

## BORCHGREVINK AND ANTARCTIC EXPLORATION.



AMONG the hundreds of delegates and scores of speakers at the Sixth International Geographical Congress, held in London in July last, there were three men whose appearance and utterances created unusual

interest. These men—Slatin Pasha, Borchgrevink, and Andrée—may be said to be representative of the past, the present, and the future.

The interest in the Swede, Mr. S. A. Andrée, was doubtless due in part to his connection with that mystery of the future which charms all; but a large share of the enthusiasm came from the boldness of the plan, the earnestness of the man, and the plausibility with which he argued that a journey to the north pole and back by balloon was scarcely more than a summer excursion.

Slatin Pasha's simple but thrilling tale of the fate of Gordon, of his own maltreatment, of twelve years of slavery and an almost miraculous escape from the Soudan, had in it that intense human interest which always moves the world. Everybody listened to the story of the man who had come out of the jaws of hell and revealed the secrets of the charnel-house.

Apart from the story of Afric's fiery sands and the venture to snowy wastes was the tale of Antarctic voyaging, which owed its hearty reception and merited applause to its present and important relation to a plan of exploration to which, prior to Borchgrevink's arrival, the Congress had given unwonted attention, and for the execution of which it had organized an active and influential committee.

The ball was set in motion by Dr. Neumayer of Hamburg, whose venerable personality is as striking as his scientific acquirements are varied and substantial. For forty years Neumayer had advocated Antarctic exploration, and now finally came to the Congress backed by the influence and indorsements of the last conference of the German geographical societies. With fervid words and earnest manner he pleaded the cause of Antarctic research, gaining the sympathy and applause of his entire audience.

He was followed by one of the famous

specialists of the world, Sir Joseph Hooker, the botanist, who is the last surviving officer of the Antarctic expedition of Ross. The weight of eighty-odd years bears so lightly on him that he spoke with the same eager spirit that actuated him when he joined Ross in 1839.

Then came Dr. John Murray, so well known for his personal scientific work in the *Challenger* expedition of 1874, and whose ability has been conspicuous during twenty years of research and criticism, while placing before the world the results of this most successful of physical exploring expeditions. Murray's peculiar fitness for speaking on the subject is shown by the presence on the latest maps of the continent of Antarctica, a piece of constructive geography due solely to Murray's intellectual acumen and force. Clearly, concisely, and forcibly he set before the Congress the scientific aspects of the question. Here is the largest unexplored region on the face of the earth; here an ocean the animal life of which exceeds in variety and richness that of any other known water; here a great Antarctic continent where from one end to the other abide indications that active volcanoes and ever-changing ice-caps, which are thousands of feet in thickness, strive for the physical mastery of this great land. In short, of all regions this presents the most promising field for scientific and oceanographic researches.

These were the principal speakers, though the writer and others joined in the discussion, which was followed by the appointment of a committee to consider the question fully. The Congress unanimously adopted its formulated opinion that an investigation «of the Antarctic regions is the greatest piece of geographic exploration still to be undertaken.»

Later Borchgrevink arrived in London, and in an address set forth somewhat in detail the results of his voyage, hitherto known only through brief general statements by the daily press. His appearance before the congress was in the nature of a surprise, and a hum of appreciative expectation filled the great Institute hall when his presence was announced.

Borchgrevink is a Norwegian, some thirty years of age, of medium height and of mod-



est mien, and has the typical Scandinavian fairness of hair and floridity of complexion. His face gives signs of that determined spirit and fixity of purpose which Norse explorers have shown from the early vikings to this latest voyager. His hardships, incident to service before the mast in a whaler, were almost ignored, and he dwelt on the Antarctic sea and its conditions. The intelligent audience noted his impersonal and retiring disposition, and showed its own appreciation by generous applause.

A gleam of humor enlivened the proceedings when Dr. Murray, after a fitting tribute to Borchgrevink, referred to the mythical tales of unknown Antarctic tribes near the south pole, and said: «Perchance some future explorer will find, in the interior of this ice-encompassed continent, an inhabited, fertile land ruled over by a charming princess of Antarctica, whose charms may wean our explorer from the attractions of the outer world.» Much to our amusement, some of the listeners took these jocose remarks seriously, and the distinguished scientist found himself quoted as an authority for this new Brobdingnag.

This voyage is important in two ways, scientifically and practically. From a scientific standpoint the interest depends entirely upon the discovery by Borchgrevink, on Possession Island and Cape Adare, Victoria Land, of a cryptogamous growth, probably an unidentified lichen. The importance of this discovery rests in the fact that hitherto no land vegetation of any kind or description

had been found within the confines of the Antarctic Circle. The strained deduction has been drawn that the climatic conditions of the Antarctic zone must have changed since the voyage of Ross, who discovered no vegetation. It should be borne in mind, however, that the great botanist Sir Joseph Hooker, who served with Ross, was unfortunately prevented from landing with his commander; otherwise it may not be doubted that low forms of vegetable life which escaped the attention of Ross would have been noted by Hooker.

In a practical way it emphasizes the possibility of much more extended exploration in the Antarctic Ocean, through the agency of the steam power of to-day, than was practicable for the greatest of Antarctic navigators—Cook, Balleny, Weddell, Wilkes, and Ross—under sail alone in the past.

Whether Borchgrevink will return to the Antarctic regions or not, there is no doubt that his experiences have greatly stimulated interest in this work. Captain Foyn is dead, and even did commercial enterprises and scientific research go hand in hand,—as they do not,—the lack of financial success in Antarctic whaling during the last few years forbids future whaling voyages. Vague reports indicate that either a German, a Belgian, or an Australian expedition is among the near possibilities; but if such is undertaken, it is doubtful if it would venture the dangerous experiment of wintering either at Cape Adare or anywhere along the ice-bound coast of Victoria Land.

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## THE FIRST LANDING ON THE ANTARCTIC CONTINENT;

BEING AN ACCOUNT OF THE RECENT VOYAGE OF THE  
WHALER «ANTARCTIC.»

WITH PICTURES BY THE AUTHOR.



FOR more than half a century, in all the scientific associations of the world, expectation has been expressed of great discoveries to be made near the southern axis of the earth's rotation. Comments have been made in all languages on the startling records which Sir James Ross brought back with him from his famous expedition with the *Erebus* and the *Terror* to

Victoria Land. For fifty-four years, however, practically nothing was done to carry on the work so bravely begun by the illustrious Briton. This fact seems strange, as the journals of the *Erebus* and the *Terror* speak about new, vast, and promising fields for both science and commerce.

