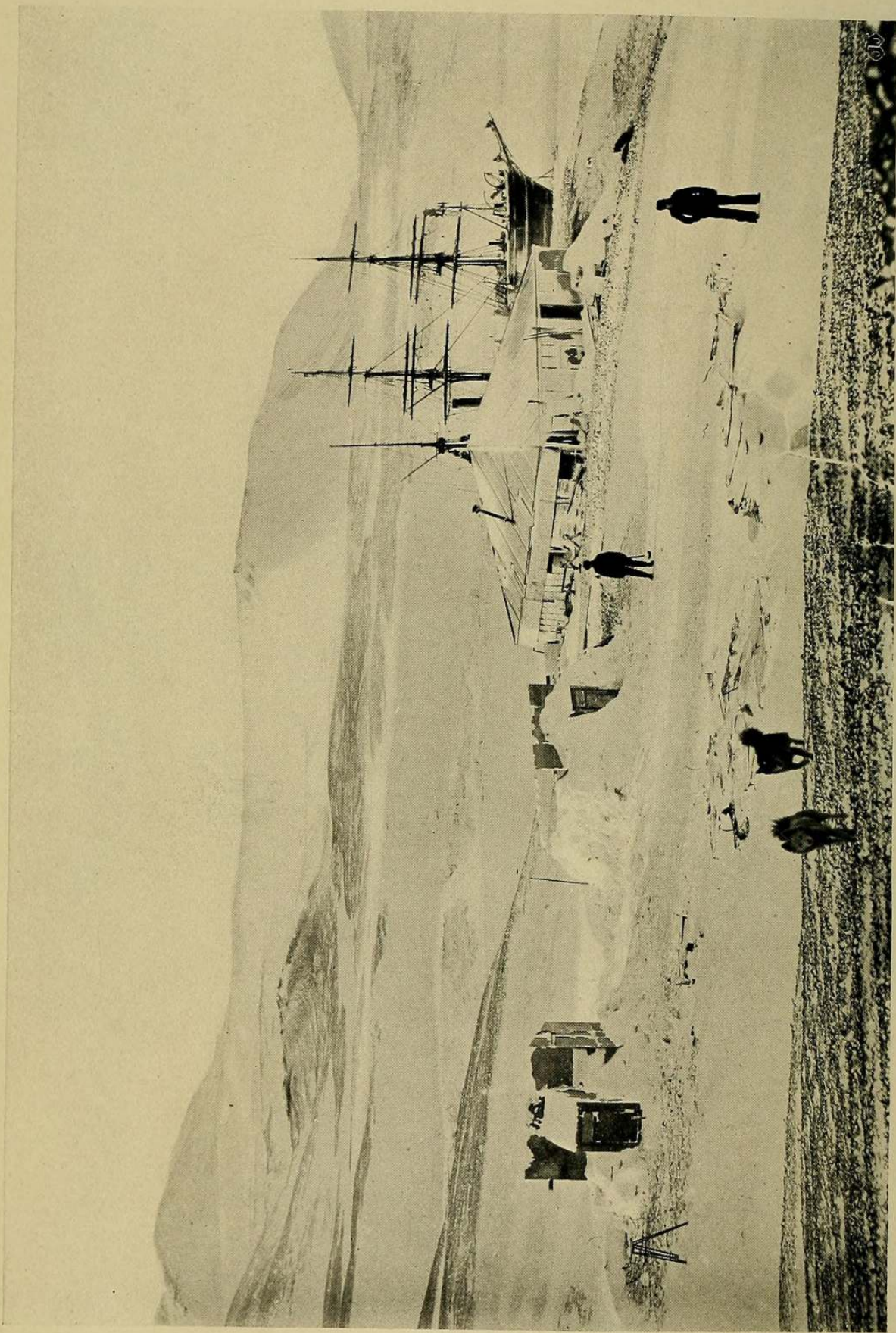




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TWO YEARS IN THE ANTARCTIC



WINTER QUARTERS FROM THE NORTH-WEST.

# TWO YEARS IN THE ANTARCTIC

BEING A NARRATIVE OF THE BRITISH NATIONAL  
ANTARCTIC EXPEDITION

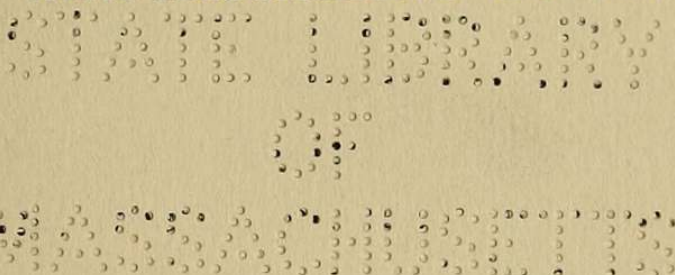
BY

*Boase*  
ALBERT B. ARMITAGE, LIEUT. R.N.R.

SECOND IN COMMAND AND NAVIGATOR OF THE 'DISCOVERY,' 1901-1904

SECOND IN COMMAND OF THE JACKSON-HARMSWORTH NORTH POLAR EXPEDITION, 1894-1897

WITH ILLUSTRATIONS AND MAP



LONDON

EDWARD ARNOLD

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## PREFATORY NOTE BY DR. NANSEN

WHENEVER I look back through the misty clouds of memory, there is one day in my life which stands out in bright sunshine, and that is June 17, 1896, when first I met Albert Armitage.

It was on the ice off Cape Flora in Franz-Josef Land, when, coming from the north with my companion Johansen, I met Captain F. G. Jackson and his companions. Desolate surroundings, perhaps, but to me they seemed hospitality itself. I still hear the distant noise of guillemots from the cliffs on the land further in, while a cordial welcome in Armitage's soft voice warmed my soul, and I looked into the open smiling face of a man with a noble heart.

From that moment dates our friendship. We spent several never-to-be-forgotten weeks together in those surroundings, where men learn to know each other better than in the streets of London. Since then I have always hoped to see Albert Armitage start again on some new Polar enterprise, having great faith in his abilities as an explorer; and I learnt, therefore, with great pleasure that he had been

appointed the second in command of the British National Antarctic Expedition.

He has now showed me a token of his friendship by asking me to write a preface to his book. I am proud to do so, although I do not see that I can say anything of importance. That he did most valuable work during this unusually successful expedition, conducted by the gallant Captain Scott, it is unnecessary for me to tell an English public, and that he has written a most readable and entertaining tale about it everybody will soon find out when he opens the following pages. It is told in a manner simple and straightforward—like the man himself. I can have no better wish than that it may find its way into many an English home, and, read at the fireside, may inspire many a young man to noble deeds, whether the battle be fought in the bustle of great cities or in the silence of those icy regions where men toil on at the drag-ropes of a heavy sledge for the advancement of human knowledge.

FRIDTJOF NANSEN.

LONDON,

*September 24, 1905.*



## AUTHOR'S PREFACE

I CANNOT call to mind ever reading an author's preface before I made up my mind to write this book. Then I did read some of them to find out the use of the thing. Well, it seemed good to me for various reasons.

Firstly, it enables me to answer this question—Why am I writing a narrative about the expedition when Captain Scott has brought out two volumes on the same subject? Because I think that a great number of people to whom Captain Scott's book will be out of reach will welcome a simple tale, devoid of scientific theories and speculations, which deals chiefly with the lives, during three years, of half a hundred men who were brought together to participate in a national expedition in which the people of their native land have taken such great interest.

Secondly, it serves a purpose in giving me a page or two in which to answer a question frequently addressed to me. 'What made you take to Polar exploration?' I was not born so, neither did I have any yearnings that way. In fact, if anyone had suggested such a thing a week before I joined the Jackson-Harmsworth Expedition, I should have laughed the idea to scorn.

Briefly, then, I was sitting at home one evening in March, 1894, enjoying a holiday granted me by my

employers, the directors of the Peninsular and Oriental Steam Navigation Company, when a letter arrived from the P. and O. office, saying that 'the promoters of the Jackson-Harmsworth Polar Expedition had asked the directors of the P. and O. S. N. Co. to lend them the services of an officer, fully qualified to act as nautical astronomer to the expedition.' I was told that the managing directors would have no objection to my applying for the post, and that the necessary leave would be granted. I did apply, and was made second in command by Mr. Harmsworth.

On my return to England I rejoined the P. and O. Co.'s service, and was requested by Sir Clements Markham to keep in touch with the Royal Geographical Society, with a view to joining a possible Antarctic expedition.

In June, 1900, I was asked by the President of the Royal Geographical Society to accept the post of second in command and navigator of the expedition about to proceed South under Commander Scott, R.N. I was then married, and left the decision to Mrs. Armitage. She gave her consent, and Sir Thomas Sutherland, G.C.M.G., Chairman and Managing Director of the P. and O. S. N. Co., was asked by Sir Clements Markham to grant my services to the expedition. At the same time I approached the general managers on the same subject. With their customary generosity when they believe that their officers may be of use in any undertaking of national importance, they granted me leave to accept the appointment on the same terms as they had previously allowed me to join the Northern expedition—that is, my seniority was to continue as though I was actively

serving in their own ships. Thus I became both a North and South Polar explorer.

Thirdly, this very convenient preface gives me an opportunity of expressing my gratitude to those who have helped and encouraged me in the fascinating work of Polar exploration.

It is with a feeling of sadness that I call to mind some of those who were so good to me when I left England for the Far North, for I shall never see them more on earth. My own dear mother I saw for the last time as she waved farewell to me from the deck of my old training-ship, H.M.S. *Worcester*. Mr. F. D. Barnes, late Managing Director of the P. and O., and Captains Almond and Murray, late nautical advisers to the same company, have all joined the great majority. No young officer could have received greater encouragement than they gave to me.

To Sir Clements Markham, who for so many years, as President of the Royal Geographical Society, has helped, both by word and deed, the young explorer, I would tender my grateful thanks.

I would also respectfully ask Sir Thomas Sutherland and the general managers of the Peninsular and Oriental Steam Navigation Company to accept the same from one of their officers for their generous behaviour to him on all occasions.

I shall always remember with gratitude, too, Sir Alfred Harmsworth, Captain Wilson-Barker, R.N.R., and Captain Angove, R.N.R., who have throughout consistently befriended me.

I wish also to express my sense of indebtedness for kind favours, to Mr. Montefiore-Brice; Mr. Edward Buck, Headmaster of H.M.S. *Worcester*; Dr. Chree and

Mr. Baker, of Kew Observatory ; Drs. Scott-Keltie and H. R. Mill ; Captain Ettrick Creake, R.N., late Superintendent of Compasses ; and to my beau-idéal of a Polar explorer, Dr. Fridtjof Nansen, to whom I am specially indebted for the generous manner in which he has always placed at my disposal the valuable experience gained by him during his great expeditions, and which has proved of such great service to me.

I tender my grateful thanks to Miss Wilding, of Fownhope, Christchurch, New Zealand, for her kindness in correcting the proofs of this book and indexing it, and to Dr. E. A. Wilson for the admirable sketches he has been good enough to contribute.

Lastly, good luck and kindly greeting to Captain Robert F. Scott, R.N., and all my comrades on both expeditions.

ALBERT B. ARMITAGE.

*August 18, 1905.*

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# TWO YEARS IN THE ANTARCTIC

## INTRODUCTION

SITUATED as we are some seven thousand miles distant from the Antarctic Circle, and having the Arctic Circle comparatively close to us, it is no wonder that the regions contained by the latter have eclipsed those contained by the former, in our estimation. And when we remember what scant knowledge of our own colonies in the South Seas was possessed, till recently, by the majority of us, even when we had kinsfolk residing there, it is only to be expected that the many voyages made in search of a great 'Terra Australis incognita'—voyages that have been of the greatest importance to the world in general, and to the British Empire in particular—should have been overshadowed by the exploits of navigators in the more familiar seas of the North.

Notwithstanding the discovery of the southern extremity of Africa in 1487 by Bartholomew Diaz, and of Cape Horn in 1588 by Drake, geographers persisted in the belief that, in the Southern Seas, a vast continent existed which embraced a portion of the globe including Tierra del Fuego and New Holland.

Indeed, it was not until Captain James Cook had twice circumnavigated the world, and three times

crossed the Antarctic Circle, during the years 1768 to 1775, that the myth of centuries was dissipated. For he had definitely proved that, instead of seas of comparative insignificance, a great ocean washed the southern shores of Africa, America, and Australia; and that, if land did cover the South Polar area in higher latitudes than those to which he had navigated his vessels, it was of such a wild and desolate aspect, so destitute of the merest necessaries of life, that it was extremely improbable that either man or beast existed there.

Forty-four years passed before the next serious expedition went to the Far South. It was despatched by the Czar of Russia in 1819, and, under the leadership of Bellingshausen, made a voyage, extending over two years, of great geographical importance.

He was soon followed by Weddell, 1822-1824, who reached latitude  $74^{\circ} 15' S.$  in  $34^{\circ} 17' W.$

Between 1830 and 1833 the Messrs. Enderby sent out no fewer than three expeditions. One of these enterprises, under the command of John Biscoe, circumnavigated the earth in high southern latitudes, discovering Graham Land, and Enderby Land.

In 1833 Kemp, a seal-hunter, discovered land in  $66^{\circ} S., 59^{\circ} 30' E.,$  which bears his name.

In 1838 Messrs. Enderby again fitted out two ships, which they placed under the command of John Balleny, who discovered the islands named after him, as well as other land more to the westward.

During the years from 1837 to 1841 three great expeditions were equipped for exploration in the Antarctic regions.

The first was sent out by the French Government.



It consisted of two corvettes under the command of M. Jules Dumont D'Urville. His ship, *L'Astrolabe*, and that of Captain Jacquinet, *La Zélée*, were neither of them fitted properly for the work required of them—which was to explore the Weddell Sea region to a higher southern latitude than that reached by Weddell—and consequently they were unable to penetrate the pack-ice which opposed them. D'Urville subsequently discovered Adélie Land and the Clarie Coast.

The second of these three expeditions was fitted out by the Government of the United States, and consisted of five vessels: the *Vincennes*, *Porpoise*, *Seagull*, *Peacock*, and *Flying Fish*. This squadron had as Commodore Lieutenant Charles Wilkes. He explored to the south and west of Palmer Land, and then proceeded in the same direction as that taken by Dumont D'Urville. He reported various groups of land between  $97\frac{1}{2}^{\circ}$  E. and  $157\frac{3}{4}^{\circ}$  E. longitude, not far from the latitude of the Antarctic Circle. The ships of Wilkes' squadron were, like those of Dumont D'Urville's, unfitted for the severe test to which they were put, and caused much discomfort and suffering to their crews, as well as great anxiety to the commanders. Notwithstanding this drawback, much valuable scientific work was carried out.

The third expedition was sent out by the British Government. Its chief object was to make a magnetic survey of the Southern regions, and to locate the South Magnetic Pole. For this purpose the *Erebus* and *Terror* were fitted out at Chatham. Captain James Clark Ross, R.N., was given command of the expedition, and commissioned the *Erebus*, the commander of the *Terror* being Francis Crozier. Both

vessels, already of stout build, were strengthened, and made as fit as possible to overcome the difficulties that lay before them. Ross had accompanied both Sir Edward Parry, and his uncle, Sir John Ross, on their voyages to the Arctic Seas. He had, too, discovered the position of the North Magnetic Pole, so had had much experience in ice-navigation and as a magnetic observer. The expedition left England on September 16, 1839, returning home on September 2, 1843. During that time Ross added enormously to the knowledge of the Antarctic regions, not only by his discovery of South Victoria Land, but in almost every branch of physiography. He reached latitude  $78^{\circ} 10' S.$  in  $161^{\circ} 27' W.$  His voyage stands out as one of the greatest and most completely successful of any that have been made in any portion of the globe.

The impression made by the voyages of Ross and his contemporaries—among whom we must include William G. Smiley, an American sealer who sailed round Palmer Land, and landed on Deception Island—was, that Antarctic exploration was a far more arduous undertaking than voyaging in the North Polar Seas.

However that may be, the claims of the Arctic regions came again to the fore, and, with the exception of a special magnetic survey made by Lieutenant More, R.N., in the *Pagoda*, to fill in the blank left by Ross, little was done to increase our knowledge of the Antarctic regions for many years.

During the years 1873 and 1874, Dallman, in command of the whaler *Grönland*, sent out by the German Society for Polar Navigation, visited Palmer Land and discovered the entrance to Bismarck Strait.

George Neumayer, who founded the Flagstaff Observatory at Melbourne, and later became Director of the German Naval Observatory, was at this time the chief advocate of Antarctic exploration.

In 1874 Sir George Nares, in H.M.S. *Challenger*, first crossed the Antarctic Circle by means of steam-power, reaching  $66^{\circ} 40' S.$  in  $78^{\circ} 30' E.$

In 1892 and 1893 the Dundee whaling fleet, consisting of the *Balæna*, *Active*, *Diana*, and the *Polar Star*, sought more profitable hunting in the Antarctic Seas than they were able to obtain in the North. They did not succeed in their quest of the valuable whalebone, but interesting scientific results were obtained by W. S. Bruce, who, together with W. I. Burn Murdoch, sailed with Captain Fairweather in the *Balæna*; and by C. W. Donald, who accompanied Captain Robertson on board the *Active*.

About the same time Leonard Larsen was sent South by a German company, in command of the Norwegian whaler *Jason*. When the Scotch whalers returned home, Larsen, accompanied by Captain Evensen in the *Hertha*, and Captain Pedersen in the *Castor*, made another attempt to glean wealth from the seas of the Antarctic. Although they did not succeed in doing this, they made valuable additions to geographical knowledge.

In 1894 the steam-whaler *Antarctic*, owned by Svend Foyn of Christiania, left Melbourne under the command of Leonard Kristensen, in a vain search for the whalebone of commerce, and landings were made on Possession Island and at Cape Adare, South Victoria Land.

By this time serious Antarctic exploration was

again to the fore. The whaling expeditions had proved that the ice met with in the South Polar regions could, with no great difficulty, be penetrated by well-found vessels supplied with adequate steam-power. The whole scientific world called for such exploration, which was not only an absolute necessity for the more abstract branches of science, but for the greater safety of the world's shipping, by adding to the knowledge of meteorology and of terrestrial magnetism, which could only be done by practical observations made in high Southern latitudes. The most eminent scientific men of the day brought their influence to bear. Professor Neumayer in Germany, Nordenskjöld in Sweden, Nansen in Norway, and such men as Sir John Murray, Captain Ettrick W. Creak, and Sir Clements Markham, in our own country, were among the strongest advocates of South Polar work.

