to feel how nearly that chief object of our undertaking had been accomplished; and few can understand the deep feelings of regret with which I felt myself compelled to abandon the perhaps too ambitious hope I had so long cherished of being permitted to plant the flag of my country on both the magnetic poles of our globe."

Had Ross had steam he would undoubtedly have accomplished what, with a sailing-vessel, was quite impossible.

D'Urville and Wilkes both did good work, and discovered land south of Cape Horn and south of Australia in high latitudes. I shall leave Dr. Donald and Mr. Burn-Murdoch to narrate our experiences in these regions during the past year, but perhaps I may detain you a few minutes longer to tell you something of the climatic conditions one meets with in the ice.

All the observations that have been made in the Antarctic have been in the height of summer—that is, during the months of December, January, and February; and an account of our experiences during these months will give you a very fair idea of what Cook, Weddell, D'Urville, Wilkes, and Ross experienced before us.

Like our predecessors, we found it to be a region of gales and calms—gales from the north, with wet fog; gales from the south, with blinding snow; calms with fog, and calms with brilliant sunshine. Towards the middle of December, when we were approaching the icy regions, we lay-to in squally weather and thick fogs. Gradually we pushed southward, and soon entered latitudes where flat-topped icebergs surrounded us on every side, and where pack-ice floated on the water. Squally weather continued till the 24th of December, when, in the vicinity of the Danger Islets, we met with a great number of bergs. From the deck I counted as many as sixty-five at one time, many being 1 to 4 miles in length and about 150 feet in height. Long shall I remember this Christmas Eve, when we were fast anchored to a floe. There was a perfect calm; the sky, except at the horizon, had a dense canopy of cumulus clouds, which rested on the summits of the western hills; and when the sun was just below the horizon, the soft greys and blues of the clouds and the spotless whiteness of the ice as it floated in the black and glassy sea were tinted with the most delicate of colours—rich purples and rosy hues, blues, and greens, passing into translucent yellows. At mid-

night the solitude was grand and impressive, perhaps the more so since we had for well-nigh a week been drifting among bergs, with dense fog and very squally weather. No sound disturbed the silence; at times a flock of the beautiful sheath-bills would hover round the vessel, fanning the limpid air with their soundless wings of creamy whiteness. All was in such unison, all in such perfect harmony; but it was a passing charm. Soon we had to think of more prosaic things, and reluctantly we turned our thoughts to the cargo we were to seek.

This is the picture of a calm midnight in mid-summer, different, indeed, from the heavy weather we experienced at other times, when for days we sheltered behind bergs and streams of pack during black nights thick with fog or snow. One of the gales we encountered the skipper described as the hardest that ever blew in the Arctic or Antarctic; and, indeed, it was stiff. For ten hours we steamed as hard as we could against it, and at the end had only made one knot. Picture to yourselves a sailing-vessel: what a different agency we have now! Where Cook, Ross, Weddell, and others would have been in the greatest peril, we with steam were comparatively safe.

The records of air temperature are very remarkable; our lowest temperature was  $20\cdot8^{\circ}$  Fahr., our highest  $37\cdot6^{\circ}$  Fahr.—only a difference of  $16\cdot8^{\circ}$  Fahr. in the total range for a period extending slightly over two months. Compare this with our climate, where in a single day and night you may get a variation of more than twice that amount.

During the last five months, in London, I have experienced temperatures ten degrees higher than on either of our crossings of the Equator, and five degrees lower than our lowest recorded temperature in the Antarctic.

The average temperatures show a still more remarkable uniformity. December averaged  $31\cdot14^{\circ}$  Fahr. for one hundred and fifteen readings; January,  $31\cdot10^{\circ}$  Fahr. for one hundred and ninety-eight readings; February,  $29\cdot65^{\circ}$  for one hundred and sixteen readings—a range of less than  $1\frac{1}{2}^{\circ}$  Fahr. This seems worthy of the special attention of future Antarctic explorers, for may it not indicate a similar uniformity of temperature throughout the year? Antarctic cold has been much dreaded by some; the four hundred and twenty-nine readings I took during December, January, and February show an average temperature of only  $30\cdot76^{\circ}$  Fahr.; and this was in the very height of summer, in latitudes corresponding to that of the Farøe Islands in the North, but I believe the temperature of winter does not vary so much from that of the summer as in the North.

The greatest enemy in the South is the heavy swell which arises with and after gales. Listen to Weddell: "The rolling motion of several of these pieces was so great, that had one of them taken the side of the ship fairly in the descent, her destruction must have been inevitable.

"I was much rejoiced at having one vessel out of the ice, considering all the dangers of an open sea as of no moment compared with those we were subject to in such weak vessels.

"As I have been in Greenland seas, and am well acquainted with the nature and danger of that navigation, I may remark that sailing among

ice in these southern latitudes is attended with much greater risk. This is occasioned by a heavy westerly swell, which keeps the ice in motion, and seldom entirely subsides." Ross also had similar experiences; but we never met with any very great swell amongst the ice.

I have told you somewhat of the Antarctic in summer; what the winter is no one knows. You will see that in the South we have a very different country to deal with as compared with the North. The conformation of land and water is exactly the reverse. In the North we have water surrounded by land—a polar basin; in the South, land surrounded by water—a polar continent.

It is of the utmost importance to science and romance, and perhaps also to commerce, that further exploration should be undertaken in the Antarctic; and it is to be hoped that this distinguished meeting will heartily support the resolution which will be submitted to it.

### THE LATE EXPEDITION TO THE ANTARCTIC.

By DR. C. W. DONALD.

IN view of the proposed expedition, the Antarctic has become a subject of general interest, and the experiences of our Antarctic explorers have again been studied with renewed zest. We see Cook with his small and totally unprotected ships crossing the 70th parallel; Weddell, with similar disadvantages, reaching  $74^{\circ} 15' S.$ ; while, in ships but little better, Bellingshausen, D'Urville, Wilkes, and others discover land to the south of the Antarctic circle. To Sir James Ross, however, we are indebted for most of our knowledge of this ice-bound region, where he spent three seasons, overcoming the many difficulties and dangers in a way that calls forth our heartiest admiration.

It is not my intention to deal with the Antarctic as a whole, but to consider in greater detail a small portion of it, in order, if possible, to give a picture which, with certain modifications, may be applied to Antarctic life generally. I turn to the neighbourhood of the Erebus and Terror Gulf, lying some 600 miles to the south and east of Cape Horn, where I spent the season of 1892-93.

This portion of the Antarctic was explored by Ross during his third voyage in 1842-43, and his careful and accurate survey left but little new geographical work to be done. However, I do not think I can give a better idea of Antarctic life and scenery than by describing our experience of this region.

You may be inclined to say that I am giving the sunny side of the picture. You have probably read of terrible gales and heavy sea encountered in the pack, the ship being helplessly dashed about among the heavy ice, being severely strained, losing her rudder, and the commander and crew in the last stage of anxiety; of a collision to windward of a chain of icebergs, and of a ship being forced to make a stern-board along a berg, every roll of the heavy sea making the yard-arms jar