At last a Norwegian veteran, Commander Svend Foyn, eighty-four years of age, who through a life of activity and work had accumulated considerable wealth, decided, after a good deal of persuasion by clever business



men, to look for the valuable right whale in the seas near the southern shores of Victoria Land. He fitted out an old sealer, basing his hopes on the report in the journals of Sir James Ross. For years (they say for more than twenty-four) the old sealer had borne the name of *Cape Nor*. At last she had settled down at her birthplace in the deep, clear cove of the Drammen Fjord, where she lay calm and contented, and moored safely. The supercargo who bought the old boat gave her a new name, seeming to think that if rechristened she would be as if born again. She was therefore called *Antarctic*. When she was ready to leave the docks in Christiania, Commander Foyn went on board to have a last look at her before she proceeded on her voyage. Somehow or other, he had got it into his head that there was something wrong with one of the boilers on board. In vain they tried to settle his mind as to this; the old gentleman, a knight of ever so many orders, crawled with his black coat and top hat into the boiler, where he discovered the deficiency which he had suspected.

After a long voyage the *Antarctic* visited Kerguelen Island, southeast of the Cape of Good Hope. I have been told that she leaked much on that trip, and neither officers nor crew were sorry when she at last lay at her pier in the Yarra River, Melbourne. Owing to her long voyage from Norway, she arrived in Australia too late for the Antarctic summer. After some cabling and writing, it was decided that she should await the succeeding spring, and then go southward in Sir James Ross's track, as intended. Meanwhile she was sent for a cruise to Macquarie Island and Campbell Island, situated beyond the «roaring forties,» southeast of Australia; but after having lost most of her rigging, and caught only one right whale, she had to return to Melbourne. It was decided there that the supercargo should remain ashore during the cruise of the *Antarctic* in the winter-time. That the relative position between Captain Kristensen and the supercargo, which from the beginning was anything but of a friendly nature, did not improve by common misfortunes can easily be understood.

Such were matters on board the old whaler when I arrived in Melbourne on September 14, 1894. At the Norwegian consulate I found out all particulars concerning the whaler and the expedition she was ready to enter upon. I also met H. J. Bull, the supercargo, and told him about the matter upon which I had set my heart.

After some talk it was decided that I should see the captain. They had no scientific man on board, and still needed some men. The Melbourne scientists thought it too rough on board the *Antarctic*, and preferred to remain on shore. I was asked by members of the Royal Geographical Society of Victoria if I would join the *Antarctic* on their behalf, but refused, as I did not like to take upon myself obligations which necessarily would claim some of the time which no longer was my own. At last I was taken as a seal-shooter and seaman, and one who would be ready to cure skins. What I collected in my spare hours should be my own. In the presence of the Norwegian consul in Melbourne I signed the articles.

Owing to the receipt of two despatches from Norway, it was eventually decided to leave Melbourne sooner than was expected by the owner, and sooner than was expected by me. In haste I got the necessary warm clothes, boots, etc., and hurried aboard the *Antarctic*. The vessel was a bark of 320 tons, with an auxiliary screw and an engine to drive her forward at five knots an hour.

Once on deck, I felt myself set back many years to a time when I, a boy of fourteen, a *jungman* on the good ship *Borghild*, for the first time crossed the Atlantic Ocean. There was no end of ropes, spars, anchors, guns, harpoons, boats, boxes, sailors, and merchandise, spread about the deck in familiar disorder. I now met the second mate, a fair-haired Norwegian of about forty, ice-pilot Bernhard Jensen, with eagle eyes and features—a man he looked and a man he was; and the first mate, F. Gjertsen, a stout, broad, handsome, kind-looking man, thirty-eight years of age.

#### IN THE FORECASTLE.

AFTER some talk I went below to the fore-castle to choose my berth among the few that were left. At last I cast anchor among the fore-men, where just one berth had become vacant through the fact that its former occupier had chosen to walk from the quay straight into the river some two nights previous.

The fore-castle where I should live (or die) in the coming months was under deck, before the mast, and contained about thirty-six square feet of deck as floor. In this inclosure there were six men, each thus having as his share about six square feet. The light came in from above, through a small skylight which with great care was hermetically closed even in the prevailing heat—perhaps to pre-



vent the precious fumes from decayed blubber, old clothes, and old boots from escaping that way. The six berths were arranged in two rows one above the other. Three feet by six was the extent of the bedding-place, and when the two sliding doors with which each berth was provided were shut, the compartment inside could hold its own, as to comfort, with the modern coffin. This place was for six months to be my berth, my library, my drawing-room, and my museum.

However, I soon made acquaintance with companions in my berth who had not signed articles in Australia, but who, so to say, were "stowaways" from Norway, and would have managed to entertain even the most despondent.

Thirty men were we in all. Some of my mates in the fore-castle were typical old and young Arctic sealers. Shining, fat, and contented, soaked with whale-oil, were these strong men, sitting smoking on their boxes. Brave, faithful, warm hearts beat in the leonine breasts of these whalers, who from necessity had agreed to sell their work for next to nothing, who risked their lives to obtain a fraction of the value of the blubber they might bring on board, with the prospect of returning as poor as when they went out, while their wives and families at home would meantime be drawing on the scanty income of their providers.

#### THE START.

THE next morning the members of the Royal Geographical Society came on board, and speeches were made and toasts drunk. Baron Ferdinand von Mueller, the eminent scientist, spoke for officers and crew, and for me in particular, as a pupil of his old friend, Professor F. Nobbe of Saxony. He spoke in enthusiastic terms of the enterprise, and of my own task, and to the sound of cheers the *Antarctic* floated slowly down toward the mouth of the Yarra River. It was September 20, 1894, when we thus left Melbourne.

Originally it was our intention to spend a few weeks in search of sperm-whales off the southwest cape of Tasmania; but not meeting with any, we steered for the Royal Company Islands. For three days we looked in vain for this group, although the seaweed which was floating about in all directions bore unmistakable evidence that some land was near. On October 18 we had snow for the first time. It came in a heavy squall which whistled through our rigging, and brought a specimen of the *Diomedea exu-*

*lans*, the largest of the albatrosses, on board. Here it obtained refuge until the weather cleared, when we helped it to its wings again. At night it was moonlight, and at twelve o'clock the aurora australis was visible for the first time. Rolling from west to east in white, shining clouds, it formed itself into a brilliant ellipse, with an altitude above the southern horizon of 35°. The *Antarctic* was at the time in the vicinity of Macquarie Island, and thus in latitude about 54° S. The aurora seemed constantly to renew its emanations from the west, and the intensity of its light-cloud culminated every five minutes, after the lapse of which time it suddenly died out, to regain its former magnificence and beauty during the succeeding five minutes. The phenomenon lasted until two o'clock, when it was gradually lost in an increasing mist.

As the swell was heavy, and there was little probability that any material benefit would result from a landing, we set out for Campbell Island on the 22d, and dropped anchor in North Harbor on the evening of October 25, shifting the following day down to Perseverance Bay, which is much the safer harbor of the two, and where we filled our water-tanks and made our final preparations before proceeding south. Campbell Island shows from a great distance its volcanic origin and character, undulating ridges rising in numberless conical peaks from 300 to 2000 feet above the sea-level. Although from the sea the island seems desolate, the land around the bay is rich in vegetation, and most of the island is covered with grass, on which a few sheep seemed to be living in luxury. They were put there for shipwrecked sailors, and as they seemed to thrive splendidly, an enterprising New Zealander had just rented the island for pastoral purposes, at the almost nominal rent of fifteen pounds a year. Numerous fur-seals were basking on the rocks, and we also found a few good sea-leopards. All seemed to thrive well, their skins being smooth, without scar or cut; and besides us human beings, they did not seem to have any enemies in those waters.