In the meantime a small Belgian expedition left Antwerp in August, 1897, under the command of Adrien de Gerlache. To this expedition fell the honour of being the first to winter in the Antarctic regions, as they drifted for a year in the ice to the west of Graham Land, reaching  $71^{\circ} 36' \text{ S.}$  in  $87^{\circ} 39' \text{ W.}$

A German scientific expedition, under Professor Carl Clune, specially fitted for deep-sea work, reached  $64^{\circ} 15' \text{ S.}$  in  $54^{\circ} 20' \text{ E.}$ , in an unprotected steel vessel named the *Valdivia*, during 1898 and 1899. And a semi-commercial expedition was fitted out by Sir George Newnes, of *Tit-Bits* fame, and sent to Cape Adare under the leadership of C. E. Borchgrevink, a Norwegian who had, through the courtesy of

Mr. H. J. Bull, visited Cape Adare on board the *Antarctic*.

He had two Englishmen with him, one of whom, William Colbeck (magnetic observer and cartographer), subsequently commanded the relief ship *Morning* on the British National Antarctic Expedition. Louis Bernacchi, physicist to Sir George Newnes' Expedition, afterwards occupied a similar position on the *Discovery*.

Borchgrevink and his party wintered at Cape Adare. Their vessel, the *Southern Cross*, under the command of Captain Jensen, returned North until the following year, when, after picking up the explorers and examining the great ice-barrier of Sir James Ross, reaching  $78^{\circ} 50' S.$  in  $165^{\circ} W.$ , she returned to England.

Two important expeditions were now preparing for work in the Antarctic—one in Germany, the other in Britain—and ships were being specially built, the *Gauss* and the *Discovery*. Before they left for the South two more were being organized—one in Scotland by my old comrade, Mr. William S. Bruce, who sailed in the *Scotia* in 1902, and the other in Sweden, by Otto Nordenskjöld, who left Europe in the *Antarctic* in 1901.

Chiefly through the energy of Sir Clements R. Markham, President of the Royal Geographical Society, who was supported by the Royal Society, the Government granted £45,000 towards an Antarctic expedition, on condition that a like sum was raised by the Societies. A fellow of the Royal Geographical Society—Mr. Llewellyn Longstaff—made the generous donation of £25,000 towards the funds, other subscriptions

quickly flowed in, and the Royal Geographical Society guaranteed the remainder. The Admiralty loaned the services of Royal Naval officers and men and the necessary instruments. Commander Robert Falcon Scott, R.N., was appointed commander of the expedition.

The *Discovery* was launched on March 21, 1901, by Lady Markham, at Dundee, and, after being masted and engined, steamed to London for shipment of stores, etc. In the meantime we were all busily engaged in preparations for our work on the expedition, and each one of us had to undergo a searching medical examination, the teeth especially being looked to. By the end of July, 1901, all was ready for our departure.

One of the principal objects of the expedition was to make a magnetic survey in the Southern regions to the south of the fortieth parallel. The *Discovery* had been specially fitted, at considerable cost, for this purpose. Within a circle of 30 feet, which had as its centre the Fox compass position in the magnetic observatory, no magnetic metal was used in the ship's construction, and all the rigging on the foremast was of hemp. To obtain corrections for her compasses we had to go to Spithead. His Majesty the King had graciously signified his intention of inspecting the *Discovery* before her departure from Cowes. Accordingly, after the compass adjustments were completed, we steamed towards the moorings of the royal yachts, and, seeing a vacant buoy, we shackled on to it. Hardly had we done so, when a launch came alongside with permission for us to remain where we were. It seems that we had made fast to one of the royal yacht buoys.

The following day, after the ship had been cleared

of all strangers, their Majesties the King and Queen and H.R.H. Princess Victoria, accompanied by Sir Francis and Miss Knollys and a naval staff, boarded the *Discovery*. They showed the very greatest interest in everything. It was not only the objects of the expedition, the scientific laboratories, instruments, etc., that attracted their attention. They desired to know also what had been done towards ameliorating the conditions of life in the icy regions to which we were bound, and I well remember how the Queen felt the mattresses in our bunks to test their softness.

After the inspection, the King gave an encouraging address to the ship's company, and, to show his deep interest in our undertaking, presented the Victorian Order of the Fourth Class to Captain Scott, and large signed portraits of himself and the Queen to the wardroom mess. With a cheery word to us all and a hearty grasp of the hand, the King with the royal party then went over the side. It would have been difficult to find a more gratified or more loyal body of men gathered together in His Majesty's dominions than those on board the *Discovery*, as they gave three cheers for their King and Queen.

Being the first week in August, the anchorage off Cowes was, of course, crowded with yachts, and for the remainder of the day the *Discovery's* decks were filled with people who wished to visit the strange craft that presented such a marked contrast to her gay surroundings.

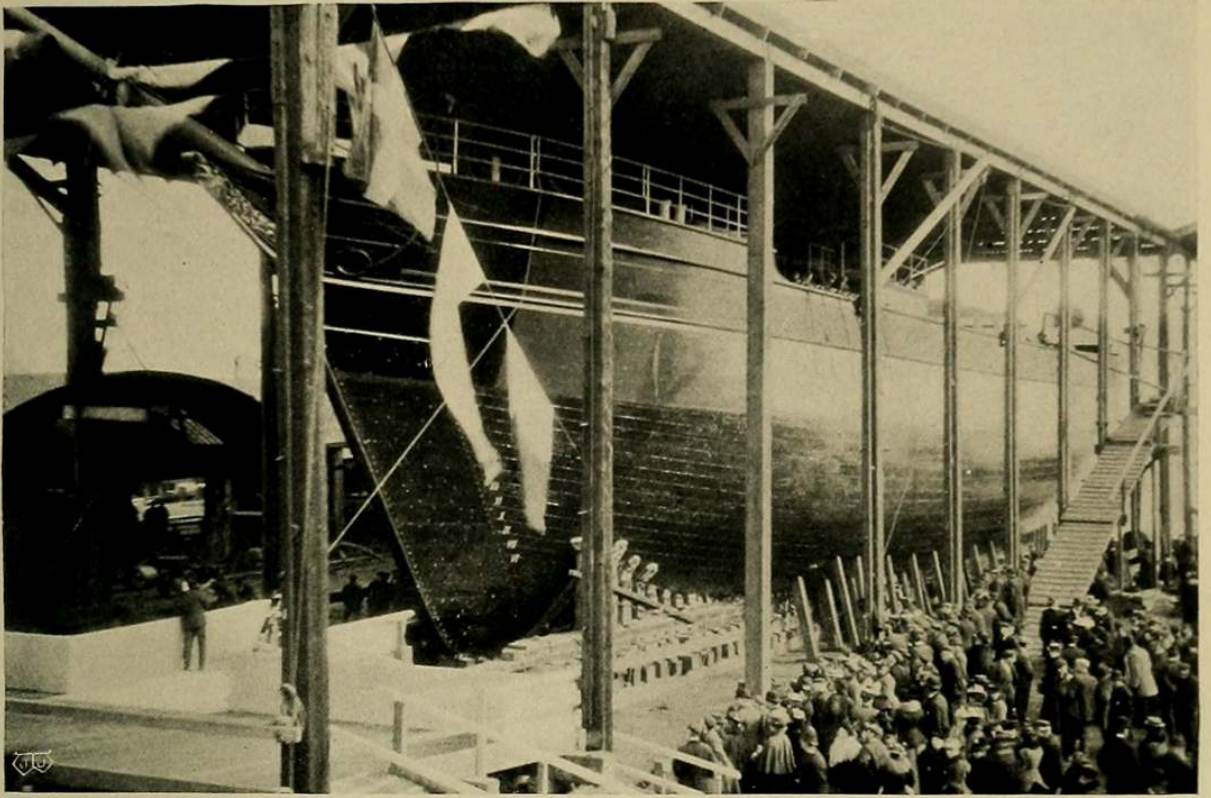
The *Discovery* had been designed by Mr. W. Smith, R.N., Naval Constructor. Her length, over all, was 178 feet; beam 34 feet; and draught 19 feet. Her sides, where protected, were  $2\frac{1}{2}$  feet in thickness, being

built of an inner planking of oak and an outer sheathing of greenheart. Two special features of her hull were the bow and the stern. The bow, which was strengthened by a mass of timbers that made it practically solid in a fore and aft line for nearly 11 feet, was fortified by steel plates, and sloped away at a considerable angle towards her keel, so that she should be able to ride up on to, and break down, the ice when she charged it. Her stern was rounded and very full, giving her a somewhat heavy appearance aft. Mr. Smith hoped that this form of stern would protect the ship's rudder and propeller. It proved a great success, notwithstanding the grave forebodings of many 'old salts' who had criticised it. Her rudder, which was specially heavy, was another happy design of Mr. Smith's, and could easily be unshipped when necessary. This was the case, too, with her propeller. She was lightly rigged for her 1,000 tons displacement, but had auxiliary steam-power, which would propel her at the rate of nine knots an hour under favourable circumstances. Altogether she looked a very serviceable vessel, fit in every way to encounter and withstand the stormy seas and ice-floes of the Southern oceans.

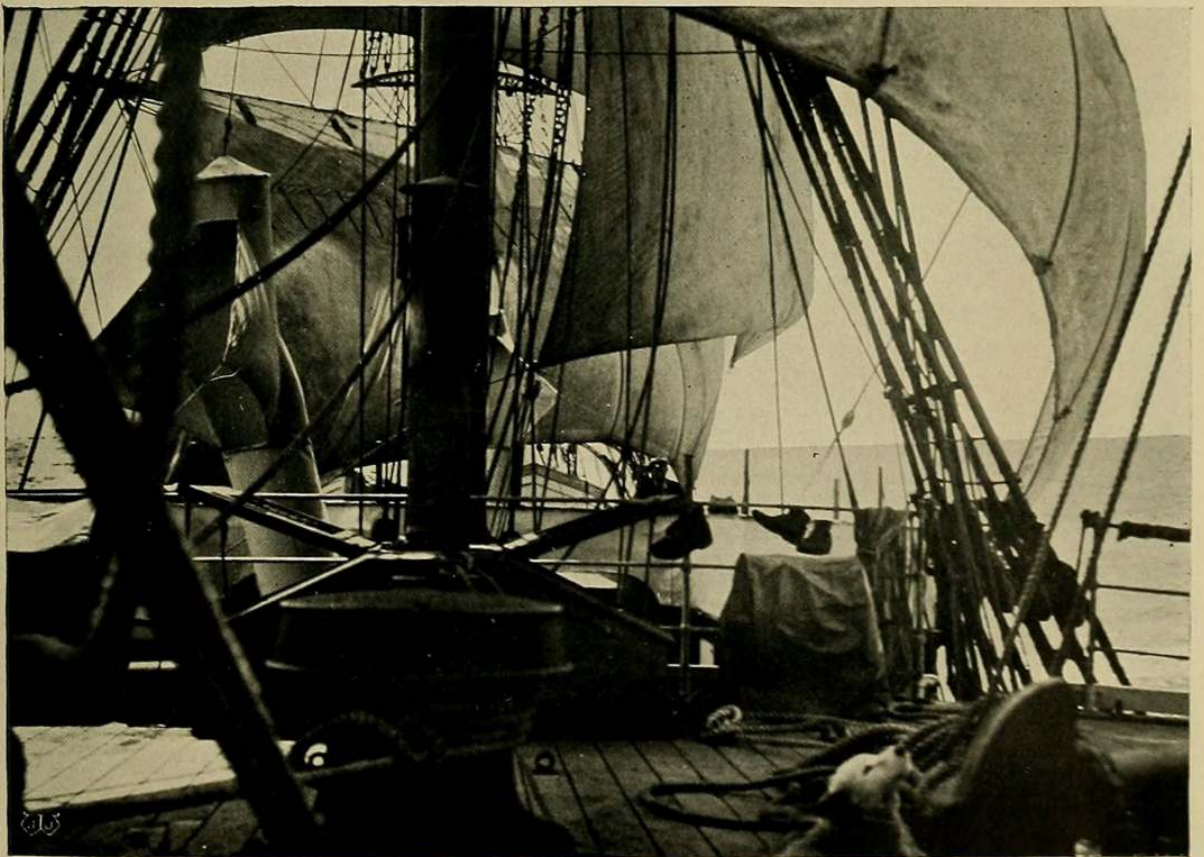
Although the whole ship's company signed articles, as on an ordinary merchant service vessel, Captain Scott being master, myself mate, Royds second mate, etc., these terms were never used; for the great majority of the people on board were Royal Naval men. Therefore I was always known as the Navigator, Royds as First Lieutenant, and the others as Lieutenants.

The following is a brief biographical sketch of the officers and members of the scientific staff:—





THE *DISCOVERY* BEFORE LAUNCHING.



ON THE MAIN DECK.



Commander Robert Falcon Scott, R.N., M.V.O., F.R.G.S. Born June 6, 1868. Joined the navy in 1886. Torpedo Lieutenant of the *Majestic*. Had been through a course of surveying and magnetic observations. Recommended by Captain Egerton (Arctic Expedition, 1875) for the command of the expedition.

Albert Borlase Armitage, Lieutenant R.N.R., master mariner, chief officer P. and O. service. Born in Perthshire, July 2, 1864. Navigator and second in command of the expedition, and in charge of the magnetic observations at sea. *Worcester* cadet, 1878. Second in command of, and observer to, the Jackson-Harmsworth North Polar Expedition, 1894-1897. Received the Murchison Award from the R.G.S. in May, 1899.

Charles W. Rawson Royds, Lieutenant R.N., F.R.G.S. Born February 1, 1876. Joined the navy from the *Conway* training-ship. In charge of the meteorology. Underwent a course of instruction at Ben Nevis Observatory.

Michael Barne, Lieutenant R.N. Born October 15, 1877. Joined H.M.S. *Britannia*, 1891. Served with Captain Scott in the *Majestic*. In charge of the sounding gear.

Ernest Shackleton, Sub-Lieutenant R.N.R., F.R.G.S. Born November 4, 1874. Entered the merchant service in 1890. Third officer in Union Castle Line. In charge of sea-water analysis. Invalided after one year's service in the Antarctic.

George Mulock, Lieutenant R.N., F.R.G.S. Born February, 1882. Joined H.M.S. *Britannia*, 1895. Joined relief-ship *Morning* in 1902. Relieved Lieutenant Shackleton at winter quarters in 1903. Surveyor and cartographer to the expedition.

Reginald Skelton, Engineer-Lieutenant, R.N. Born June, 1872. Joined the navy in 1887. Served with Captain Scott in the *Majestic*. Photographer to the expedition.

Reginald Koettlitz, M.B., etc. Born December 23, 1861. Studied at Guy's. Surgeon to the Jackson-Harmsworth North Polar Expedition, 1894-1897. Senior member of the scientific staff; botanist and bacteriologist to the expedition.

Edward A. Wilson, M.B., etc. Born July 23, 1872. Educated at Cheltenham College; Caius College, Cambridge; and a student of St. George's Hospital. Zoologist and artist to the expedition.

T. V. Hodgson. Born February 19, 1864. Lately Curator of the Plymouth Museum, and in charge of the Marine Biological Station at Plymouth. Biologist to the expedition.

H. T. Ferrar. Born June 28, 1879, in Ireland. Educated at Oundle School and Sydney Sussex College, Cambridge. In charge of the atmospheric carbonic anhydride determinations. Geologist to the expedition.

Louis C. Bernacchi, F.R.G.S. Born November 8, 1876, in Brussels. Educated in Tasmania and at Melbourne Observatory. Meteorological and magnetic observer to Sir George Newnes' Antarctic Expedition. Physicist and magnetic observer. Joined the *Discovery* in New Zealand.

The warrant officers, petty officers, and men are all mentioned by name in the narrative. It suffices to say here that the eldest was thirty-five years of age, and the youngest twenty-one years old.

With the exception of Arthur Quartly, who had

joined from H.M.S. *Majestic*, and hailed from the United States, all were sons of the British Empire. England, Scotland, Ireland, Wales, and New Zealand, were all represented, and nearly all of them were Royal Naval men. Dr. Koettlitz, although a Prussian by descent on his father's side, was by education an Englishman, and related, through his mother, to a well-known English family. Bernacchi was of Italian and Flemish descent, but had been educated from his early youth in Australia. The name 'British National Antarctic Expedition' was thus no misnomer, every member of it being a British citizen.

Mr. George Murray, F.R.S., of the Natural History Department of the British Museum, accompanied the *Discovery* to Cape Colony as scientific director; and Dr. Hugh Robert Mill took passage with us to Madeira.

Before sailing, instructions were issued by the Royal Society and the Royal Geographical Society to the Commander of the Expedition and to the Director of the Civilian Scientific Staff. The following extracts are taken from the former document :

'The objects of the expedition are—(a) to determine, as far as possible, the nature, condition and extent of that portion of the South Polar lands which is included in the scope of your expedition; and (b) to make a magnetic survey in the southern regions to the south of the fortieth parallel, and to carry on meteorological, oceanographic, geological, biological and physical investigations and researches. Neither of these objects is to be sacrificed to the other.

'A German expedition will start at the same time as the *Discovery*, and it is hoped that there will be

cordial co-operation between the two expeditions as regards magnetic and meteorological observations, and in all other matters if opportunities offer for such co-operation.

‘ On reaching the South water you are at liberty to devote to exploration the earlier portion of the navigable season; but such exploration should, if possible, include an examination of the coast from Cape Johnson to Cape Crozier, with a view to finding a safe and suitable place for the operations of landing in the event of your deciding that the ship shall not winter in the ice.

‘ The chief points of geographical interest are as follows: To explore the ice barrier of Sir James Ross to its eastern extremity; to discover the land which was believed by Ross to flank the barrier to the eastward, or to ascertain that it does not exist; and generally to endeavour to solve the very important physical and geographical questions connected with this remarkable ice formation.

‘ If you should decide that the ship shall winter in the ice, the following instructions are to be observed:

‘ Your efforts, as regards geographical exploration, should be directed, with the help of depots, to three objects—namely, an advance into the western mountains, an advance to the South, and the exploration of the volcanic region.

‘ In the unfortunate event of any fatal accident happening to yourself, or of your inability from sickness or any other cause to carry out these instructions, the command of the ship and of the expedition will devolve on Lieutenant Armitage, who is hereby directed to assume command and to execute such part of these

instructions as have not been already carried out at the time of his assuming command. In the event of a similar accident to Lieutenant Armitage, the command is to devolve on the executive officer next in seniority on the articles, and so on in succession. The *Discovery* is not one of His Majesty's ships, but is registered under the Merchant Shipping Act, 1894.

'The *Discovery* is the first ship that has ever been built expressly for scientific purposes in these kingdoms. You may rely on our support on all occasions, and we feel assured that all on board the *Discovery* will do their utmost to further the objects of the expedition.'

## CHAPTER I

### THE VOYAGE TO NEW ZEALAND

Departure from England—Madeira—Scientific instruction and work on board—An unpleasant discovery—South Trinidad Island—In dock at Cape Town—Busy days on shore—*En route* for New Zealand under sail—A baptism of ice—Macquarie Island—A sea-elephant—Penguin and skua gulls—Port Lyttelton—New Zealand hospitality—Preparations for departure—A sad accident—Dunedin.

AT noon on August 6, 1901, the *Discovery* quietly slipped her moorings, and as she gathered way we could see a number of small yachts bearing down on her. They were evidently engaged in a race, so I telegraphed 'Full speed ahead' in order to clear them. At the same time a launch was noticed astern, overhauling us, and signalling to us to stop. The First Lord of the Admiralty was on board her, so of course we had to do so, and Lord Selborne boarded us to inspect the ship and wish us all success. We had stopped right in the course of the small-raters, and we were filled with admiration of the smart manner in which their crews handled the beautiful little vessels as they went about within a few feet of the *Discovery*, at the same time treating us to a really fine display of their command of the English language.

When Lord Selborne had concluded his visit, we again proceeded, followed by a launch as far as Yar-



mouth, in the Isle of Wight, where the relations of Captain Scott and some of the officers bade us farewell.

Between England and Madeira we saw something of the *Discovery's* sea-going qualities. The long westerly swell as we cleared the Channel gave us a forecast of what to expect in the way of rolling when she really got her opportunity. It was a nice easy roll, however, causing no inconvenience to the inside of anybody but the senior surgeon and the chief steward.

Although a special Antarctic manual, edited by Mr. George Murray, F.R.S., had been compiled for the use of the expedition, to which some of the leading scientific men of the day had contributed, we thought ourselves peculiarly fortunate in securing the services of such an expert in oceanographical work as Dr. Hugh Robert Mill, D.Sc., etc. He gave daily instruction to those members of the expedition who had charge of the instruments employed to find out the temperature and salinity of the sea, both at its surface and at various depths. He initiated Wilson into the mysteries of Forel's xanthometer—a colour scale by which the colour of the sea-water is measured—and pointed out to our wondering eyes the beautiful green ray with which the sun signals his disappearance to the watchful observer. Dr. Mill, too, as an enthusiastic meteorologist, was of great service to Royds, and all of us were sorry to lose our cheery messmate when he left us at Madeira.

Mr. Blandy and his brother hospitably entertained us during our short stay off Funchal, in Madeira. We let go our anchor at 2 a.m. on August 15, and, after

coaling and repairing some faulty ironwork, we finally departed the next day, a small tug giving us a four-miles offing. Under full sail we made good progress through the north-east trades, passing through the Canaries in thick weather, so that we obtained a very poor view of them.

We soon settled down, each in his appointed place. The days glided quickly by, for the sea is ever full of interest and ever changing.

We were all most interested in Koettlitz's special work, the phyto-plankton, and on many occasions quite a crowd of us would gather at the door of his laboratory, awaiting our turns to examine some beautiful specimen that he had captured in his tow-net. The first new one he discovered was named *Peridinium Scottianum* after Captain Scott. The Captain brought his inventive genius to bear on the tow-nets, and much improved on the original ones supplied to the expedition.

The meteorological screen was fixed on the outside of the botanical laboratory, where a current of air would be generally blowing past it, and it would not be exposed to the sun. It contained wet and dry bulb thermometers, a mercurial maximum, and a Sixe's maximum and minimum thermometer. A thermograph and a hair hygograph were placed on brackets secured outside the magnetic house. A Kew pattern barometer was suspended inside the magnetic house (unshipped when magnetic observations were being made), and two or three barographs, set to Greenwich mean time, were kept going in various places. A marine rain-gauge, after Dr. Black's pattern, was situated on the gas cylinders that were stowed on the starboard after deck-house.

We had been supplied with a number of Hargrave's pattern box-kites and several light aluminium meteorographs to be attached to them. I had seen similar kites flown with great success in England, but these of ours were most erratic in their flight, and just when we were congratulating ourselves that they were going to remain steadily at the giddy height they had attained, down they would dive, to be hauled on board in a sopping, broken condition. Indeed, the only time that I remember one of them to have achieved even partial success was on an occasion when a meteorograph was attached to it, and it carried away the line by which it was held captive, sailing steadily and serenely away to the south until lost to view. I have often wondered where it brought up.

The crew took a great interest in all the scientific work that was going on, and to enhance that interest both Murray and Hodgson gave illustrated lectures, the former on 'Minute Marine Vegetation,' and the latter on 'Crustacea.'

Nearly every day we played deck-cricket, and occasionally, in the evening, we held a concert on deck. Deck-golf, boxing, and single-stick also had their votaries.

When we were seventeen days out from England, it was discovered that in the main hold the lowest tier of cases, containing our provisions, was awash, evidencing a somewhat severe leak, so all hands were busily engaged in getting the cases of provisions on deck. Many of them were quite black, and far from sweet-smelling, so all those that appeared at all damaged were opened, the tins sorted, and while some were condemned to be thrown over the side, others

were cleaned and repacked. A platform of planks was built in the holds, and the whole of the provisions were restowed under the supervision of Shackleton, who was in charge of the holds and provisions.

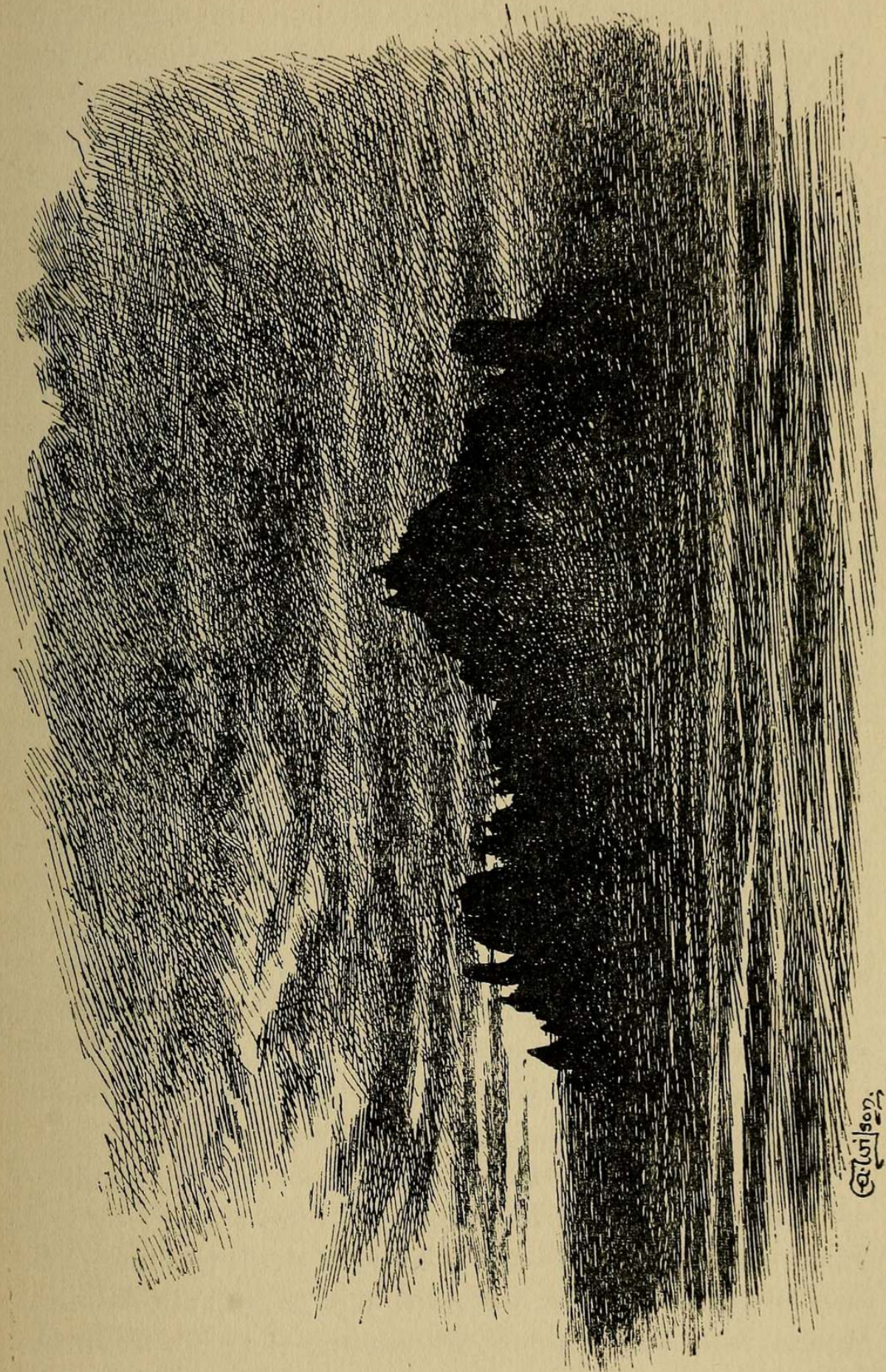
We crossed the line when twenty-five days out from home, and of course had the time-honoured jollification. Wilson, Hodgson, and Ferrar, as well as some of the crew, underwent the ordeal of being shaved and ducked by Neptune's satellites, who performed their duties in the most thorough manner.

Captain Scott decided to make for South Trinidad Island and land there. It was well known, of course, for many ships have visited it in recent times. We had Mr. E. F. Knight's 'Cruise of the *Falcon*' on board, and most of us had read his interesting account of his landing on the island. On September 13, at 5 a.m., the island was sighted, enveloped in a haze of golden light from the rays of the rising sun, and at 10 a.m. we were close to it.

Captain Scott, Royds, Shackleton, Skelton, all the scientific staff, and several of the crew, landed, from two whale-boats, on the natural causeway described by Knight, and as soon as I saw that they had safely done so, we stood off shore for a couple of miles.

All the hands left on board put over fishing-lines, but caught nothing, although several sharks nibbled the tempting bait. Barne helped me in swinging ship for deviations of the compass, until we saw that the shore party were ready to leave the island, when we steamed in as close as possible to pick them up.

A heavy south-west swell was rolling in at the time, and as, by the time the boats were alongside, it was quite dark and we were being rapidly set towards the



SOUTH TRINIDAD—SIGHTED AT SUNRISE.

W. Wilson.

shore, I felt very much relieved when the boats were clear of the water and we were able to steam away. They had spent a glorious day on shore, and made a varied collection of tree-ferns, fish, birds, eggs, insects, worms, rocks, and bruises. Skelton found a petrel new to science; it has since been named *Æstrelata Wilsoni*, after Dr. Wilson. Perhaps the most remarkable features of the island are the dead tree-trunks and the land-crabs, which swarm everywhere.

And now we stood away for the Cape of Good Hope, seeing, as we got further south, numbers of albatrosses, Cape pigeons, etc., which we endeavoured to catch by various devices. The Captain invented a wondrous trap, something like a canoe, but the birds fought shy of it. Skelton, however, succeeded in catching some fine specimens of the albatross, and Wilson hauled in the pretty little Cape pigeons by means of thread, in which they entangled their wings as they flew across our wake.

At 6 a.m. on October 3 we sighted Table Mountain, and arrived in dock at Cape Town at five the same evening. As soon as we were moored alongside the quay, Barne and I went on shore to find out what arrangements had been made for the magnetic observations. Sir David Gill received us at the Observatory, and showed us over the beautifully-arranged buildings. He then directed us to Professor Beattie's house, where, he said, we should hear all particulars.

The following day the *Discovery* commenced coaling, while Barne and I proceeded to Simon's Town by rail, accompanied by Professor Beattie with all the magnetic instruments. On our arrival we called on Admiral Moore, who was most kind, saying that he would do

all in his power to aid the expedition. He ordered special moorings for the *Discovery*; had all our instruments conveyed to the rifle-range on top of Red Hill (900 feet), where we were to observe; and invited Barne and myself to be his guests during our stay at Simon's Town. We then climbed to the summit of Red Hill, the Admiral riding after us to choose a site for the tents which he procured for us. There we were introduced to Lieutenant Russell, R.M.L.I., and Dr. Bunton, R.N., who were in charge of the marines from the fleet, who were carrying out firing practice. Kennar, one of our quartermasters, who had come with us to look after the tents, was stationed at the range-keeper's house. Later we returned to Admiralty House, and were introduced to Miss Moore, our hostess; Miss Phillips, her niece; and Lieutenant Fitzroy Talbot, R.N., Flag-Lieutenant to the Admiral.

Next day we erected the tents, and prepared everything for observing. Then we paid a visit to the Boer prisoners' camp, where one of the officers very kindly showed us over the place, and introduced us to some of the captives. One blonde giant, who had been captured at Paardeburg, said that he wished he could go South with us and see the world, but had no desire to visit either Bermuda or Ceylon.

A platform surrounded the buildings and tents, from which all parts of the encampment could be seen; and as we were walking round it we saw a fine-looking man on the veranda of one of the buildings, whom we were told was Major Albrecht. The officer with us shouted out to him, and pointed to the *Discovery*, which had just come in sight, and then told him that a German expedition also was going to the Antarctic in a vessel

named the *Gauss*. He appeared very much interested, and asked several questions about the expeditions.

A naval working-party was told off to the *Discovery*, and divers cleaned her bottom. Barne and I climbed the hill every day, and made observations with all the magnetic instruments that were used at sea, while Messrs. Beattie and Morrison, assisted by Mr. Lowvenger, of the South African College, observed with the absolute instruments of the expedition as well as with their own.

Snakes abounded on Red Hill, and we collected several for Wilson. On one occasion a group of us were photographed in front of the officers' quarters. Barne was holding in his hand a very venomous snake, supposed to be dead, but on turning my head I saw the creature snapping its jaws an eighth of an inch from my ear, so I hurriedly shifted.

The days passed quickly away, and by October 13 we had finished our work on shore. We shall never forget the kindness that we received from Admiral and Miss Moore during our stay at Admiralty House; and though we were eager to proceed on the voyage, our hearts were sad as we bade adieu to such generous friends.

After swinging ship for deviations of the compass, etc., we departed from Simon's Bay on October 5, at 1 p.m., being cheered away by the fleet. Mr. George Murray left us here, receiving three hearty cheers from the ship's company as the launch steamed away from the ship's side.

The day after we left Simon's Bay we stopped for a couple of hours for trawling and fishing in 58 fathoms of water. The otter trawl was unfortunately lost,



through the line carrying away, but we caught several fish — bream I think they were — most brilliantly coloured.

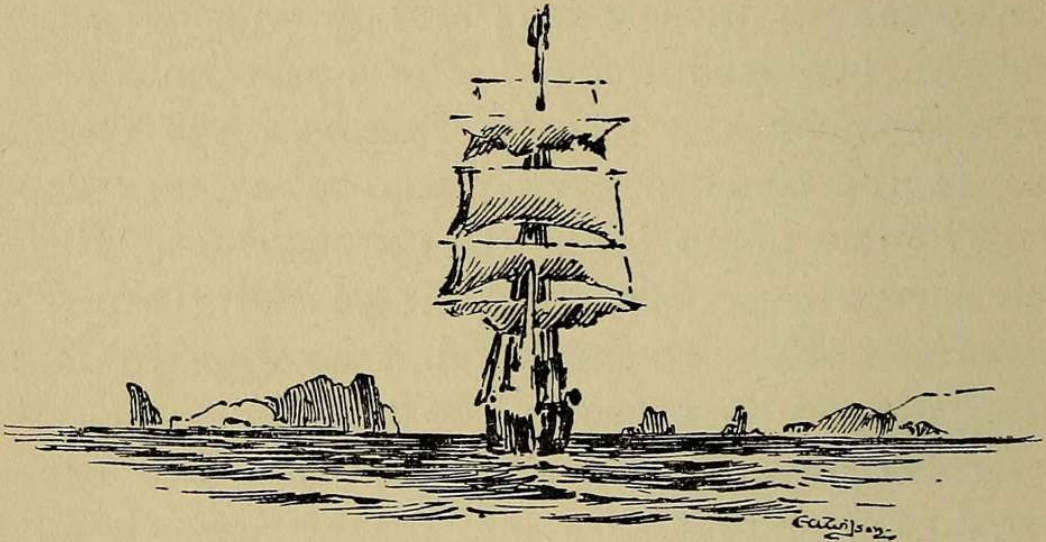
We were soon in the westerly winds, and were able to do without the engines, the ship making good progress under sail alone. Although the ship rolled very heavily and was exceedingly lively, she behaved admirably, notwithstanding the high, and at times tempestuous seas by which she was continually threatened. On only two occasions did she take much water on board : once when, in a sudden shift of wind, she was caught by the lee ; and on another occasion when she broached to, and the quartermaster was thrown over by the wheel. I was in the magnetic house at the time, observing, and was quite flooded out. The fore upper topsail was drenched by the sea, which swept over the bridge, knocking down the Captain and officer of the watch, who were there, and flooding the waist between the high bulwarks. The quartermasters were very careful to pay attention to the brakes after that.

We sighted a faint outline of Possession Island, Crozet Islands, but were too far south to see anything of Kerguelen Island.

One morning, in about  $47^{\circ}$  S.,  $89^{\circ}$  E., we passed the dead body of a man. It was blowing a whole gale at the time, and the ship was lurching violently in a mountainous sea, while violent squalls with thick snow and hail continually swept over us. Poor fellow ! perhaps he had been torn from his floating home by some huge wave, or had fallen from aloft as he endeavoured to furl a sail in weather such as that we were then experiencing.

We had been instructed to dip to the southward on our voyage to New Zealand, in order to examine a magnetic focus between latitudes  $45^{\circ}$  S. and  $60^{\circ}$  S., and between longitudes  $120^{\circ}$  E. to  $140^{\circ}$  E. This we did, and pushed on to  $62^{\circ} 50'$  S. in  $139^{\circ} 40'$  E., giving the *Discovery* her first baptism of ice on November 16.

She pushed through the ice very well under sail alone until she was brought up as the pack got tighter. Then steam was raised, and she freed herself without the slightest difficulty. As we left the ice



THE 'DISCOVERY' AMONG THE POSSESSION ISLES.

astern of us, we saw one small berg, the only one observed by us the whole way out to New Zealand.

We then made for Macquarie Island, which we sighted in five days' time. Both Royds and Shackleton reported land the day before it was due, but it turned out to be Cape Flyaway in each case; and I was not sorry to find that the chronometers had behaved so well despite the tossing about they had undergone during many days.