#### AN ADVENTURE ON CAMPBELL ISLAND.

I MADE several excursions into the interior of Campbell Island in company with my friend Nils, a sturdy, fair, curly-haired young Norwegian seal-shooter. Once we scaled together one of the higher peaks of the island, on which occasion I believe that Nils saved my life. We had with a great struggle fought our way toward the ridge which forms the



eastern side of Perseverance Bay; a hard climb it had been, among rocks and amid a dense undergrowth of island scrub. We had hoped to find albatross eggs, but found only large young ones; so after having killed some of the large birds for the sake of their skins, we proceeded to descend the mountain-side. It was getting dark, and the lonely whaler down in the bay, with its white crow's-nest at the mainmast-head, looked like a little toy. We struggled hard with our heavy burdens. Suddenly I felt the ground give way under me, and was quite unable to get any footing in the moist, loose soil. Down I went up to my arm-pits. The weight of the albatrosses helped to press me down, and the mud closed round me with a sucking sensation. Nils was fighting his way over on the slope to the right, and when I felt that I was sinking I cried out to him, freed myself of the last of the albatrosses, and held my gun horizontally above me. It caught on both sides of the hole, and kept me up until Nils, after considerable effort, succeeded in lifting me a little. By our united efforts I was soon able to proceed down the mountain-side again. Later on we discovered many of these treacherous holes in the sides of the old volcanic cones; they seemed like minor craters, now covered with weak branches of the stunted undergrowth.

While duck-shooting on Campbell Island I came upon three graceful waders of the snipe kind. I succeeded in securing all, and consider them a valuable part of that small collection which I brought back to Melbourne. Except in places where brushwood in some stunted state covered the ground, grass was everywhere to be seen. I have no doubt that some of our hardy Scandinavian species of trees would do well there.

#### THE FATE OF A MESSAGE.

WE weighed anchor on October 31, and when close to the south shore sent off two boats in search of seals. On this occasion one of the boats, being swamped in the surf, was immediately crushed against the rocks, its crew having a rather narrow escape from drowning. One of the men fought bravely in the breakers for half an hour, without relinquishing his grasp on his rifle.

With scrupulous care we now composed a letter, upon which each of us carefully inscribed his signature. Having placed it in a small bladder which had been given to us for the purpose by the Norwegian consul in Melbourne, we consigned it to the waves, and leaned over the bulwarks to see the mail

depart. Much to our chagrin, a large albatross hove in sight, and before our message had gone many yards the huge bird gobbled it up.

During the next few days, as we were proceeding farther into the fifties, the air and the water kept an equal temperature of 44° F. A large number of crested penguins were seen jumping about like small porpoises, and we met several icebergs from 100 to 150 feet high—solid masses of floating ice with perpendicular walls, their tops forming unbroken plateaus. On November 6, in latitude 58° 14' and longitude 162° 35', we sighted an immense barrier of ice, or chain of icebergs, extending from about forty to sixty miles from east to northwest. The top was quite level and absolutely white, and was at least 300 feet high. The perpendicular sides were dark gray, with large, worn, green caves, in which the furious waves were raging and tearing, bursting out in brilliant foam many feet in the air. Several icebergs similar to those we had encountered before were floating about in all directions, and were undoubtedly offspring of this enormous ice-mass.

#### AN ACCIDENT.

IT was here we discovered that our propeller was out of order. The news was a great blow to us all. Such an accident when in the ice on the preceding day might have proved fatal, as at one time we had had to carry a press of sail and to set the engine at full speed to manage to clear our way between two large bergs. Not judging it prudent to proceed amid the ice with the vessel in a crippled state, the *Antarctic* was again headed northward, and, favored by strong gales from the southeast, anchored in Port Chalmers on the 18th, where the damage was soon repaired. Having obtained fresh hands from Stewart Island, we again stood southward on November 28. Favorable winds, with the barometer about 29°, continued till we again reached the fifties. By the time we reached latitude 55° the albatross had left us, and likewise the Cape pigeon (*Daption capense*), but the white-bellied stormy petrel still followed in our track. A robber gull, with dark brown head and white-bordered wings, and a small blue petrel, put in their appearance.

#### COLOR OF ANTARCTIC BIRDS.

IT was remarkable to see how the plumage of the birds gradually changed into lighter



and lighter colors as we drew southward, altering with the colors of the surroundings. Whether the birds, like the polar hare, also changed their color with the seasons, I had not an opportunity to notice; but it is clear that within the Antarctic Circle also Mother Nature takes care of all her children, and protects the defenseless from the eye of their larger enemies by giving them an invisible clothing. It was thus almost impossible to discover the magnificent white petrel when it was on the dazzling snow. It was likewise difficult to discover the white seal when it stretched itself on the ice-floes.

#### THE OUTLOOK FROM THE CROW'S-NEST.

ON December 7 I sighted the edge of the ice-pack from the crow's-nest, and shot my first seal, which was of the white kind, its skin being injured by several deep scratches. It was cold up in the white cask on the main-top that morning. Before us were the ice-fields, with the strong ice-blink in the air above us; and as we drew near to the edge, the snow-white petrels became more and more numerous. They are of the size of an ordinary pigeon, but much more graceful. Their large eyes are deep black, as are also their bold, curved beak and their elegant webbed feet. They seemed almost transparent as with spread, quiet wings they soared in the air about the crow's-nest, where I was hanging on to one end of a large telescope heavy enough to lift me in seesaw fashion far out of the nest every time I let it glide too far out over the upper edge of the barrel. Like the pricking of pins the snow-crystals blew against my face, and I had continually to dry the telescope glasses with my woolen mittens, as the vapor from my breath settled on the lenses in numberless crystals, and formed an extra sheet of glass. But they were glorious, those hours on the lookout! The air was generally clear, and the human eye could see, even from the deck, great distances within those Southern latitudes. Only from the crow's-nest can one fully appreciate the supernatural charm of Antarctic scenery. Up there you seem lifted above the pettiness and troubles of every-day life. Your horizon is wide, and from your high position you rule the little world below you. Onward, onward stretch the ice-fields, the narrow channels about the ship are opened and closed again by current and wind, and as you strain your sight to the utmost to find the best places for the vessel to penetrate, your eyes wander from

the ship's bow out toward the horizon, where floes and channels seem to form one dense, vast ice-field. Ice and snow cover spars and ropes, and everywhere are perfect peace and silence.

We always observed the white, shining reflection of the ice-fields in the air, and we were thus warned from afar even of the presence of a narrow stream of ice or an iceberg. This ice-blink and the presence of the white petrel never deceived us.

#### THE MESSAGE FROM THE GALE.

WHEN the swell is heavy in the ice-pack it is often very difficult to ascertain from which direction it comes; and just as difficult as it is, just so important may it be that it should be found out rightly, as the safety of the ship might wholly depend upon correct judgment as to this. When the huge ice-masses begin to move and screw and press on the sides of the vessel, rising and falling in a heavy swell, then there is only one escape; namely, to work the vessel into the fields away from the side from which the gale blows. A mistake as to the direction of the running swell has often proved fatal, and the mistake is easily made. An old Arctic sealer told me how, in hours of dread in the Arctic ice-pack, he had laid his ear down to the ice-floe and listened to the roar of the coming swell,—that terrible message from the furious gale,—and how he thus had discovered whence the gale was pressing, and had been able to save the ship from destruction. I tried his method, and found that it worked admirably. What is well worth noticing is that open water nearly always is to be found in the ice-pack on one side of icebergs. The icebergs that we met were generally in motion, carried onward by the ruling current; often they ran forward in the ice-fields at a speed of several knots, piling up the huge floes before their cold, glittering bows; but behind them they left an open sheet of water large enough for any ship.

Now, there would of course be many dangers for a vessel tugged along in the ice-pack by such a floating monster; but I believe, nevertheless, that this method might be instrumental in saving a vessel from being crushed when the ice-field is moving heavily.

#### ANTARCTIC ICE.

THE difference in the formation of Arctic and Antarctic ice, as is well known, is very great. While the Northern bergs mostly con-



sist of a large ice-mass running up into numberless towers and arches resembling the mountain peaks which surrounded the glaciers from which they were torn, the Antarctic bergs are solid masses of floating ice, with perpendicular walls, and an unbroken plateau on the top.

All showed distinctly whether they were broken from the large southerly barrier or discharged from the glaciers of Victoria Land. All the barrier bergs had very distinct blue lines across their walls, indicating the annual growth by snowfall. These lines were of course not to be found on the glacier ice. The latter also showed more likeness to the Northern ice than did the former. The peaks and towers of the Arctic icebergs are supposed to be formed by the influence of ocean currents wearing away the softer part of the ice-mass under water, until the natural law of gravitation forces it to upset. But why have the Antarctic icebergs a different appearance? It is certain that in the Antarctic waters there are also currents. Yet even icebergs that have gone as far north as the south of New Zealand have all maintained the marks of their Antarctic origin. I cannot see any other reason for this dissimilarity between the bergs of the North and those of the South but that the Arctic icebergs, as a rule, must pass through climes which in temperature rapidly change from one extreme to another, and the icebergs take much longer time in floating southward than do the Antarctic icebergs in advancing northward, and thus, as a rule, the Northern icebergs exist much longer than those of the Antarctic.

On December 8, in latitude  $63^{\circ} 45'$ , longitude  $171^{\circ} 30'$ , large streams of ice were drifting about us; a strong ice-blink appeared toward the south, and the presence of the elegant white petrel gave us unmistakable evidence that now we had before us those vast ice-fields into which the gallant Sir James Ross, on January 5, 1841, successfully entered with his famous ships the *Erebus* and the *Terror*. In the evening we slowly worked our way in through the outer edge of the ice-pack, which consisted of large and heavy, hummocky ice; the floes reared on end, and were forced aside, with loud reports, by our strong bow. I saw multitudes of the *Argonauta antarctica* everywhere in the pack, usually swimming about in cavities in the ice-floes, evidently seeking refuge from their enemies, the whales, which feed principally upon them. The large-finned whales, or what in Norway are called blue

whales, were spouting about in all directions, and we could hear the sound miles away. We shot rapidly among three or four of them, but in taking turn the line attached to the bomb broke as if it had been string.

The white petrels were numerous here, and I secured more of them. The white-bellied petrel departed at the edge of the pack, leaving the icy regions to its darker, hardier brethren.

#### PECULIAR MARKS ON THE ANTARCTIC SEALS.

WE shot several seals, but seldom saw more than one or two together, and never more than seven. Most of them had scars and scratches on their skin. Sir James Ross noticed similar wounds, and supposed that they had been inflicted by the large tusks with which the sea-leopards are provided. My opinion, however, is that these scars must be traced to an enemy of a different species from the seal. The wounds are not like the ordinary wounds inflicted by a tusk. Varying from two to twenty inches in length, they are straight and narrow; and where several of them were together on one animal, they were too far apart to be produced by the numerous sharp teeth of the seal. That this unknown and destructive enemy of the seal in those waters is of a superior and more dangerous kind than the seals themselves, I conclude from the fact that the wounded seals never had any scars about their head and neck, which undoubtedly would have been the case if battles had been fought among themselves. That the grampus, or swordfish, is doing mischief down there I do not doubt; but I feel just as sure that of the seals we shot but few received their scars from the sword of the grampus or from the tusks of other seals. If my opinion holds good, it may serve as an explanation of the strange scarcity of the seals in regions where one would think that these animals would be found in abundance.<sup>1</sup>

When we entered the ice-pack the temperature of the air was  $25^{\circ}$ , and that of the water  $28^{\circ}$ , which latter temperature continued all through the pack. Penguins were about in great numbers, and they waddled toward us on the floes from afar, evidently inspecting ship and crew with utmost interest, wondering what we were and whence we came.

<sup>1</sup> Regarding the statement made by Mr. Borchgrevink concerning the scars on seals, Dr. C. Hart Merriam says: "The long scars on hair-seal in the North Atlantic are believed to be caused by sharks' bites, and the same may be true in the Antarctic Ocean."



We had no difficulty in killing some of them, although we had many hard chases, and many were the cold dippings we got for their sake.

The seals we killed either with guns or pikes. There is very little sport attached to seal-hunting, specially in Antarctic waters, as the seals there are tame through ignorance of man's bloodthirstiness. Generally they were asleep when we approached, and many of them died without having seen their murderers. But, as a rule, the slaughter and skinning of the seal were most barbarous, bloody, and hideous—unnecessarily so. Specially cruel is the task when seal-pikes are used. Only rarely does a seal die from one or two blows of the pike, and if it is not dead it is generally considered «all the better»; for it is easier to skin a seal while it is half alive. In the utmost agony, the wretched beast draws its muscles away from the sharp steel which tears away its skin, and thus assists in parting with its own coat.

#### THE ICE-PACK.

ON the 14th we sighted Balleny Island, and found it, according to Ross, in latitude  $66^{\circ} 44'$ , longitude  $164^{\circ}$ . The ice-floes grew gradually larger as we approached land, and it was evident that the ice-pack then about us was for a great part discharged from the glaciers of Balleny, as some of them carried stone and earth. Although the highest part of Balleny was covered with mist when we were near it, we got a good view of its lofty peak, which rises to a height of 12,000 feet above the sea-level. The size and shape of the ice-pack about Balleny threatened considerable danger to our vessel, and many anxious hours did we spend there. Its comparatively small surface above water was covered with snow several yards deep, which ran out in long, sharp points under water. Several of these points struck our propeller without injuring it seriously; but it is not likely that the vessel, depending entirely on its sails, would have been able to exist long in such ice. Even with steam we felt how small and powerless we were in the merciless grasp of the pack. The temperature of Balleny was found to be  $34^{\circ}$ . Finding the pack nearly impenetrable in this locality, we resolved to seek to the eastward the track where the *Erebus* and the *Terror* had been navigated successfully.