As we approached the island, we were all delighted

by Captain Scott's decision to land. Boats were speedily made ready; and when we brought to in Lusitania anchorage, a large party, including all the officers except Royds, went away in two of the whale-boats.

There was a comfortable landing-place on a shelving beach, protected by masses of kelp, which formed a breakwater.

A sea-elephant was lying close to where we landed, and as my boat lay off, waiting until all from the Captain's boat were on shore, the Captain shouted to us from the shore for a rifle, for the beast was making for the water. Barne, who was in my boat, immediately seized a Mauser pistol, leapt into the water, and waded to the beach. By the time he landed, however, the terrified brute had been headed off, and after being photographed was killed.

A large colony of penguins welcomed us to the island, both the beautiful king penguin (*Aptenodytes patagonica*) and the hardly less handsome crested penguin (*Catarrhactes schlegeli*) being represented by vast numbers. They were breeding, so we obtained a number of eggs, as well as many specimens of the birds themselves.

A hut had formerly been erected near where we landed, for the use of a party of men who had hoped to make a good thing out of penguin oil, which they procured by boiling the unfortunate birds. They had been obliged to leave in a hurry, because of severe weather, and had left several casks of oil behind them. In the hut were a number of stuffed penguins—one of them an albino, which had been discarded when the adventurers took to flight.

We spread out in various directions, our scientific comrades intent on collecting specimens for their respective departments, and the remainder of us helping them and seeing what we could of the island in the short time available to us.

Hodgson wished to collect a very rare species of rail, supposed to exist on Macquarie Island; we saw a number of rails, and several were shattered by the sportsmen of the party, but, alas! they none of them could be identified as the *rara avis* so desired by our biologist.

Some of us followed the course of a lovely little waterfall until we arrived on a plateau surrounded by hills, where we saw a figure waving his arms about his head in an endeavour to ward off the attacks of a pair of furious skua gulls. It was Ferrar, who had gone on ahead of us, and was evidently near the birds' nest. We speedily went to his rescue; found the nest, which contained two eggs; and shot the parent birds.

We then returned to the beach, where we found the men busily employed in squeezing the necks of the unfortunate penguins, for they believed that it was the orthodox method employed to make them deliver up their eggs. Naturally, the birds were indignant.

The albatross breeds on this island, but we did not discover any of its eggs, although we saw several young birds flying near the shore.

After paying a visit to a herd of sea-elephants, we pushed off in the boats for the ship, our bag consisting of penguins, gulls, petrels, rails, eggs, botanical specimens, and a sea-elephant.

It had been a most enjoyable day, all the more so

to us because of our close confinement in a small ship for so many days.

We arrived on board at 8.15 p.m., and, as soon as the boats were in, weighed anchor and proceeded on our way to Lyttelton.

Three days afterwards we passed the Auckland Islands. Our course took us about twenty miles to windward of them; but a fierce nor'-wester suddenly sprang up, raising a tremendous sea. All sail had to be furled, and we had to steam for all we were worth to clear the Bristow rock, when we were able to stand away a bit.

On November 27 we sighted Cape Saunders light at 10.50 p.m., passing nine miles off it.

The following day there was a strong south-south-west wind blowing, so the engines were stopped and all sail set. As, of course, we were all eager to arrive in port and obtain home news, I induced Captain Scott to order steam again, so that we might get in that night. Skelton and his staff made the engines positively hum, and with full sail and a following wind the *Discovery* fairly broke her own record, making quite ten knots an hour for some time.

We anchored in the outer harbour of Port Lyttelton; and Shackleton went away to hammer at the door of an astonished but very courteous postmaster, who sent us off our mail in the early hours of the morning of November 29.

At daylight the ship was swung for deviation of the compass, etc.; and we then steamed into the inner harbour, and were berthed alongside one of the wharves.

Two men-o'-war were in port to give us any assist-

ance that we might require in refitting, etc. They were the *Ringarooma* and the *Lizard*, kindly sent to meet us by Admiral Beaumont, of Arctic fame.

Bernacchi, who had come out from England by mail-steamer in charge of the Eschenhagen magnetic instruments, boarded us as we arrived alongside the wharf; and we were pleased to hear from Weller, A. B., that the dogs, which had been sent out from England under his care in a cargo-steamer, were all well, and were in comfortable quarters at the quarantine-station on Quail Island.

As we looked at the truckloads of stores that had been sent out to us, and which, by-the-by, had very kindly been carried by the P. and O. Company at reduced rates, we wondered where they would all be stowed.

Work was commenced right away. The *Discovery* was dry-docked and thoroughly overhauled, being made as tight as possible by Mr. R. J. Miller of Lyttelton, who undertook the job. The holds were restowed by Shackleton, the rigging set up under the supervision of Royds and our boatswain, and the engines overhauled by Skelton and his staff.

Christchurch was our southern magnetic base. A very fine magnetic observatory, beautifully situated in the Botanical Gardens, had recently been erected. Mr. Coleridge Farr was in charge of it, assisted by Mr. Schey. All the magnetic instruments were taken there, and observations made with them. Messrs. Farr and Schey made observations with their absolute instruments at the same time; besides which, a set of variation instruments, lately sent out from England, were continuously working.

We were astonished to find how interested in the expedition the people of New Zealand were ; and the kindness and hospitality received by us from the citizens of Christchurch and Lyttelton exceeded our utmost expectations. From Lord Ranfurly, the Governor ; Mr. Seddon, the Premier ; Mr. Arthur Rhodes, the Mayor of Christchurch, and his colleague the Mayor of Lyttelton ; Mr. Waymouth, the Managing Director of the Frozen Meat Company, and Chairman of the Harbour Board ; and from Mr. Kinsey ; as well as many others far too numerous to mention, we received most practical proof of their desire to aid the expedition in every way that lay in their power. Among others, Dr. Chilton and Captain Hutton placed their services at the disposal of our scientific staff. We were welcome guests everywhere ; the clubs made us honorary members ; free railway passes were granted to the ship's company ; and Mr. Hatfield generously placed his hotel at our disposal. We were specially indebted to the Hon. C. C. Bowen, who had made everything smooth for us before we arrived, and who had advocated the passing of a vote to grant a sum of money towards the expenses of the expedition. This the colony did, increasing the funds by £1,000. The farmers of New Zealand evinced their sympathy with us by offering us 150 sheep, of which we were only able to accept sixty.

On December 21 all was ready for our departure from Lyttelton. All the stores that could be stowed away were on board ; the twenty-three dogs were chained on the fo'c'sle head, and forty-five sheep were huddled together in the after part of the ship.

The wharf was crowded with the numerous friends

made by both officers and men during their stay in port; launches were packed with people and bands, in readiness to escort us down the harbour; and the war-ships were waiting outside to give us a final cheer.

The last line was cast off, and, as we steamed away, cheer after cheer rent the air. The New Zealand Shipping Company's s.s. *Rimutaka* and the launches fell into line, and the bands struck up inspiring airs.

As we approached the war-ships, which lay just outside the harbour, the *Rimutaka* steamed round us and returned, followed by most of the launches. Most of the men had climbed the rigging to wave farewell to their friends, and two of them had ascended to the crow's-nest, one of whom shinned up the pole above the nest, and hung on by the main-truck. He commenced to descend, his foot slipped, and what a moment before had been a human being, filled with the joy of living, lay dead on the deck before us. We signalled to the *Ringarooma* and *Lizard* not to cheer, and, with our high hopes for the future overshadowed by this ill-omened event, we sailed towards Dunedin, preceded by the *Ringarooma*.

Mr. Mills of Dunedin had made a generous offer to supply the *Discovery* with coal free of charge, and that was the reason of our calling at that port.

We arrived there on December 23, and found that Captain Rich of the *Ringarooma* had made all arrangements for the burial of our poor shipmate Bonner, which was carried out with naval honours the same day. His loss was much felt, for he was a good seaman and a cheery comrade.



## CHAPTER II

### TO THE GREAT ICE BARRIER

We leave Port Chalmers—The *Discovery* baby—Fog and ice—Across the Antarctic Circle—Into the pack—Petrels, penguins, and seals—Open water once more—The midnight sun—To anchor in Robertson Bay—The hut of the Sir George Newnes Expedition—Adélie penguins and their ways—A pilgrimage to Hansen's tomb—Ship *v.* ice—Cape Adare—A gale off Coulman Island—A vast ice-sheet—Seal-killing—The joys of ice-navigation—Wood Bay—A mass of granite—McMurdo Sound—Dredging—Leaving records at Cape Crozier—The Ice Barrier at last.

ON December 24, 1901, we steamed away from New Zealand, after bidding good-bye to the kind friends who came on board to wish us a final farewell. They took away with them the last letters we had written to our dear ones at home. Since our arrival at New Zealand I had heard by cablegram that I was the father of a little girl, born nine weeks after our departure from England; and as I sent away the first present she would receive from her father, I could not help wondering whether the *Discovery* baby would ever see the author of her being. The little one had received a good start in life, Dr. Ingram, the Bishop of London, having baptized her, and Sir Clements Markham and Mr. Longstaff being godfathers to the only child of the only father in the ward-room mess.

As we slipped away from the wharf at Port

Chalmers, loud cheers were raised by those who had come to see us off, which were repeated by the crew of H.M.S. *Ringarooma*. The tug kept us in tow until we were able to make sail, and then, under all plain sail and a full head of steam, we stood away to the south; and although, perhaps, some of us felt somewhat sad as we severed the last link that connected us with all that we held most dear, still, such feelings soon gave place to thoughts of the future—a future, we fondly hoped, of discovery and adventure in an unexplored land of icy mountains and fiery volcanoes, rendered all the more mysterious by the impenetrable barrier of ice-cliffs by which it was bordered.

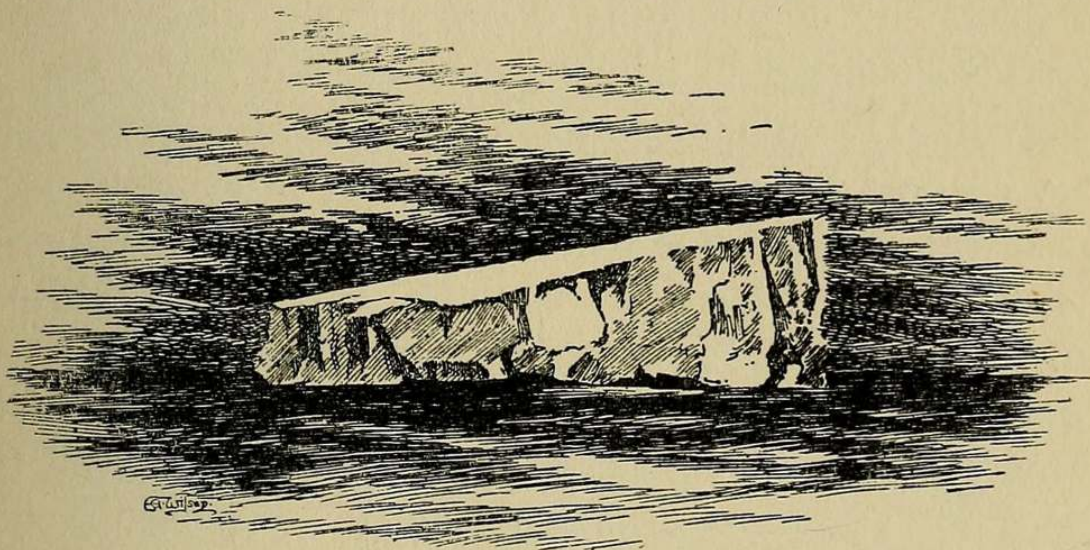
We did not have any festivities on Christmas Day, for the sad fate of our comrade had left us ill-inclined for such, and it was decided to wait until we were well in the pack before observing it.

When in  $61^{\circ} 30'$  S. latitude we ran into a region of fog, which continued, more or less, until we sighted the first ice in about  $65^{\circ}$  S.; and soon afterwards passed through a number of small bergs, as many as seventeen being in sight at one time; one of them was a typical Antarctic table-topped berg. Both the day before and on this day we had seen numbers of birds—albatrosses, petrels, and gulls of various species—keeping us company; and a large patch of discoloured water, of a brownish-green tint, in  $65^{\circ} 55'$  S.,  $177^{\circ} 36'$  E., gave one the idea that shallow soundings might be found in its vicinity.

On the following day (January 3, 1902) we crossed the Antarctic Circle in  $178^{\circ}$  E. longitude, passing through stream-ice and past small bergs. We soon hove to in the loose pack-ice on sighting some seals

which our zoologist desired to add to his collection. The biologist, too, wished to see what might be obtained so close to the magic Circle of the South, so the dredge was put over the side, after we had found the depth of the ocean at our stopping-place to be 2,040 fathoms.

Here, not far from the edge of the pack, the ice, which averaged from 1 to 5 feet in thickness, appeared to have sustained little pressure. Its surface was very smooth, and it was thickly honeycombed under-



ONE OF THE FIRST ICEBERGS SIGHTED, JANUARY 4, 1902.

neath. The pack gradually became closer as we got to the southward, and the ice-pieces thicker and firmer. To one accustomed to the ice-pack of the Northern seas, this Southern ice presented a most extraordinarily level appearance. It seemed to me as though large fields of ice had been formed in protected places, and then broken up, as they drifted to the northward, into small floes varying from a few feet to about 30 yards in diameter.

At times we would enter leads of water amidst the surrounding ice, extending for two or three miles; at

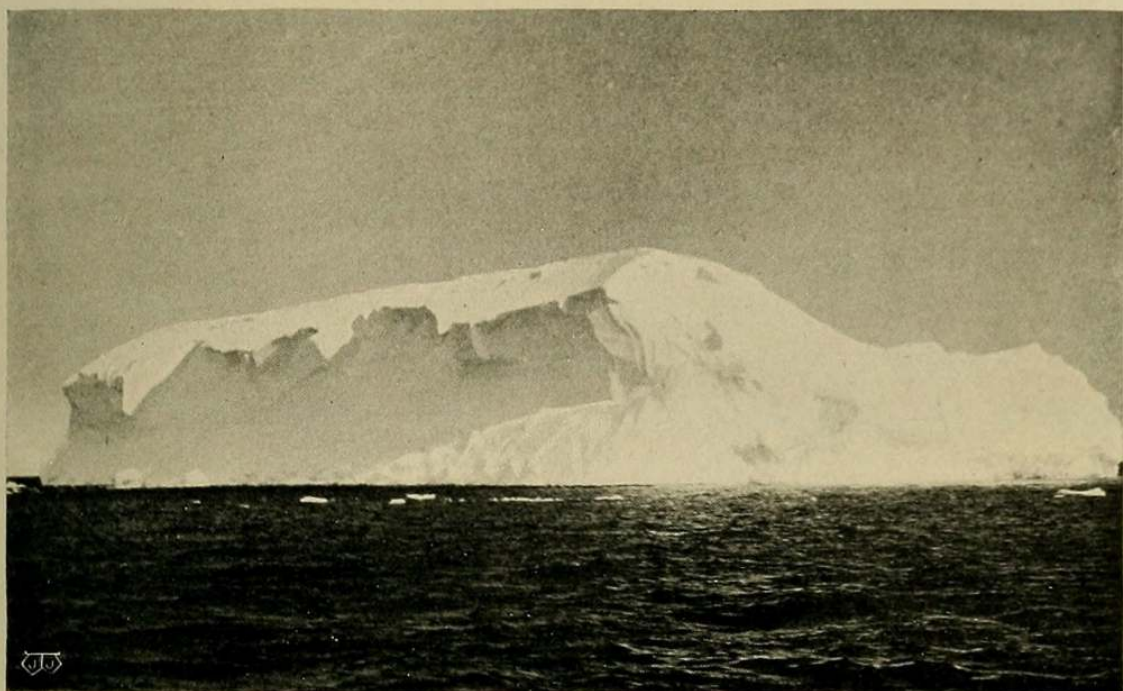
others we would have to bore our way slowly through the densely-packed small floes which barred our course.

Winged life was most abundant. On the one hand were the voracious and repulsive-looking giant petrels, soaring around and above the ship, their cruel eyes ever watchful for some poor disabled bird, or for any refuse into which they could plunge their powerful beaks and gorge themselves until they were unable to fly. A marked contrast was presented by the beautiful ice-petrels, clad in gleaming snow-white plumage, which was accentuated by their jet-black bill and eyes; as they called forth our admiration by their graceful flight, they seemed to be harbingers of hope, welcoming us to the Great White Land which they so fitly represented.

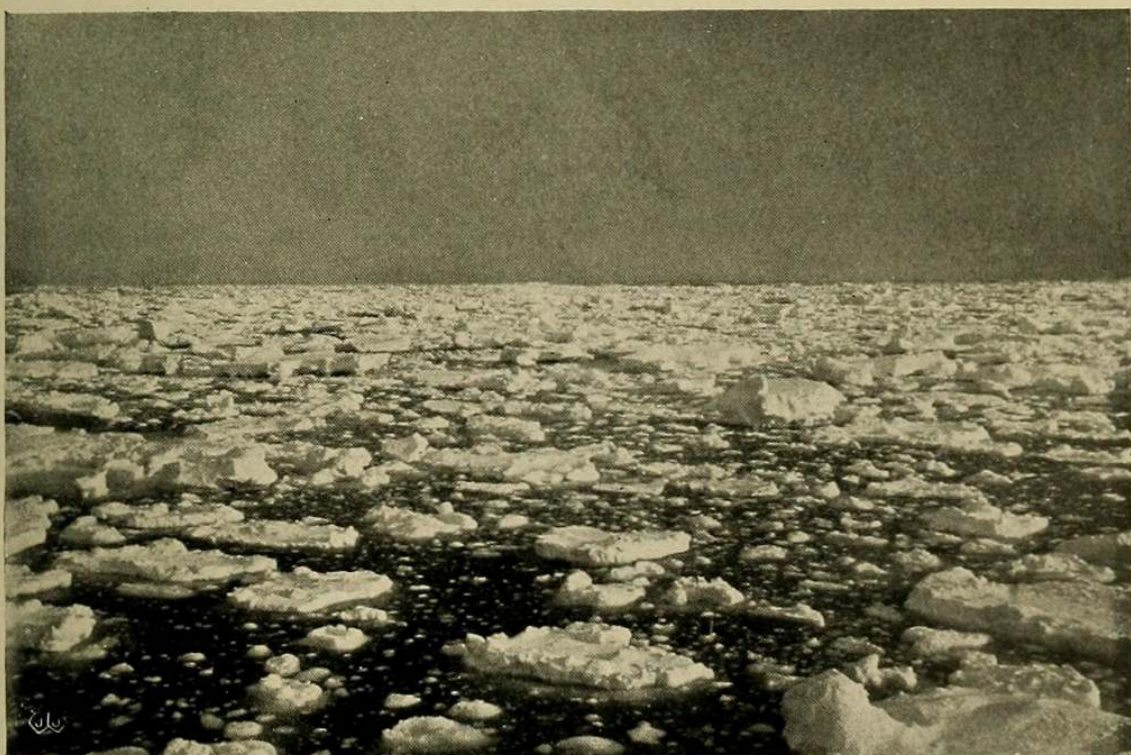
Before long, when in about  $68^{\circ}$  S., the magnificent emperor penguin (*Aptenodytes forsteri*) greeted us as we invaded his domain, and when the little Adélie Land penguin (*Pygoscelis adeliæ*) popped out of the water on to a piece of ice by which we were passing, and gaily called out 'Welcome!' we really felt that we were well within the Antarctic regions.