On December 16 we moored the *Antarctic* to a large floe of pancake ice which told its tale of the previous long calm. As far as eye could reach nothing but one immense field of ice could be seen. During the afternoon an increasing swell made our

position unsafe; the huge ice-masses rose and fell with long, slow movements, and the sudden shocks that the side of our vessel received caused her to tremble from keel to crow's-nest. On December 22, in latitude  $66^{\circ} 3'$ , longitude  $167^{\circ} 37'$ , I shot a wonderful seal of ordinary size and color, but without any signs of ears, and with a very thick neck. Not one of our old sealers on board had ever seen this kind before, and I regret to say that the skull, which I had prepared, was accidentally crushed.

On December 24 we had stormy weather; the evening, however, was beautiful, and the sun just touched the horizon on its lowest descent. I believe that we are the only people who ever saw the midnight sun on Christmas eve. On Wednesday, December 26, we crossed the Antarctic Circle.

#### ACCIDENT TO THE CHIEF ENGINEER.

ON the 28th our chief engineer, Johannesen, had the misfortune to break one of his legs and seriously injure his hand. He was, however, fixed up as well as possible by the poor medical skill at command. Both mates and I formed the medical board, and while one read in an old doctor's book the others acted. It was, by the way, mere luck that the engineer was not killed by his accident. We were in the ice-pack at the time, and as the floes spread, and left small pools of open water, we had a fresh northerly breeze, and it was decided to try to press southward with the aid of our sails. To prevent the ice from striking our propeller, the engineer had to turn the propeller shaft in the engine-room. To do this he had to apply a long and heavy iron bar which fitted into spurs in a solid wheel or ring on the shaft. He had often done this successfully, but on this occasion there happened to be some steam left in the cylinders. When he began to move the shaft, the engine, which had been at «a dead» before, suddenly started to work, and down came the iron bar with fearful velocity. It just missed the head of the engineer, who held on to it, threw him over, cut his right forefinger off, and broke his leg just above the ankle.

It was a long and dreary time for Johannesen down there in a dark hole near the engine, having nothing but lamplight, and hearing about the wonderful and unknown lands outside. However, he was an enthusiast in his calling, and although his pulse set off with feverish speed, it gradually settled down to the regular throbs of the engine



at his side. It was interesting to see this energetic man, with the philosophy of his profession, daily taking the circumference of his poor leg with a pair of compasses; and I should not have felt the least bit astonished if I had found him working away on his swollen limb with a large file to get it into its proper form.

Shortly afterward one of our youngest sailors went out of his mind. He had been very low-spirited, and as, owing to the accident to the engineer, he had to take a turn as stoker, his state grew worse. Misfortunes seldom come alone, and in an expedition where every one is dependent on another, an accident to one is an accident to all.

New Year's eve we were in latitude  $66^{\circ} 47'$ , longitude  $174^{\circ} 8'$ , at twelve o'clock. While the sun was shining brightly we rang the old year out and the new year in, and saluted with our guns in honor of the occasion. In latitude  $67^{\circ} 5'$ , longitude  $175^{\circ} 45'$ , I secured a specimen of a large penguin. I obtained only four of these birds in all, and I never saw one in company with another of its kind, which fact may account for the profoundly melancholy expression of this phlegmatic bird. I cannot but believe that even in those cold regions the old rule proves true, and that it is not good for penguins to be alone.

#### VICTORIA LAND.

ON January 14 we came again into open water, having spent thirty-eight days in working our passage through the ice-pack. A clear, open sheet of water was now before us, and not a breath of wind disturbed the surface of the sea. The only sign of ice was a small piece in the shape of a boat, on which four penguins appeared to be rejoicing, like ourselves, in the splendid weather and beautiful, clear sky. We steered straight for Cape Adare, Victoria Land, which we sighted two days later. On the 18th, in latitude  $71^{\circ} 45'$ , longitude  $176^{\circ} 3'$ , the temperature of the air was  $32^{\circ}$ , and of the water  $30^{\circ}$ ; the sky was perfectly clear. At noon we stood toward the bay to the northwest of Cape Adare. The cape, which is in latitude  $71^{\circ} 23'$ , longitude  $169^{\circ} 56'$ , rises to a height of 3779 feet, and consists of a large, square basaltic rock with perpendicular sides. From there we saw the coast of Victoria Land to the west and south as far as the eye could reach. It rose from dark, bare rocks into peaks of perpetual ice and snow 12,000 feet above the level of the sea, Mount Sabine highest of all, standing out shining in the rays of the mid-

night sun. Conical tops covered the plateaus, and ran over in mighty glaciers. I counted as many as twenty of them in the close vicinity of the Bay of Adare; one of them seemed covered with lava, while a thick layer of snow appeared underneath, resting on another layer of lava, and that again on the billowy surface of the glacier. A volcanic peak about 8000 feet high, which was comparatively free from snow, had undoubtedly been active a short time before.

#### POSSESSION ISLAND AND ITS PENGUINS.

ON the 18th we sighted Possession Island, with its peculiar contour standing sharply against the bright sky. We effected a successful landing on North Island, pulling our boat up on shore, where we were at once furiously attacked by penguins, which fairly covered the surface of the island, and seemed much annoyed at seeing us foreigners intruding on their premises. Their hoarse screams filled the air, and it was with considerable strain of my voice that on landing I addressed my countrymen in a few words, informing them that we were the second to set foot on this island. Sir James Ross had preceded us, having, fifty-four years before, landed there and planted the English flag. We gave three cheers for the great British navigator, and also for Commander Svend Foyn.

The penguins had half-grown young ones, and were often attacked by a gray robber gull which sailed about in large numbers. I saw two of these birds descend on the island and attack a penguin family. While one kept the old penguins out of their home, the other calmly picked a large piece out of the flesh of a young penguin. Indeed, so bold was this bird that several times I had to use my stick in self-defense. The surface of the island was covered with a deep layer of guano, which in time might prove very valuable to Australasia.

It was most remarkable to see what a regulated system of roads the inhabitants of Possession had arranged. From the beach a broad main track led straight into the middle of the island, and from this secondary roads went out to all parts, the whole forming a network of roads apparently ruled by a most civilized department. With beak and feet the penguins had carefully put away most of the pebbles and stones from their footpaths, and where snow covered the ground the roads had by constant use become so smooth and so neat that Macadam



in all his glory would have acknowledged himself beaten. The most curious thing of all was the way in which the penguins seemed to maintain order in these paths. Currents of penguins were continually moving from and toward the beach. While the fat new arrivals always kept to the right, the thin penguins, which were moving off to the continent, always kept to the left; and I never saw any fighting among them. The colony evidently formed one peaceful community.

Penguins are monogamists, and seem to have great respect for matrimonial contracts. I often wondered if the peace which reigned among the islanders came from the fact that penguins are so nearly alike. There could never be any cause for jealousy in the choice of wives, for one is exactly the image of another. Still, the right male seemed always to find his own wife. Morality seemed thus to rule among these myriads of penguins in this London Antarctica.

The penguins which we met here were the same kind that we met everywhere in the ice-pack. They were the short-bellied penguin. They are different from those northern penguins which we met on Campbell Island—the rock-hopper penguin, which are all crested: that is to say, they have over each eye a tuft of long yellow feathers, which gives them the appearance of Mephistopheles in miniature. Their hoarse scream suits their peculiar look.

Though the penguins which we met on Possession and on the mainland had not the yellow ornaments of their cousins in the North, they seemed quite happy with their own plain heads, and I never noticed that they tried to adorn themselves with borrowed feathers.

The island consists of volcanic vesicular lava, rising in the southwest into two pointed peaks 300 feet in height. The specimens of rock that I collected on Possession Island are entirely of volcanic origin. They are chiefly fragments of what seems to be a basaltic rock apparently belonging to two different ages. The fragments belonging to the older flow show evidence of the lava having been much frothed up by steam escaping from its pores, and are of a reddish or pinkish brown tint. The newer lava is denser and of a blackish-gray color.

I scaled the highest of the peaks, and called it Peak Archer, after E. Archer of Rockhampton, Queensland. To the west the island slopes gently upward, forming a bold and conspicuous cape, which, not having been named by Sir James Ross, was left to me to christen. I gave it the name of Baron Fer-

dinand von Mueller, whose scientific fame I had learned to value even when a boy.

#### DISCOVERY OF VEGETATION.

QUITE unexpectedly I found vegetation on the rocks about thirty feet above the sea-level. Vegetation never was discovered in such southerly latitudes before. It is a cellular cryptogamous plant—a lichen. Possession Island is situated in latitude  $71^{\circ} 56'$ , longitude  $171^{\circ} 10'$ . It was remarkably free from snow. I judged it to be from 300 to 350 acres in extent. We gave it the name of Sir James Ross Island. On the 20th we steamed southward, and sighted Colman Island at midnight on the following day. Finding the eastern cape of this large island unnamed, we called it Cape Oscar, in honor of our king, whose birthday happened to be that day. I noticed great irregularities in our compass at Colman Island, which doubtless contains secrets of scientific value that would be well worth the attention of future Antarctic expeditions. On the 22d we were in latitude  $74^{\circ}$ . No whales appearing, it was decided to head northward again, although we all regretted that circumstances did not permit us to proceed farther south.

#### THE FIRST LANDING ON THE ANTARCTIC CONTINENT.

ON the 23d we were again at Cape Adare, and the coast-line presented a most original and magnificent aspect, the huge snow-capped peaks shining and glittering with singular whiteness and beauty in the glorious light of the sun of noon and midnight.

Icebergs of large size were everywhere to be seen, and showed distinctly whether they were broken from the big barrier or discharged from the glaciers on Victoria Land. Like fairy palaces were these masterpieces of nature floating about, so clean, so pure, that the eye of mortal man seemed unworthy of such beauty—beautiful beyond description, terrible in their gigantic majesty, the crystals of their walls glittering in the sun, while caves and arches were half hidden in a mist of azure blue, and about them the ocean, roaring sometimes with great fury, threw waves far up against their perpendicular sides, to fall back again in clouds of foam.

We landed at Cape Adare that night, being the first human creatures to put foot on the mainland. A peculiar feeling of fascination crept over each of us, even to the most pro-





PHOTOGRAPHED BY JOHNSTONE, O'SHANNESSEY & CO., MELBOURNE.

C. EGERBERG BORCHGREVINK.

saic natures in our boat, as we gradually drew near to the beach of this unknown land. Some few cakes of ice were floating about, and looking over the side of the boat, I even discovered a jelly-fish, apparently of the common light blue, transparent kind. I do not know whether it was to catch the jelly-fish, or from a strong desire to be the first man to put foot on this *terra incognita*, but as soon as the order was given to stop pulling the oars, I jumped over the side of the boat. I thus killed two birds with one stone, being the first man on shore, and relieving the boat of my weight, thus enabling her to approach land near enough to let the captain jump ashore dry-shod.

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I had painted a Norwegian flag on a large box, which we fastened on a strong pole near the place where we landed; and leaving the rest of the crew to be entertained by the penguins, I proceeded alone to investigate the peninsula and to make collections. I found seaweed on the beach; but whether it had grown on the shores of Victoria Land remains to be ascertained in the future.

It seems to me that an investigation of the origin and consequences of the warm current running northeast which we experienced in Victoria Bay is of the greatest interest and importance. When we look upon those phenomena which cause and accom-





DRAWN BY THE AUTHOR.

IN THE CROW'S-NEST.





DRAWN BY THE AUTHOR.

#### THE MIDNIGHT SUN ON CHRISTMAS EVE.

pany the large currents of the ocean in the Northern hemisphere, we are justified in anticipating that in the Southern hemisphere similar phenomena take place. Norway would be almost uninhabitable if the Gulf Stream did not send its warm water along the Norwegian coast; and the rich fisheries in those waters and at Newfoundland, and on other well-known fishing-grounds, are all more or less dependent on currents of the ocean.

Is it, then, improbable that the warm current in the bay at Victoria Land plays a similar, even if inferior, part in the Southern hemisphere to that of the Gulf Stream in the Northern? When I take into consideration those phenomena which we already have as facts at hand from Victoria Land Bay, I am strengthened in my belief as to startling results of further investigations of the southern currents and of the shores they touch.

Our landing-place was a sort of peninsula gently sloping down from the steep rocks of Cape Adare until it ran into the bay as a long, flat beach covered with pebbles. The peninsula forms a complete breakwater for the inner bay. Penguins were, if possible, even more numerous here than on Possession Island, and they were discovered on the cape as far up as 1000 feet. These birds lead a strange sort of life. They often live

for days without food, for it must necessarily take them two or three days to reach an altitude of 1000 feet on the rocks where some of them were nested; and as the *Argonauta antarctica* and fish form their food, it is evident that in some way they can store away food for days. Having collected specimens of the rocks, and found the same cryptogamic vegetation here as on Possession Island, we again pulled on board, considerable difficulty being experienced in regaining our vessel, which had drifted nearly out of sight, and was separated from us by the heavy ice-drift.

#### FUTURE EXPLORATION.

I BELIEVE that Cape Adare is the very place where a future scientific expedition might stop safely even during the winter months. From the spot where we were several accessible spurs lead up to the top of the cape, and from there a gentle slope runs on to the great plateau of Victoria Land. The presence of the penguin colony, their undisturbed old nests, the appearance of dead seals (which were preserved like Egyptian mummies, and must have lain there for years), the vegetation on the rocks, and lastly the flat table of the cape above, all indicated





DRAWN BY THE AUTHOR.