Two days after we had entered the pack, sail was clewed up, the ship secured to a floe, and all hands prepared to celebrate our arrival within the Antarctic Circle and Christmas Day. Ski, the Norwegian snowshoes, were served out to everybody, and a most amusing and enjoyable afternoon was spent on the smooth floe to which the ship was moored.

As we proceeded, we found the pack becoming tighter and the floes thicker, but none of them more than half a mile in diameter or 10 feet in thickness. The submerged portions of the floes were thickly encrusted



AN OVERTURNED ICEBERG.



THE ICE GETTING THICKER.



with yellow-coloured diatoms. The largest of the floes would split asunder as the *Discovery* charged them under sail and steam.

Seals became more numerous, chiefly crab-eaters, some of which we secured. We also obtained two specimens of the rare Ross's seal (*Ommataphoca rossi*), and one of the sea-leopard (*Ogmorhinus leptonyx*), the last-named gentleman being shot by Shackleton, who courageously approached the fierce-looking creature quite closely.

The day before we cleared the pack we saw the first signs of pressure since our entrance into it, and some of the heavier floes occasionally brought the ship up.

This did not last long, however, for the ice soon became looser, and the lanes of open water more numerous, until, on the morning of the fifth day in the ice, we sighted the open sea ahead of us. The last half-mile of ice was very closely packed and hummocked, and numerous seals were lying about on it; but after a bit of a struggle the *Discovery* emerged into open water once more, no ice being visible due south of us.

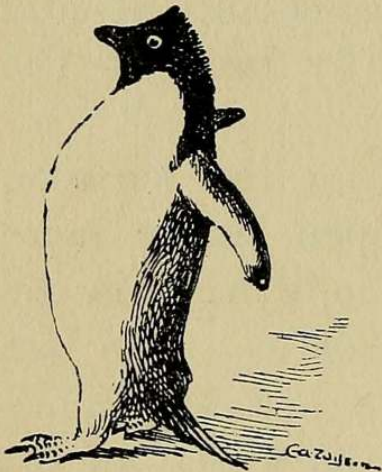
This southern edge of the pack was very clearly and sharply defined, and lay in a north-east and south-west direction. We lay to near the edge, and made a sounding, obtaining a depth of 1,480 fathoms, mud bottom. Temperatures of the sea-water at various depths were also obtained. This was in  $70^{\circ} 5' S.$ ,  $173^{\circ} 42\frac{1}{2}' E.$ , so that we had passed through about 270 miles of ice with great ease.

At 10.45 p.m. on the day that we entered the open water of the Ross Sea, we observed land directly ahead,

and at 12 p.m. we had our first view of the midnight sun as it shed its radiance over the lofty icy peaks of Mount Sabine.

Early the following morning we saw the land-pack, and, skirting its edge until we could see lanes of navigable water, we gradually approached the land, threading our way between the many bergs which guarded the entrance to Robertson Bay, where we anchored in  $15\frac{1}{2}$  fathoms of water that afternoon.

Immediately after anchoring, a party of us landed on the flat expanse of land on which the hut of



ADÉLIE PENGUIN.

Sir George Newnes' expedition had been erected, Bernacchi and I taking various magnetic instruments with us to determine the dip and total force. All of us first visited the hut, which was in very good order. In it we found a quantity of provisions, apparently in a good state of preservation; and on one of the bunks was

pinned a statement, addressed to the Commander of any future expedition, explaining, among other things, that an island had been discovered, and named after the Duke of York. Dynamite had been buried near the hut, and a large case of ammunition lay outside it.

A very large colony of Adélie penguins surrounded the hut on all sides. They appeared very inquisitive as to what we were doing there, and some of them were exceedingly indignant, and made frequent rushes at our legs in a vain endeavour to drive us away. Although the odour from such a large colony of birds was far from pleasant, they were most amusing to watch,



their resemblance to diminutive human beings enhancing the interest they excited in us.

They were divided into companies formed in circles of about 20 feet in diameter. All the young, downy, brown-coated youngsters were congregated in the centre, and their parents formed a guard on the circumference of the ring.

Many of the eggs were addled, and several of the young ones crouched between their mothers' legs for warmth and protection, for the wicked-looking skua gulls and giant petrels were continually hovering near on the chance of supping off tender young penguin.

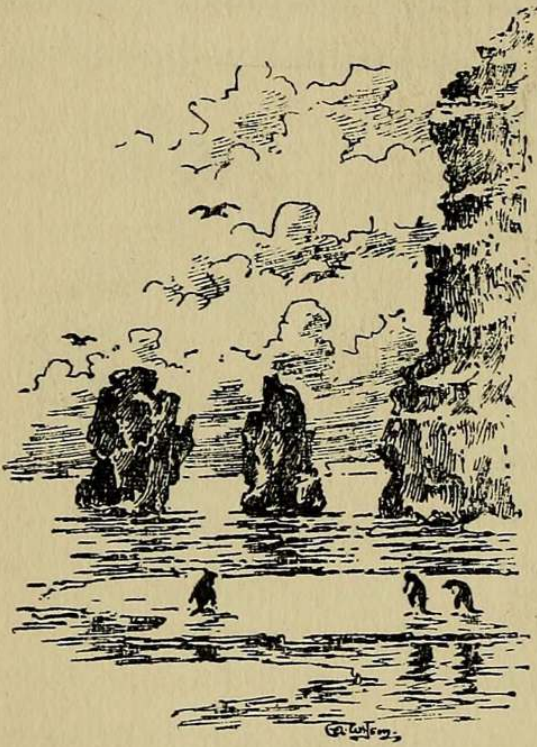
Perhaps they were most amusing when fighting, for, as they rushed at one another, and banged away with their hard little wings until one was knocked out, they presented a most comical appearance. Every now and again one of the adult birds would be chased by two or three hungry little birds, regardless of whether the dispenser of food was their parent or not, and it was astonishing with what speed the tiny birds would get over the ground, stumbling and tumbling over the stones, and up and away again, until the exasperated old bird would turn and drive away those that were not her own progeny, and fondly feed the little chick that was all the world to her.

After the magnetic observations were finished we returned to the ship, where they were shipping ice for fresh water. Some of our people had made a pilgrimage



ADÉLIE PENGUIN AND  
CHICK.

to Hansen's tomb, situated at the top of the cliffs which ran back from Cape Adare. He was the biologist of the expedition that had landed there from the *Southern Cross*, and, filled with the adventurous spirit of his Norse forefathers, had sacrificed his life in the cause of the science of which he was such a devoted follower. On arriving on board, as I had been at work for twenty-four hours, I lay down in my bunk, until we should weigh the anchor, and soon dropped off to sleep.



THE TWO SISTERS, CAPE ADARE.

A strong tide had been flowing and ebbing into Robertson Bay at a rate of three to four knots an hour during our stay there, and as we steamed away at 3 a.m. it was flowing into the bay and bringing very heavy, close pack-ice with it. The Captain came down to my cabin, therefore, and asked me to hurry on deck, as he did not like the look of things; and, indeed, when

I went on the bridge it certainly looked as though the pack might sweep us against one of the huge grounded bergs or heap us up on the shore.

However, I climbed up to the main top, and our stanch craft had her first real test as to what she could do when pitted against the enemy she had been built to encounter. Well did she justify our faith in her powers, and, with Skelton in the engine-room to encourage her, she answered her helm as though

endowed with life, and, by dint of charging here and boring there, emerged from the ordeal triumphant.

The really interesting part of our voyage had now commenced, as we steamed past the coast of South Victoria Land. Everything was strange and new to all of us except Bernacchi, so that the greater part of each twenty-four hours was spent on deck.

In the afternoon of the day that we left Cape Adare, we again swung ship to obtain the corrections for our magnetic observations, and then proceeded on our course accompanied by large flights of Antarctic and snow petrels. Considerable quantities of ice, closely packed, and much of it heavy and hummocked, drifted to the northward near the shore; but clear water some fifteen miles from the coast-line enabled us to make good progress to the south. Fortunately, with the exception of one furious gale of wind, we experienced for the most part glorious weather, so that we were able to enjoy to the full the grand beauty of the scene as it opened out to our view in magnificent ice-clad peaks and precipitous cliffs, which towered above and bordered fields, rivers, and cascades of ice.

The amount of bare rock, with no ice covering, astonished us. Most of us had expected to see a land desolate in the extreme, and almost entirely covered with ice. Desolate indeed it was. But with whales, seals, and birds surrounding us, and the sun continuously above our horizon, we found it difficult to grasp the fact that no living creature existed in the country we had been sent out to explore.

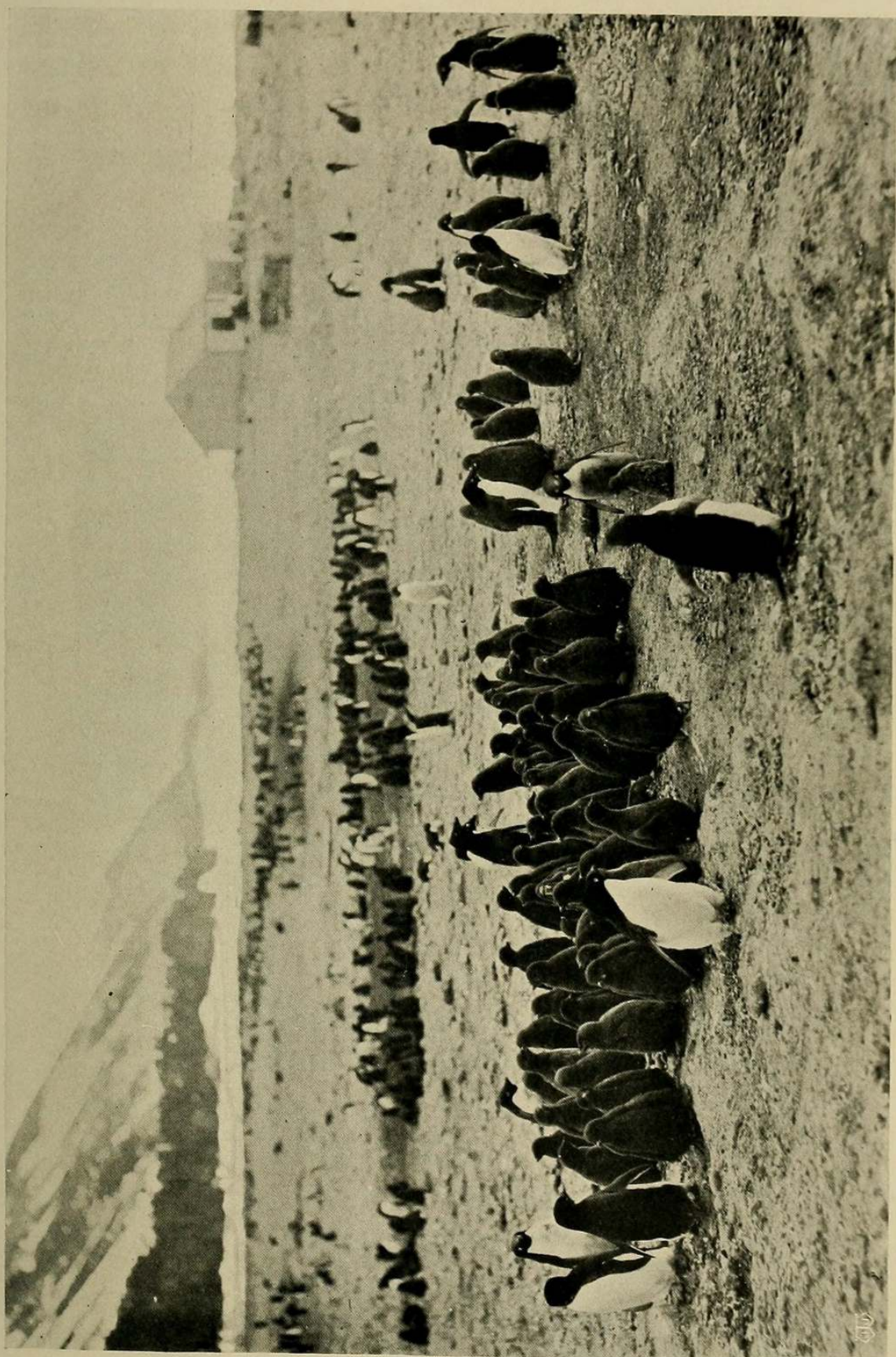
As we approached Coulman Island we met heavy pack-ice, and had to make a considerable détour to avoid the thickest part of it. The wind, too, was in-

creasing in force, and the sea rising ; so that we were very glad to obtain a lee under the north-east corner of the island, by which time a fresh gale of wind was blowing. We could see an Adélie penguin rookery on the slope of the land as we approached ; and when we were well under its lee, a fine Weddell seal was shot and picked up, and the dredge put over.

We were very fortunate to have arrived under the lee of Coulman Island when we did, as the gale quickly increased, and blew most furiously from the south-south-east, amounting to storm force during the fiercely rushing squalls that howled over us, almost incessantly, for twenty-four hours. We frequently had to put the ship about in order to dodge the ice which was swept round the corners of the island, and to keep our lee ; and although we were under full steam, it was all that the ship could do to hold her own. It was near this vicinity that Ross experienced a similar storm, and was driven far to the northward, as we should doubtless have been, notwithstanding our steam-power, if we had been exposed to the full fury of the wind and sea.

On the second day of the storm the wind rapidly decreased, and fell to calm ; and we were able to steam close to the island, stopping off Cape Wadworth. A boat was lowered, and Captain Scott and a party landed to leave a record, which was placed in a cylinder attached to a red-painted pole, easily seen at some distance from the ship. In the meantime dredging was carried on from the ship in from 8 to 24 fathoms of water.

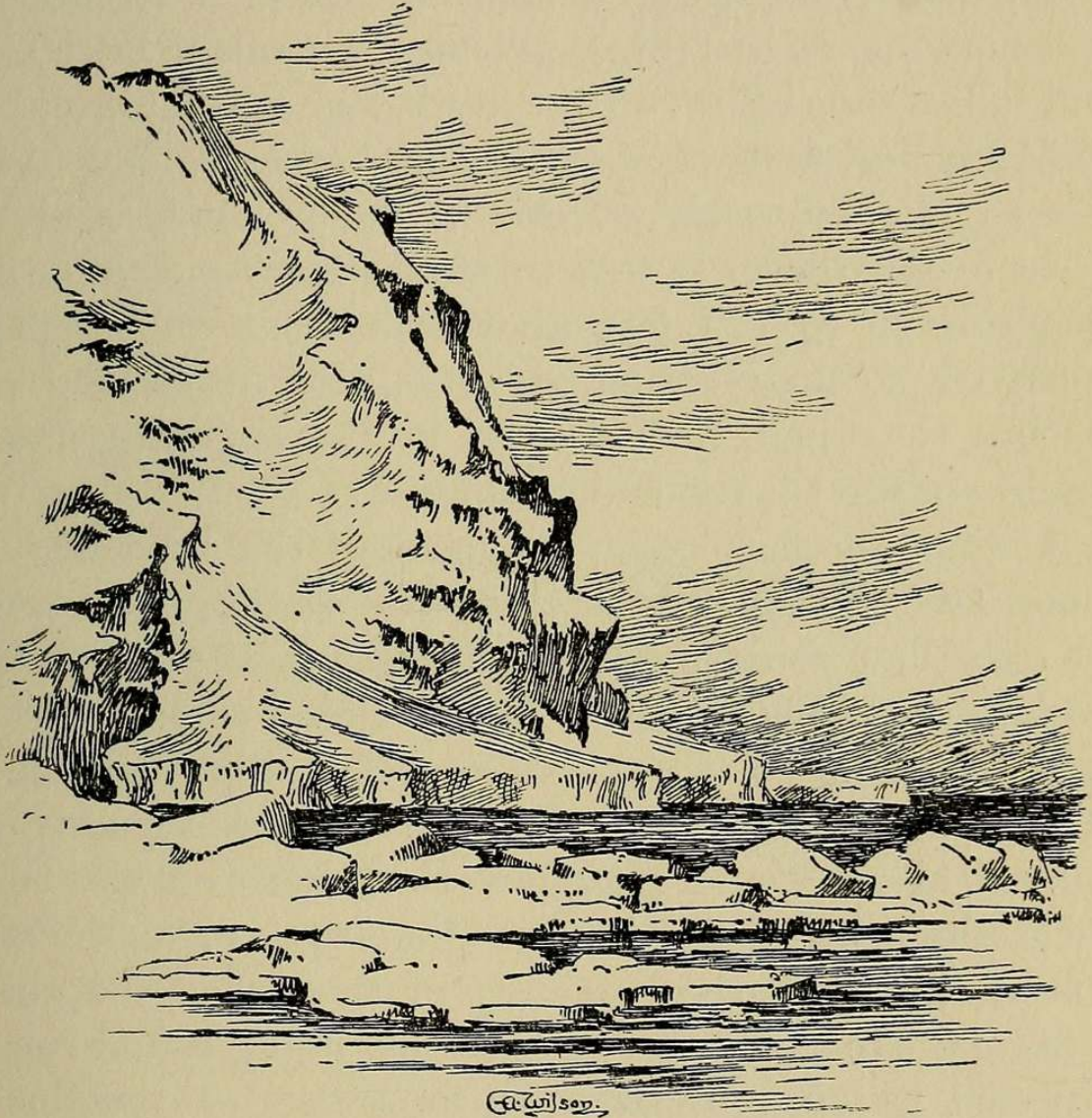
As soon as the party returned on board the ship, we steamed across to the mainland, sounding and taking



COLONY OF PENGUINS WITH YOUNG AT CAPE ADARE.



frequent bearings of the prominent capes and headlands, and making observations for the change in variation of the compass needle at frequent intervals; for I had noticed considerable magnetic disturbance during our stay off Coulman Island. The soundings



CAPE WADWORTH, COULMAN ISLAND.

were obtained with the Thompson's sounding machine (called after Lord Kelvin), used for navigational purposes; they gradually increased to 110 fathoms, four minutes after which we did not strike bottom with 290 fathoms of wire out, but again plumbed the sea's

depth, at 47 fathoms, when about a mile from the mainland.