MOUNT SABINE AND MOUNT ROBINSON.

that here is a place where the powers of the Antarctic Circle do not display the whole severity of their forces. Neither ice nor volcanoes seemed to have raged on the peninsula at Cape Adare, and I strongly recommend a future scientific expedition to choose that place as a center of operations. On this particular spot there is ample space for house, tents, and provisions.

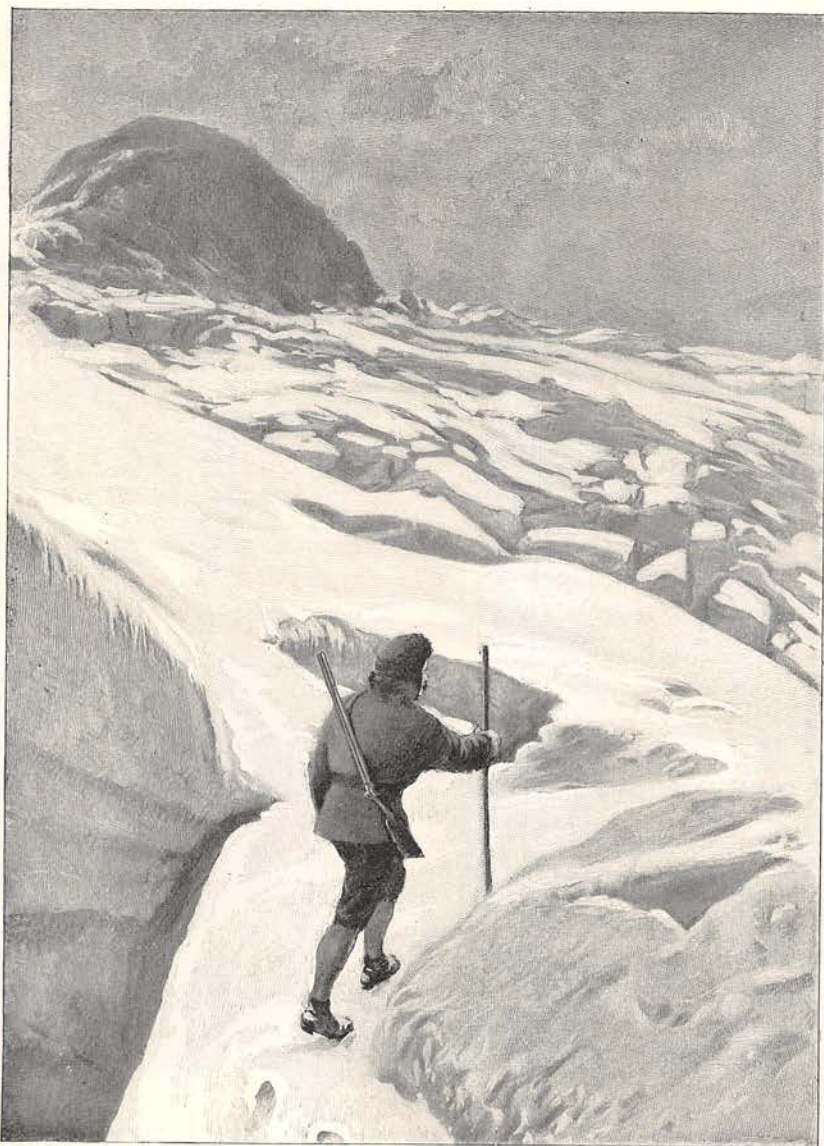
I myself am willing to be the leader of a party to be landed either on the pack or on the mainland near Colman Island. From there it is my scheme to work toward the south magnetic pole, calculated to be in latitude  $75^{\circ} 5'$ , longitude  $150^{\circ} E$ . Should the party succeed in penetrating so far into the continent, the course should, if possible, be laid for Cape Adare, there to join the main body of the expedition. As to the zoölogical results of future researches, I expect great discoveries. It would indeed be remarkable if on the unexplored Victoria continent, which probably extends over an area of 4,000,000 square miles, there should not be found animal life hitherto unknown in the Southern hemisphere. It is of course a possibility that the unknown land around the axis of rotation might be found to consist of islands joined only by perpetual ice and

snow; but the appearance of the land, the color of the water, with its soundings, in addition to the movements of the Antarctic ice, point to the existence of a mass of land much more extensive than a mere group of islands.

#### ANTARCTICA.

ANTARCTICA, whether a continent or an archipelago the islands of which are united by thick sheets of ice, is, as was said above, considered to have a superficial area of 4,000,000 square miles, being, therefore, larger than Australia. The great chain of volcanoes in Victoria Land rise over 15,000 feet above the sea. On the South American side of Antarctica is the active volcano of Bridgman and the large and partly submerged volcano of Deception Island, with a crater over five miles in diameter, the walls of which, built up of alternating layers of ice and volcanic scoriae, rise 1800 feet above the sea. Sedimentary rocks of the Eocene age, with fossil trees, were discovered in 1893 at Seymour Island; and the French ship *Talisman*, off the Antarctic continent many years previously, dredged fragments of rock containing a fossil plant characteristic of the Triassic rocks of Europe. Near Laurie Island, in





DRAWN BY THE AUTHOR.

BORCHGREVINK SCALING THE HIGHEST PEAK ON POSSESSION ISLAND.

the South Orkneys, limestone occurs. These rocks are of special interest as confirming the theory that Antarctica is a continent rather than an archipelago, for the microcline granite, with garnet and tourmaline and the mica-schists, must have had a continental origin, such rocks being almost unknown in oceanic islands.

#### AFTER SMALL WHALES.

AFTER struggling for several hours against tide and ice, we were observed from the crow's-nest, and fought our way safely to

the ship. We now stood northward again, and on the 26th, in latitude  $69^{\circ} 52'$ , longitude  $169^{\circ} 56'$ , again ran into the ice-pack. The following day we fired into a small-finned whale, the flesh of which forms an excellent dish. We had great difficulty in getting near enough to this monster to kill it. It ran out a considerable length of line, and the ice-pack being very dense, our boats could not reach it. Armed with a whale-lance, I jumped upon an ice-floe, from that to another, and soon struggled near where the whale was spouting, with its huge head above water, tearing and struggling on the line that held it. In approaching



the whale I got new proof of the deceptive appearance of the ice-floes. Jumping upon a large, thick block of ice, as I thought, I went straight through a soft mass of ice and snow; and it was with considerable effort that I kept myself from sinking until the men who had followed reached me a stick and pulled me up on the floe, where I lanced the whale.

These small whales gave us a good deal

boat, however, it shot straight down again, dragging the bow of the boat with it.

It was remarkable how quickly we all climbed into the stern of the boat, which soon was pointing in the air, clear of the water. I even found time to get my long ice-boots off, which fact pleased the old tars so much that we all joined in laughter on our perch, in spite of the imminent danger we were in.



DRAWN BY THE AUTHOR.