From this point we could see an immense ice-sheet, with high cliffs, extending away to the mountains at the westward, in which was an inlet, bearing west-south-west from us, up which we steamed for about three miles. It was three-quarters of a mile in breadth, and half a mile of ice at its head was still unbroken. This was our first view of the mighty ice-cliffs which are so characteristic of South Polar lands, and a curious experience it was to steam between walls of ice rising 80 to 100 feet above the sea—walls which appeared so massive, so gigantic, that it seemed as though they had been formed in the beginning, and would endure till the end of time.

Against the fast ice at the head of the inlet was a quantity of recently broken-up floe ice through which we could not penetrate far, and those floes past which we had been able to bore our way closed astern of the ship and shut us in. Nearly all the ship's company jumped on to the ice, and hurried away towards a number of seals and penguins that were on the fast ice at the head of the inlet. One party of men were almost cut off by the loosening of the ice as the ship pressed against it, but managed, by going round some distance, to join up with their comrades. I remained on the bridge of the *Discovery*, and was able, as the broken floes separated and drifted away on the ebb tide, to work her gradually up to the unbroken ice, where she was made fast to ice-anchors.

All hands were busily engaged throughout the night in slaughtering seals and watering ship. The seals lay gazing with large, wondering eyes, as they each in



turn became victims to the knives of the relentless beings from whom, not knowing their kind, they suspected no danger. About fifty of them were killed, skinned, cut up, and hung in the mizzen rigging. A dozen emperor penguins, too, were captured, and we procured a plentiful supply of ice for fresh water.

Some of our party ascended to the summit of the ice-cliffs, the surface of which appeared to be quite level. This inlet would make, I should think, a safe, although very cold, harbour for an expedition which purposed reaching the Magnetic Pole, for its latitude,  $73^{\circ} 20' S.$ , is not far, I imagine, from the latitude of that locality.

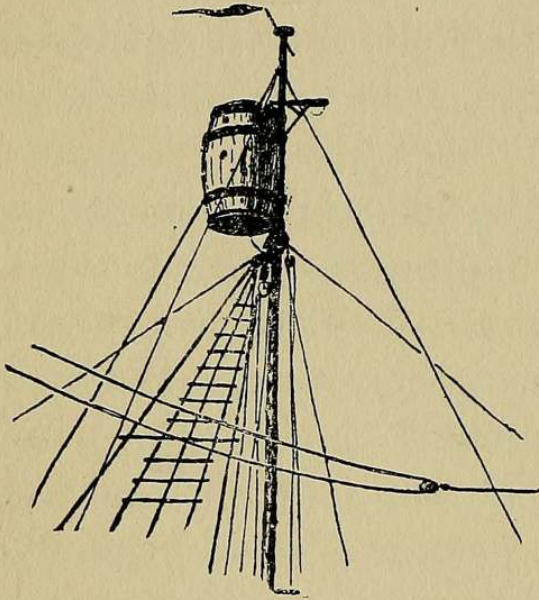
At 7 a.m. we cast off from the ice, and steamed out of the inlet, our deck and rigging resembling what one's imagination leads one to suppose Smithfield Market appears like in the early morning. We had hoped to get to the southward inside Coulman Island, but the channel between the ice-cliffs and the island was blocked with tight pack-ice; so we rounded it at its northern extreme, having to pass through a considerable quantity of loose pack before we found leads of water clear enough to stand south once more.

We wished, of course, to keep as close to the coast as possible, but were constantly kept off by the ice-pack, which, though not heavy, was sufficiently close to impede our progress, and had to be navigated in a manner that would permit of us getting along as speedily as possible with a due economy of coal.

Ice navigation is very fascinating work. Perched aloft, almost at the very summit of the main mast,

snugly ensconced in the crow's-nest—which, with its hood and seat, is more comfortable than the casual observer would believe—and with a powerful telescope, by the aid of which objects many miles distant appear close, the look-out man enjoys a form of 'sport' that would appeal to many if they once came under its spell.

It always seemed to me that I had more absolute control of the ship when I was in that situation than in any other. Beneath one is the ship herself, her whole upper contour sharply and gracefully delineated;



CROW'S-NEST.

and one feels, as it were, quite separated from her, and yet directing her every motion. Ahead and all around is a vast, illimitable field of ice, which in the farthest distance appears to be absolutely impervious to attack. Somewhat closer are to be seen thin black-looking streaks of water, and still closer to the ship, the weak places in the line of defence

thrown out from the inhospitable land which we are determined to reach, are easily seen; and one is able to guide the ship from one lead to the other by the least line of resistance.

For some distance ahead the pilot in the crow's-nest can estimate the respective mass of each ice-piece, and so can tell which one to avoid, and which it is safe to pass over. Long, cruel-looking spurs extend far under water from some of them, and others are quite smooth-sided.

The officers at the engine-room telegraph and in the engine-room, as well as the men at the wheel, are kept busily employed during this kind of navigation, for on their quickness in obeying the orders from the nest often depends the issue—whether the good ship glides safely by a dangerous mass of ice, or is brought up against it, quivering in every timber. At times the only way to get from one lead of water to another is to force a passage, and then, as with full way on the gallant craft charges the obstruction, the man in the nest involuntarily grasps the pole as she mounts upon and breaks down the neck of ice which bars her way to freedom.

Gradually, then, we worked our way towards Wood Bay, arriving there in the early hours of the morning two days after leaving the ice-inlet in Lady Newnes' Bay. We found it to be almost full of heavy ice, which, apparently, had only lately commenced to break away. The floes were strewn with fine dust and rock débris, probably blown on to them by the recent heavy gale, and were very smooth and solid.

We could not spare the time to attempt to penetrate farther into the bay, so steamed out into clear water, and swung ship for variation of the compass-needle; afterwards proceeding south close to the coast, and obtaining a splendid view of Cape Washington, off which we sounded in 8 fathoms of water; Mount Melbourne, a noble-looking mountain rising between 8,000 and 9,000 feet above the sea-level; and a range of table-topped mountains which lay somewhat farther back from the coast-line.

The atmosphere was exceedingly clear, as may be imagined from the fact that we could plainly see

Coulman Island and Mount Erebus at the same time, although they are 240 miles distant from one another.

After steaming for some hours alongside a vast sheet of ice, the average height of which was 90 feet, we were forced off the land by pack-ice which we skirted, keeping constantly on the look-out for open leads of water by which we might again be able to approach the coast.

This we managed to do the following day, and made for an opening in the land rendered conspicuous by an adjacent remarkable-looking bare, conical rock. This we found to be situated nearly at the head of a small bay filled with broken ice of a similar nature to that in Wood Bay. Soundings when a quarter of a mile away gave 80 fathoms, with a rock bottom; which gradually decreased to 8 fathoms when within a few feet of the rock.

The Captain and a party walked over the ice to the land, which they reached without much difficulty. The only slight misadventure was when one of them, on jumping across a crack, found himself astride a very startled and indignant seal. They found that the bay wound round the mass of rock, forming a snug little harbour in which a vessel might easily find well-protected quarters. The conspicuous landmark was found to be a mass of granite. Indeed, from our geologist's account, this harbour would rival Aberdeen both in the quantity and quality of that monument-making material. Shackleton, to the delight of our botanist, discovered at this place the first signs of vegetation that we had seen, in the shape of a little dried moss.

While the landing-party was away, we kept the ship in position under easy steam, as there was no ice suitable for making our ice-anchors fast to, the floes being in constant motion. The tide in the bay had a curious circular motion, making in on the north side and out on the south side of it at a rate of two to three knots an hour. The landing-party returned after being away for three and a half hours. The broken-up ice between the ship and the shore had been gradually drifting out to sea; and when they saw that there were only two or three floes left, and the cracks between them slowly widening, they hurried along to get aboard, the last man scrambling up the Jacob's ladder, which was suspended from the ship's bow, just in time, and he was hauled over the rail in a very blown condition, much to the amusement of the onlookers.

We again had to keep out from the land because of the heavy pack-ice, and shaped a course for McMurdo Sound (or Bay, as we then thought it to be), as we wished to examine it in order to pick out a likely situation for our winter-quarters. It was, however, nearly filled with ice—smooth, solid, heavy ice broken into small floes such as those we had seen in the other inlets. From the crow's-nest could be seen a deep fjord in the mainland, bordered by precipitous-looking cliffs, in front of which was a considerable stretch of open water connecting up with a large open lead of water about ten miles south-east of us. After boring away for three hours in an attempt to reach this water, and making very little progress, the Captain attempted to arrive at it by keeping closer to Erebus Island, where the ice, though crushed up, appeared to be softer. The ship's way, however, was soon entirely

stopped, so he determined to abandon the attempt, for it was no use wasting coal in an endeavour to push through floes that would drift away and leave the sound clear in the natural course of events.

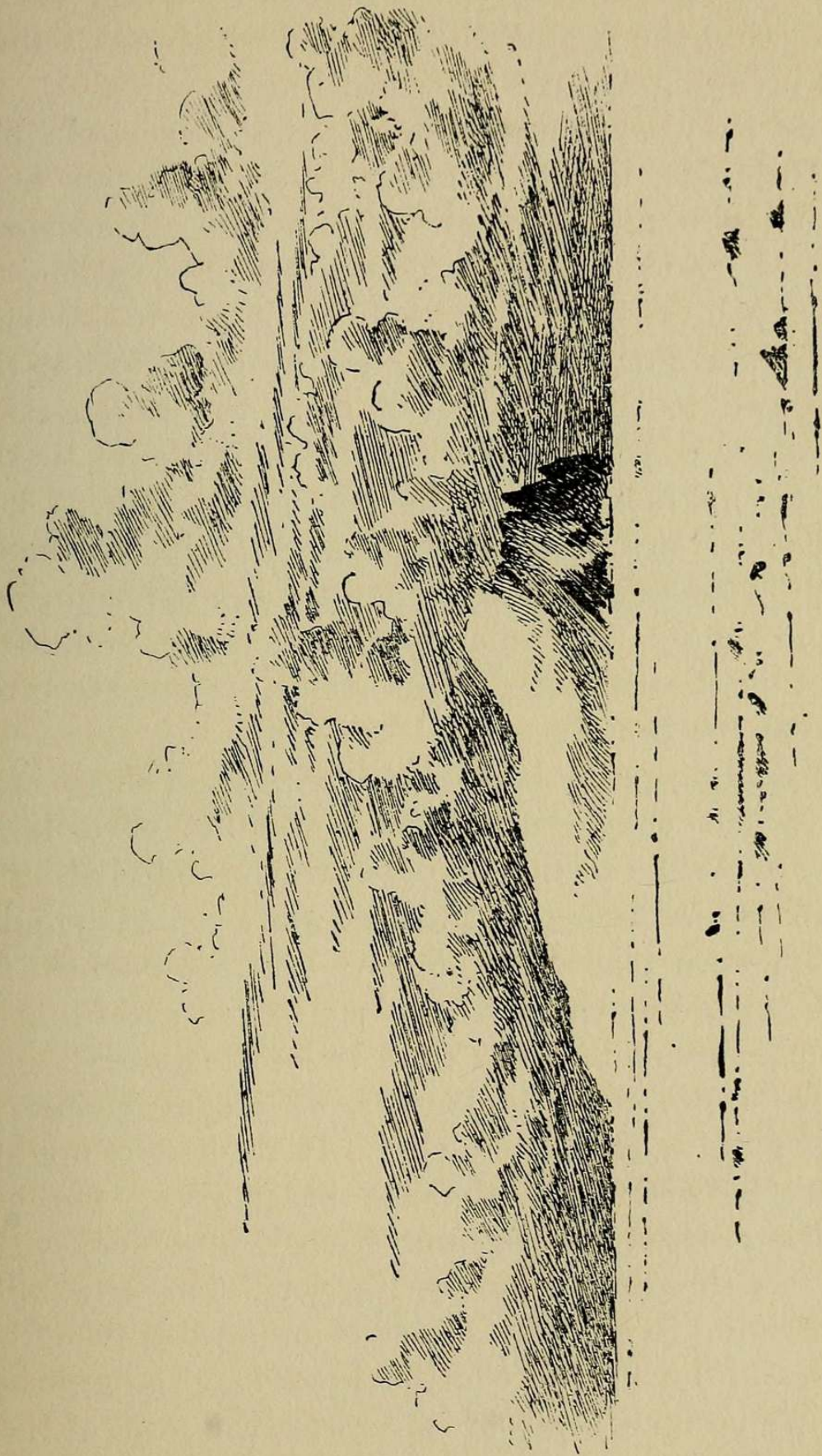
Viewed from the crow's-nest the sound appeared to us to be entirely surrounded by land at its southern extreme, and the land on which Mounts Erebus and Terror were situated to form part of the mainland. Subsequently we discovered that this was not the case, and that Erebus and Terror formed an island.

As we turned about to round Cape Bird, large footprints were noticed on one of the floes; so the ship was stopped for Wilson to investigate them, while the rest of us eagerly awaited his report, hoping that they might prove to be those of some large land animal. We were much disappointed to hear that they were merely the tracks of a giant petrel.

Soon we rounded Cape Bird, passing through the channel between the cape and Beaufort Island, in which, contrary to our expectations, there was comparatively little ice.

After passing through the channel, the dredge was lowered over the side in 500 fathoms of water, with a green mud bottom; and on heaving it up two hours later we brought up a rich haul for Hodgson, much to his delight. A series of temperatures and water samples were also obtained at various depths.

As soon as these operations were concluded we steamed towards Cape Crozier, and when we were a mile off the shore, not far from the cape, a landing was made by Captain Scott and all the officers, naval and scientific, except Shackleton, Hodgson, and myself. A number of grounded icebergs were lying near the shore at the



Wilson,

BEAUFORT ISLAND, WESTERN ASPECT, JANUARY 21, 1902.

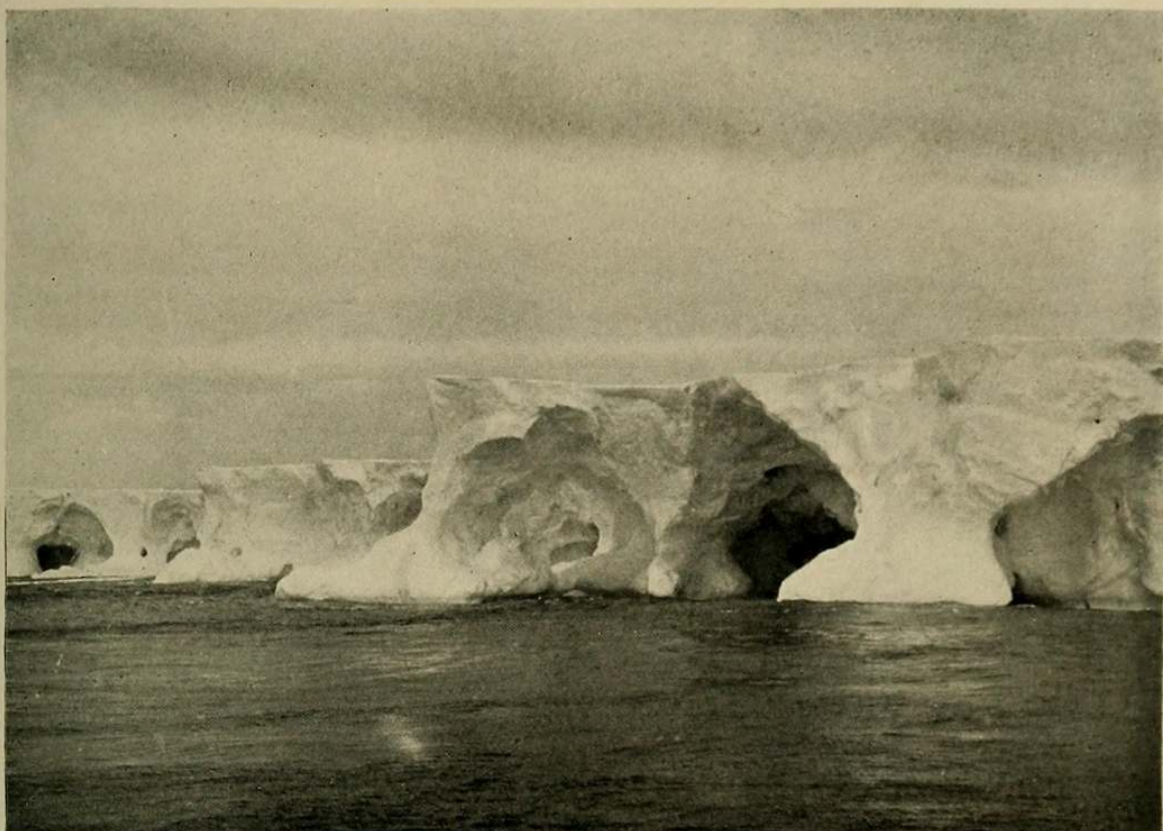
spot chosen as a landing-place, and proved very useful in protecting the boat from the swell which was rolling in and breaking against the coast-line.

While they were away the dredge was again put over the side in 75 fathoms, and after an hour and a half we were rewarded with a haul of four small stones. I made a series of magnetic observations on different points of the compass, during which I noticed that the current was running to the westward at the rate of two to three knots an hour, the tide setting us inshore for part of the time, and offshore, to the north, for an hour before the party returned. I had just finished my last observation for dip, six hours after the boat left the ship, when we saw it pushing off from the shore. We soon picked them up, and, after completing the magnetic observations, steamed towards the Great Ice Barrier.

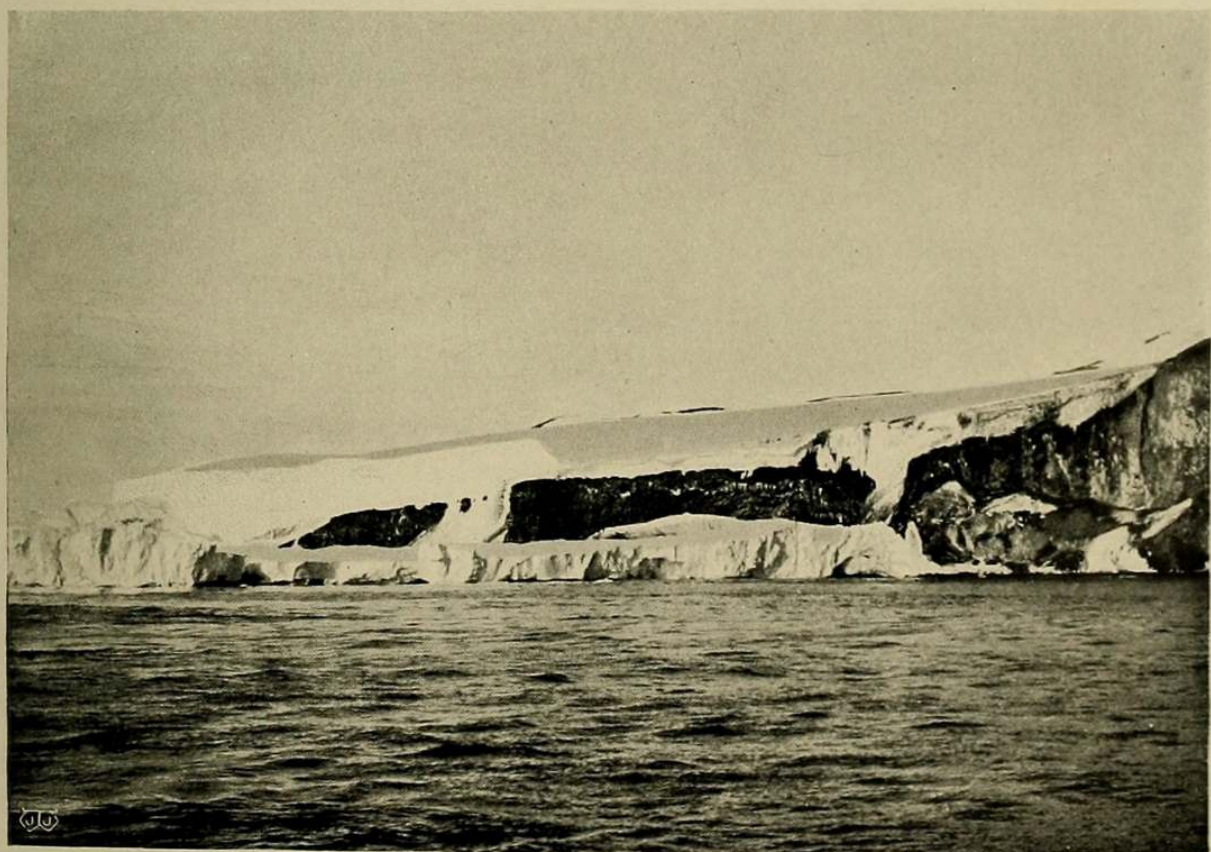
The landing-party had taken a post on shore with them, which they erected in the midst of a large rookery of Adélie penguins, much to the indignation of the owners. Attached to the post was a sealed cylinder in which were placed our letters and despatches, for Cape Crozier was the last place at which, according to previous arrangement, we were to leave records.

As we approached the barrier, we steamed close to the face of a high, bold cliff. It formed a mighty rampart between two gigantic ice-powers. On one side of it pressed the ice-slope from Mount Terror, the other was threatened by the Barrier. These ice-cliffs were striving to force the massive, immovable rock from its bed, and during the continual age-long struggle had piled up enormous heaps of ice against the walls of their invulnerable enemy.





ANTARCTIC ICEBERG NEAR CAPE ADARE.



CAPE CROSIER AND JUNCTION OF GREAT BARRIER.



## CHAPTER III

### WE REACH WINTER-QUARTERS

Skirting the Great Ice Barrier—The *Discovery's* 'furthest south'—King Edward VII.'s Land—Watering ship—Baffled by the forming of young ice—Return to the mainland—A tight fit in a tent—Balloon ascents—McMurdo Sound again—A glorious scene—Choosing winter-quarters—The living-hut—Sports on the ice—A danger of ski-ing—A cold bath—The first sledge-party.

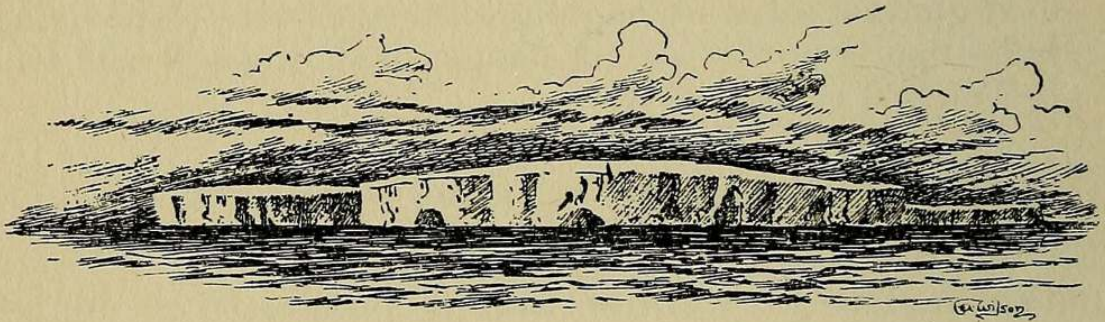
AND now commenced our examination of the northern edge of that great Ice Barrier which has been a constant source of wonder and a puzzle to geologists ever since its discovery by Sir James Clark Ross in 1841. We knew that it extended for at least 400 miles to the eastward: how much further should we have to trace it before we arrived at its eastern limit? And if we did penetrate the pack-ice to that point, should we discover another mass of land like South Victoria Land?

At this western extreme of the barrier, after we had left the crushed-up masses of ice astern, its face was very even, only a few horizontal striations being occasionally observed. It soon, however, became more irregular and cut up, and, as we advanced, more variable in height.

At noon of the first day, as we gazed over the surface of the barrier from the crow's-nest, we sighted a ridge

of hills from which protruded bare rocks, evidently the Parry Mountains of Sir James Ross. Distance of land from the observer is very deceptive in the Polar regions, so that he might easily mistake Black and White Islands and Mount Discovery for a long range of mountains extending from Mount Erebus, especially if the weather was thick at the time.

Frequent soundings were made as we steamed to the eastward, varying between 482 fathoms, with a mud bottom, at the western end of the barrier, and 100 fathoms, with mud and small shells, towards its eastern extreme. The height of the barrier was measured at



THE GREAT ICE BARRIER.

intervals, the highest measurement being 240 feet, and the lowest 2 feet. The soundings and measurements were made at various distances from the barrier, ranging from 100 yards to two miles. This immense sheet of ice, with its great wall of a dead-white, opaque appearance, formed a never-ceasing source of marvel and speculation to us as we steamed by.

On the third day of our examination of the barrier face, we saw a number of bergs, as many as forty-six at one time, none of them very large, and irregular in shape.

During the evening heavy pack-ice was reported to be in sight on our port bow to seaward of us ; later it

was supposed to be one of the huge tabular bergs that we had read about but never seen; but as we approached it we found it to be an arm of the barrier jutting far out from the general level of its face, and forming one boundary of an inlet which we penetrated almost to its head. Here we could see over the surface of the barrier, for it subsided in two places nearly to the water's edge, and we saw that it was not so level as it had appeared to the westward.

A gale of wind with a short choppy sea drove us away to seaward, and we lost sight of the ice-wall for some time.

We had gradually steamed south on our way to the eastward, until, on the third day, we arrived at the furthest south position attained by the *Discovery*— $78^{\circ} 35' S$ .

Early on the morning of the fifth day we again saw the barrier, and had to alter our course in order to clear the long arm which had enveloped us before.

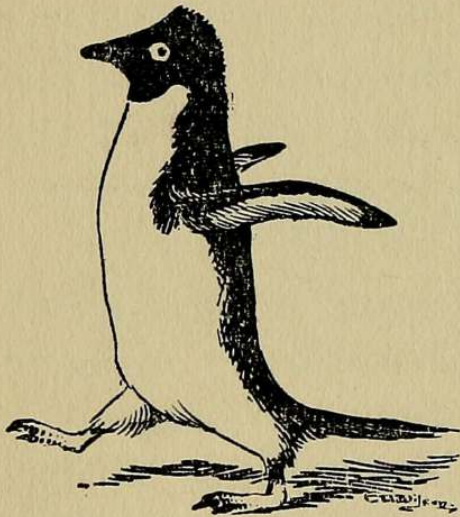
Still we steamed alongside the impenetrable barrier, until, on the seventh day, a marked change took place. At times very even, at others exceedingly irregular, it subsided in some places to only 2 feet above the surface of the sea. We passed a group of bergs, apparently capsized and grounded, and late in the day we obtained a sounding of 100 fathoms only, with mud and small shells.

The weather was thick during a great part of the day, but fortunately it cleared, and we saw that the character of the barrier had entirely changed. It now appeared to consist of a series of slopes or ridges, varying in height up to 500 feet. The soundings, too, were shoaling, and at noon we were sure that we had

arrived near the eastern termination of the Great Ice Barrier.

Late in the afternoon we saw land in the distance, and at 8.40 p.m. on January 30, 1902, we sighted bare rock protruding from the surrounding glaciation. It was only nine miles distant from the *Discovery*. Less than an hour previously we had obtained a sounding of 88 fathoms, with thick brown mud bottom. This land has been named King Edward VII.'s Land, in honour of the patron of the expedition, and it is,

I believe, the first newly-discovered land named after His Majesty since his accession to the throne.



ADÉLIE PENGUIN.

Instead of the great wall of ice that we had become so accustomed to see continually on our starboard side, there was now a stretch of level snow-covered ice, of comparatively insignificant thickness, extending away towards the land.

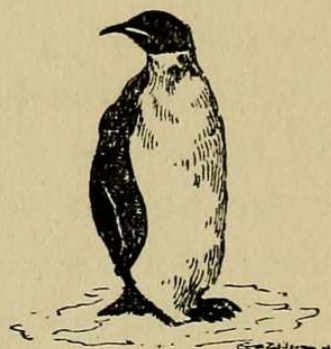
Much more life was visible—Antarctic and snow petrels, skuas, and penguins; both emperors and Adélies abounded; and occasionally a seal or a whale could be seen. The little Adélie penguins would look most comical as, curiosity-smitten, they popped out of the water, like a Jack-in-the-box, on to a piece of ice as we passed it, and, after staring at us for a moment, gave hoarse cries to their friends to come and see the wonderful monster passing by.

The day after discovering King Edward VII.'s Land we attained our furthest east position in the Antarctic.

We had for some hours been skirting fast ice which much resembled Captain Cook's description of the ice that he encountered during his second voyage in latitude  $71^{\circ} 10' S.$ , longitude  $106^{\circ} 54' W.$ —a vast ice-field in which were many imprisoned ice-islands, numbers of them several miles from the edge of the ice. In the distance there appeared to be lofty glaciated slopes, in some of which, closer to us, we discerned bare rock.

The pack-ice had been getting heavier and closer, and, wishing to water ship, we made fast to a large much-hummocked floe, on to which a party of men jumped, and, digging into the ice, threw it on board. It was then passed into long tanks, which were situated at the top of the engine-room, close under the skylight. In these tanks were copper pipes, and on steam being driven through them the melted ice flowed away to our fresh-water tanks. Close to us were some large ice-islands, one being six or seven miles in length, the largest berg, if it was a berg, that we had seen. In the distance, on the ice, we could see many emperor penguins, and I was of the opinion that in the far distance I could see high glaciated slopes extending away to the eastward, the general trend of them being north and south (magnetic).

On endeavouring to proceed, we found ourselves embayed. Young ice was forming rapidly and continuously amongst the pack, so we skirted the edge of the ice, trying to find a way round the pack to the southward.



EMPEROR PENGUIN.

When I relieved the officer on the bridge the following morning, I felt sure that we were passing ice that we had passed the previous night, and, on looking through the courses in the log-book, found that we had been steaming in a circle in a large bay formed in the fast ice. We managed to push a little way into the pack, but it was so heavy, and the young ice was forming so rapidly, that we determined to return to McMurdo Sound and search for winter-quarters.

This we commenced to do, again sighting the numerous ice-islands amongst the fast ice-field, and obtaining a clearer view of the eastern extreme of the barrier and the newly-discovered land than we had yet been able to do. The ice-sheet gradually increases in thickness from its eastern extreme, and when we came abeam of the bare rock, which was nine miles distant from us and 1,500 feet above sea-level, the top of the barrier was 40 feet above the water-line, where in many places it was much eroded by the waves' action.

A few hours after passing the land we saw a cap-sized berg, 280 feet high, and, as we steamed past and close to the monster, I could not help speculating as to what would happen if it suddenly heeled over again. Should we be tossed high into the air like a whaler's boat flicked by the tail of a whale, or should we be pressed down to, and crushed on, the sea's bed?

The weather was now fine and clear, and calm generally. Young ice was forming rapidly over the surface of the sea, and frost-smoke rising in clouds. Captain Scott made up his mind to take advantage of the fine weather to make a balloon ascent from the surface of the barrier.



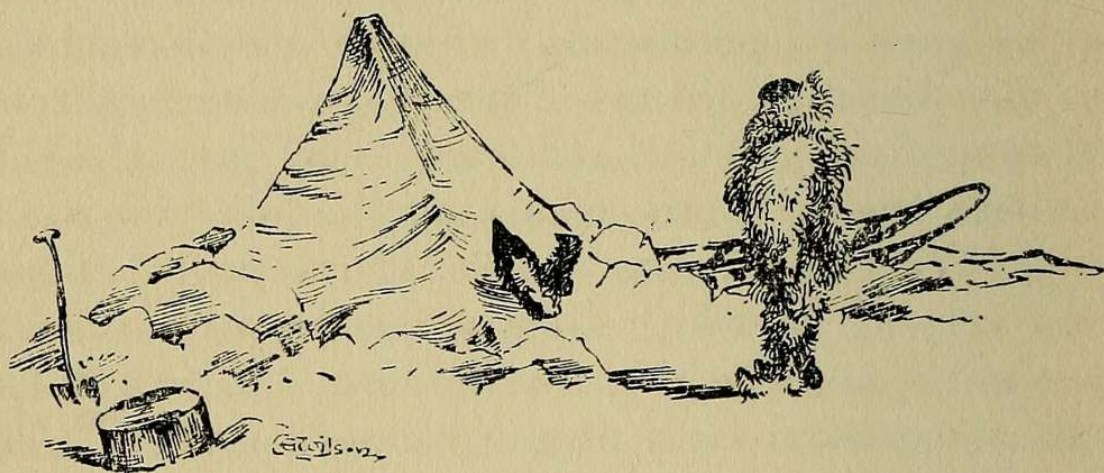
We accordingly steamed to the head of a bight in the barrier, about three miles long, and made the ship fast with ice-anchors. A deep valley lay at the head of this bight, with slopes rising on each side of it. This valley lay east and west, and at the foot of the southern and highest slope there was a broad crack through which the sea could be seen. Numbers of seals lay near this crack for a considerable distance up the valley, several of them being added to our larder.

I asked Captain Scott to allow me to examine the surface of the barrier to the southward for a few hours, while he was experimenting with the balloon; and he gave me permission to do so. Bernacchi and four men accompanied me. We took a sledge, a tent, and some food with us, and were away from the ship for about twenty hours, returning the following afternoon. We crossed four ridges, the valleys between them varying in width from a quarter of a mile to three miles, and the ridges being from 110 to 170 feet above the general level of the barrier's surface. The valleys were about six miles in length, in an east and west direction.

After marching some seven miles, we pitched the tent and had dinner. Then we proceeded to turn in. The tent was one for three men, but the six of us managed to squeeze in for a snooze before proceeding. All of us, with one exception, were well above the medium height, so it was rather a tight fit. After all but myself had taken up their positions in the tent, I wedged myself in between Bernacchi and another man, and, notwithstanding the temperature having fallen to zero, we were soon quite hot. Bernacchi, after many sighs, said that 'he could no longer bear

the pressure.' So he went outside the tent to sleep, rousing us at frequent intervals to inquire if it was time to get up. As the sun's altitude increased, however, Bernacchi became warmer and more somnolent, so that when we did turn out he was sleeping peacefully.

We left the tent standing, with two of the men to look after it, and continued to the southward on ski, the run down the slopes as we crossed the ridges being most enjoyable. As we returned towards the ship, we saw the balloon floating above us some time before



BERNACCHI (LOQUITUR): 'ISN'T IT TIME TO GET UP YET?'

we could see the ship itself. The weather was exceedingly fine, the atmosphere clear, the heavens cloudless, so that the balloon appeared extraordinarily clearly defined as it came into our field of view with startling suddenness.

On arrival at the ship, we heard that three ascents had been made in the balloon, which was attached to a wire rope. An altitude of 700 feet had been attained, from which height no land could be seen in any direction.

The whole time that the ship lay alongside the

barrier ice she was never noticed to rise or fall, as she certainly would have done if the barrier had been aground at this point, for a small berg entered the inlet, evidently tide-driven, and collided with the *Discovery*, afterwards moving out with some speed.

Five hours after our arrival at the ship we cast off from the barrier, and steamed out of the inlet. The wind rapidly increased in force from the eastward, so that we stood away from the barrier, which soon became obscured owing to the clouds of drift-snow raised by the wind. The engines were stopped, and we proceeded under sail alone at the rate of six knots an hour. We passed many bergs of small dimensions, one of which we recognised as an old friend observed by us on our outward track, and which we calculated had drifted about seventy miles to the north-west.

Early on the morning of the third day after leaving the inlet, we sighted the barrier on the port bow, and also saw land ahead, but soon all signs of barrier and land were obscured by the thickly-driving snow and by fog. At noon steam was raised on one boiler, and during the night we steamed through the channel between Ross Island and Beaufort Island.