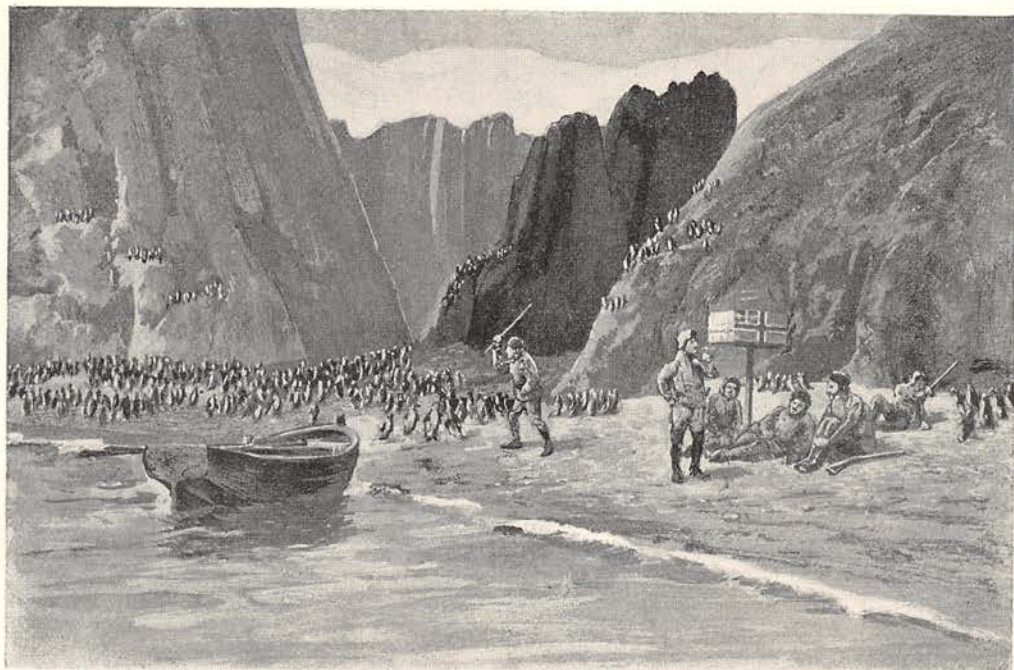
THE FIRST LANDING ON VICTORIA LAND.

of trouble. Thus, when we were once lying in a rather large pool of open water, we fired into one of them from the ship. We lowered a boat, and tried hard to get near it, but without success; every time it saw our boat, down it went. Then we resolved to try a rather risky game—«to underhaul the line.» We pulled the boat straight up to the vessel, where the line hung in a curve down to the water, from time to time tightening as the whale pulled on it. We placed the rope in the groove at the bow of the boat, and pulled away right merrily. Of course this went all right as long as the whale kept near the surface, and we managed to get close up to where it was spouting. When it saw the

#### THE AURORA.

On February 1, in latitude  $66^{\circ}$ , longitude  $172^{\circ} 31'$ , we ran into open water again, having this time spent only six days in the ice-pack. On the 17th the aurora appeared, stronger than I ever saw it in the North. It rose from the southwest, stretching in a broad stream up toward the zenith and down again toward the eastern horizon. The phenomenon this time had quite a different appearance from what we saw on October 20. It now presented long, shining curtains rising and falling in wonderful shapes and shades, sometimes seemingly close down to our masts-heads. It evidently exerted considerable in-





DRAWN BY THE AUTHOR.

OUR LANDING-PLACE ON THE MAINLAND.

fluence upon the magnetic needle of our compass.

#### SPERM-WHALES.

In latitude  $44^{\circ} 35'$ , longitude  $147^{\circ} 34'$ , we met with a great number of sperm-whales. We hunted them in our boats, and secured one, and I had on this occasion the opportunity to take a most active part in that brilliant sport.

It must have been about five in the afternoon when we discovered the sperm-whales, some three miles off to starboard. We lowered four boats, and pulled for our very lives to get near the place where they were swimming. Having reached them, we fired the gun at the bow, and the harpoon sank its whole length into the body of a whale. The wounded monster made one tremendous bound forward, blew air, water, and blood out of its spouting-hole with a noise like steam escaping from a safety-valve, hit our boat twice gently with its tail, and plunged into the deep with terrible force. In a minute we saw nothing but water and foam about us, and the line ran from aft, where it was coiled, along the boat, through our arms, and over the bow with great velocity—so rapidly that smoke arose from the wood of the groove at the bow, where the line descended into the depths. We stuck to this

whale till long after dark. Every time it came to the surface we made the line fast on board the boat, and skimmed along the ocean at tremendous speed. At last we had to take our line on board the vessel, as the sea grew rough and the wind freshened. All night the whale kept on pulling the large vessel at a speed of several knots straight against a strong breeze, and just at noon the next day we succeeded in killing it.

We struggled for several days with a furious storm of distinctly cyclonic character, which turned spirally from northwest to south, reaching its maximum strength from the south. We had to use oil to protect us from the enormous waves. We sighted the coast of Tasmania on the 4th of March, and entered Port Phillip on the 12th, five months and a half after our departure from Melbourne.

#### COMMERCIAL POSSIBILITIES.

THE recent Antarctic expedition was a commercial one, and commercially it was a failure, because we did not find the right whale, so valuable for its whalebone. The *Antarctic* was fitted out for the hunt of that particular kind of whale; nevertheless, I have no doubt that the commercial result of the expedition would have been much better had we worked under more favorable auspices.





DRAWN BY THE AUTHOR.

LANCING A WHALE IN THE ICE-FLOES.

I do not by any means consider the fact of our not having met with the right whale in those seas as conclusive proof of their non-existence in the bay at Victoria Land. The *Antarctic* found the right whale at Campbell Island in the winter-time; the boats fastened to five of them, of which, however, only one was caught. Now, to me it does not seem improbable that these whales go south to the bay of Victoria Land, where Ross saw them, in the summer, and return north in the winter. It would seem incredible that a man of Sir James Ross's standing, supported as he was by able scientists and experienced whalers, should have made a grave error when he said that this valuable whale was to be found in large numbers in those Southern latitudes.

The difference in the appearance of the blue whale, as we found it there, and the right whale, in the method of spouting, is so striking that even the most casual observer could not easily be deceived. Very possibly, had we penetrated farther into the large open bay discovered by Ross in the vicinity of the volcanic peaks Erebus and Terror, we too would have found the right

whale in great numbers. We saw very many blue whales, but had not the appliances to take them.

As I remarked at the International Geographical Congress, we found few seals. They increased, however, in number as we worked eastward, and seemed afraid of the land. All of the seals that we met on the shore showed much uneasiness, and speedily made for the water, a fact which strengthened my belief in the existence of a large enemy of the seal on the continent. I do not doubt that the seals congregate together in larger numbers at some places on the bay.

I consider the guano-beds which we discovered of great commercial importance, and they ought to be well worth the attention of enterprising business men. The specimen which I brought back with me contains a large percentage of ammonia.

Furthermore, from the analysis of the specimens of rock which I brought back with me, the possible and probable presence of valuable minerals on the continent is proved, although the lava and the volcanic aspect of the coast-line do not speak favorably for the presence of heavy metals near the surface.

C. E. Borchgrevink.