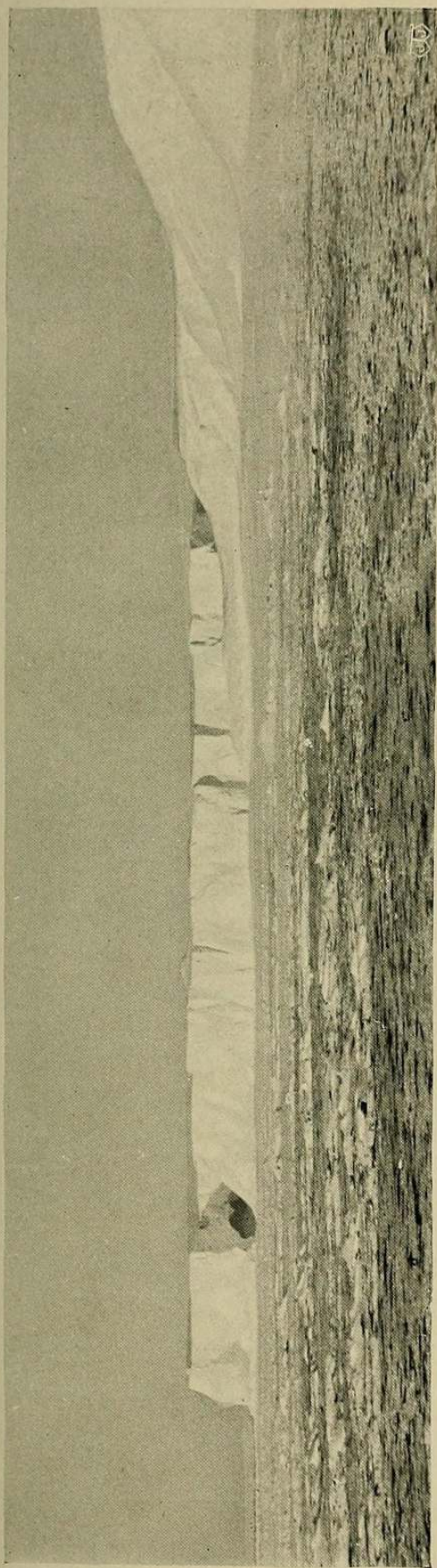
Early on the morning of February 8 we observed the mainland ahead of us. Thick pack-ice drifted between us and the coast-line, but McMurdo Sound, with the exception of a quantity of young ice and some small floe pieces, presented an open channel, up which we steamed until, at 2 p.m., we observed what appeared to be a great extent of fast ice covered with dirt, stretching away towards the land on the western boundary of McMurdo Sound. Captain Scott and some others went away in the boat to examine this

curious-looking formation, while we obtained a sounding alongside it which showed 120 fathoms, with a bottom of black gravel. When the boat-party returned, they reported that the surface of the ice was covered with dirt, which had caused it to take the most curious shapes. It was interspersed with watercourses which appeared to extend to the western land, while here and there were broad expanses of smooth blue ice.

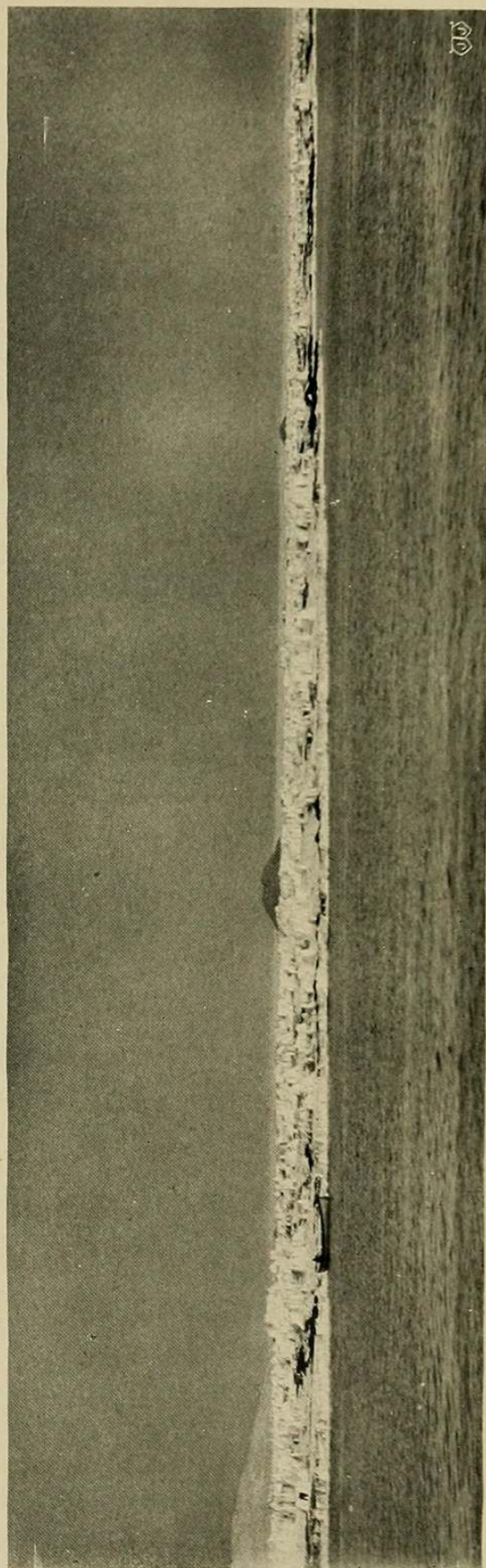
We now swung ship to determine the variations, using as a mark the peak of the most lofty mountain to be seen, Mount Lister, about fifty miles distant and 15,384 feet in height. When we had finished this operation, we steamed to the southward, and soon saw a level field of ice extending to the visible horizon in the south-east, bordered on either side by land. At 10 p.m. we stopped at the foot of a low range of hills extending from and forming a spur of Mount Erebus, and made fast to the ice-foot.

The following is my impression of the surrounding country as it appeared to me at the time :

To the south-east appears to be a strait bordered by these hills, and apparently an island. To the southward there is another island, and to the south again, south-westward, and westward, are a very lofty isolated mountain with foot-hills, a very high range of mountains with plateaux and peaks, and high hills stretching to the northward and westward from them. We are situated in a small bay, which is at present half filled with sea-ice. There is an ice-foot from which slopes descend to the sea-ice, of some 5 to 30 feet in height. The depth of water at one mile distant from these hills is 120 fathoms; at three cables distant, 49 fathoms; at a ship's length from the ice-foot, 8 fathoms.



LOOKING EASTWARD ALONG THE EDGE OF THE GREAT BARRIER.



PANORAMIC VIEW OF MORANIC ICE.



Close to the ice-foot the depth of water ranges from 2 to 6 fathoms. The surrounding hills are astonishingly bare of snow, one peaked hill in particular having scarcely any snow at all on it. The hills near us seem to be composed of volcanic rubble—sharp angular stones with soil underneath them, which is not nearly so frozen as might be expected. Mounts Erebus and Terror tower above us to the northward and eastward, the one continually steaming, the other quiescent.

A scene of more awful grandeur could hardly be imagined. At first its magnificence appealed to me, and often during the following two years did I gaze around me filled with delight at the splendid view; but more often still the deadly desolation of this lifeless land filled me with a feeling of nothingness hard to shake off.

The following morning Captain Scott and I walked across a point to a small bay close to us. It appeared to be very suitable for winter-quarters, snug and well protected, so the Captain decided to take the ship round there and erect our living-hut on the adjoining land. When the ship next broke away from the ice-foot, we steamed round the point, keeping too close to it, for we grounded and bumped rather heavily aft. We were broadside on, and close to the ice-foot, so that men could easily get the ice on board which we needed to fill our tanks with fresh water. There was a considerable quantity of sea-ice still in the small bay, and attempts were made to break it out, but they were ineffectual, the ice being very thick.

A site was chosen for the observation-huts, in which magnetic observations were to be made, and the crew commenced digging out a space for the living-hut.

This hut had been designed by Professor Gregory, and put together in Australia. It was more suitable for a colonial shooting-lodge than for a Polar dwelling-place. It served very well, however, for a storehouse, and as a theatre, during our stay in the Antarctic at winter-quarters. It was a difficult job to penetrate the frozen ground sufficiently to allow the corner-posts to be firmly planted, and several picks came to grief over it.

The observation-huts were much more easily erected, being made of skeletons of wood which were filled in with double walls and roofs of asbestos sheets—a German invention.

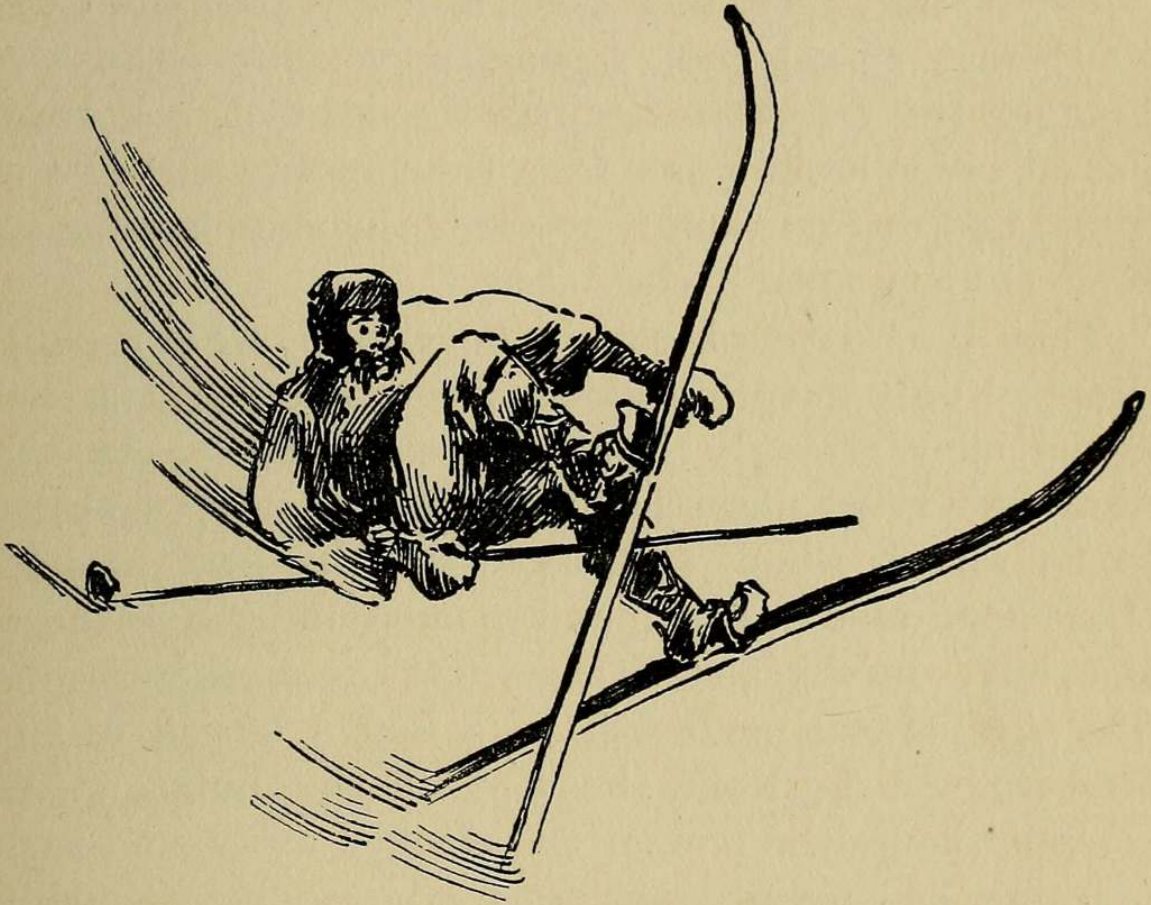
Shortly after we arrived in our small bay, a sounding-party went away with a sledge and a small Lucas sounding-machine. They sounded at intervals over a distance of about three miles due south of the ship, and obtained depths varying from 12 to 228 fathoms. The soundings round the ship showed 6 fathoms ahead, 4 fathoms amidships, and  $2\frac{1}{2}$  fathoms astern. During two days we bumped continually, and at times heavily astern, so that all of us were pleased when she was warped off the ground.

There was enough fast ice in the bay for the crew to enjoy a game of football each evening, and it was a strange sight to see our stalwart blue-jackets chasing the ball across the field of ice in our little bay, or sprawling over the frozen sea in an eager endeavour to reach their opponents' goal.

Another form of sport, which some of us enjoyed still more, was ski-running. At the head of our bay were excellent slopes for the purpose, although somewhat hard to fall on. Where the ice-foot ended in



cliff, drift-snow had collected and packed into slopes which enabled us to run down on to the sea-ice. Many of the ship's company soon became fairly good at the sport, while those who could not manage to balance themselves for any length of time without performing involuntary acrobatic feats managed to obtain considerable amusement by using their ski as



A SUDDEN TURN.

toboggans. Mr. Ford, our chief steward, when running down an ice-slope on ski nine days after our arrival in winter-quarters, unexpectedly met a ridge, lost his balance, and broke his leg above the ankle. He had so attached the ski to his feet that they would not slip off when he fell, notwithstanding the warning all had received as to the danger of doing so before they were well practised in the sport.

On February 19 the first sledge-party left the ship. It consisted of Wilson, Shackleton and Ferrar. They intended to examine the nearest land to the southward, White Island, seventeen miles distant. The day before their departure they hauled their packed sledge across the hills which bounded our bay, for the sea-ice had broken away to the south.

Soon after they had gone, a fresh gale from the south-east sprang up, raising a moderate sea and binding the *Discovery* against the ice-foot. A large extent of ice broke away from the opposite side of the sound and drifted rapidly towards the ship, causing us some anxiety until it cleared us.

Then the weather became calm, and the wind rapidly dropped, only to spring up the following afternoon and again blow strongly from the south-east. As the weather was so unsettled, the Captain ordered steam to be raised, when we picked up the port anchor, chose a suitable position, and moored on both anchors, then hove the ship's stern close in to the shore by means of a wire hawser made fast to a kedge buried in the land-ice not far from the site of the huts. After working-hours the hawser was slacked away, and each morning, as long as it was practicable, we hove the ship close inshore again.

One evening after dinner, when the ship had been eased away and everybody was below, Royds went on deck to make some observations, getting on to a small grating rigged over the ship's side to do so. The platform, however, had not been very securely placed, so poor Royds took an involuntary dive into the by no means warm water. Fortunately for him, a Jacob's ladder was hanging over the stern, up which he was able to climb, otherwise he would soon have succumbed.

After being away three and a half days, the sledge-party returned. They had reached and ascended White Island to a height, by aneroid, of 2,720 feet. There they found an extinct crater. They could see nothing but ice directly south of them, but to the west they saw a lofty range of mountains extending far to the southward. Between our quarters and the island they passed over many ridges. The frequency of superficial frost-bites during a blizzard that they experienced was not at all to their liking, but nevertheless they had all enjoyed their short trip very much indeed.

We had not commenced fires in the living-spaces, although it was nearly the end of February. Occasionally a heating-lamp, intended for the observation-huts, was kept burning in the wardroom, but it did not give nearly enough heat to keep the cabins dry, and the dampness became very noticeable indeed.

Our invalids, Mr. Ford and a stoker who had injured his back, were progressing favourably. Indeed, the stoker told the surgeon attending him that 'he would soon be well, for he had distinctly felt his spine resume its normal position'; and the cook's mate said that 'he had heard the "click" it made when it went into its proper place again.'

Captain Scott intended two more sledge journeys to be made before we settled down for the winter, but thought that the ship's company would be all the better for a little instruction in self-attention before they set out. Dr. Koettlitz therefore gave an address on the mess-deck, chiefly dealing with precautions to be taken against becoming frost-bitten, snow-blind, etc., and the remedies to be used in case of such happenings.

## CHAPTER IV

### PRELIMINARY SLEDGE JOURNEYS

Description of our winter-quarters—The surrounding scenery—Accident to the Captain—Magnetic observations—Departure of Royds' party for Cape Crozier—Daily occupations—Browning wins—Return of men from the party—A tale of disaster—Vince's death—Fruitless search-parties—Return of Hare—Habits of the dogs—Mooring the ship—Return of Royds' party—The Captain's training-party—Sledging experiences.

THE hut was now nearly completed. A quantity of provisions and 15 tons of coal were also landed and stacked round the hut. They formed a shelter in case we should be compelled to live there at any time, as well as being a very necessary precaution.

The pumps already gave us considerable trouble by freezing up, so that if a serious fire broke out on board it was improbable that we should be able to save the ship.

The windmill, with which we had been supplied in London, was erected on the fo'c'sle head by our chief engineer and his staff. It looked rather too flimsy a concern to withstand the furious gales of wind that blow in these regions, but the Captain had great hopes that it would resist them successfully.

One day towards the end of February, Captain Scott and I ascended Crater Hill to view the route

that he intended taking in a few days' time, when he, Royds, Koettlitz, Skelton, eight men, and eight dogs, would proceed on a short sledge journey. He desired to visit our post-office at Cape Crozier, in order to leave despatches for the Commander of the relief ship, and to let him know where the *Discovery* was wintering. Royds and a party were to branch off towards the nearest island.

As frequent reference will be made to the locality of our winter-quarters, I will describe them more particularly. The bay in which the *Discovery* was moored is small and shallow. It is situated at the southern extreme of a long, glaciated tongue of land jutting out from the slopes of Mount Erebus. Hills form a semicircle from west, through north, to east. Our hut was built at the western extreme of this semicircle which we called Hut Point. Above Hut Point the land gradually rose to a height of 500 feet, forming hills which we termed Arrival Heights and Harbour Heights.

To the northward of these hills was a magnificent piece of rock of peculiar shape, which we named Castle Rock. It rose 400 feet sheer from the surrounding glaciation, and 1,400 feet above sea-level. North-east of the ship were hills forming a fine crater, and naturally called Crater Hill, which was separated by a pass, named the Gap, from a very conspicuous peak named Observation Hill, the eastern boundary of the bay.

Observation Hill terminated in a point, Cape Armitage, very kindly named after me by Captain Scott shortly after our arrival in winter-quarters, to show his appreciation of my services to the expedition. I need hardly say how gratified I felt at this mark of

his esteem bestowed on me by our Commander, and it was the more appreciated because my name was thus associated with those of Ross's officers, Captain Crozier and Lieutenant Bird.

The Gap was about 250 feet above the sea, and by going through it we crossed our narrow peninsula, arriving on the eastern side of it, and in a large bay bordered by the slopes of Mounts Erebus and Terror. Between Castle Rock and Crater Hill was an ice-slope which led into our bay, and between Harbour Heights and Castle Rock was another ice-slope descending on the western side of the peninsula. On the western side of Harbour Heights lay ice-slopes terminating in cliff-faces of various altitudes up to about 80 feet.

All the hills were astonishingly bare of ice and snow, Observation Hill especially; and the loose soil at the surface, in which one could easily bury one's hands, felt quite warm. Several small ponds were formed in the valleys between the hills, frozen over, however, at the time we arrived, although when we penetrated the ice with a pick the water gushed up freely, having a temperature of  $35^{\circ}$  F.

On February 27 the Captain slipped when ski-running, and strained a tendon in his leg, so had to lay up for a while. This was very annoying for him, as he wished to start away on his sledge journey in four days' time, and Koettlitz could not hold out much prospect of his being able to do so.

Bernacchi commenced his magnetic observations on March 1, the variation instruments being mounted in one of the asbestos huts. The following day he reported some marvellous results. The declination varied tremendously; the horizontal force disappeared

off the paper, the vertical force showed not at all. Hodgson had been using one of our whale-boats for dredging purposes, and was delighted with the rich haul of marine life that he obtained.

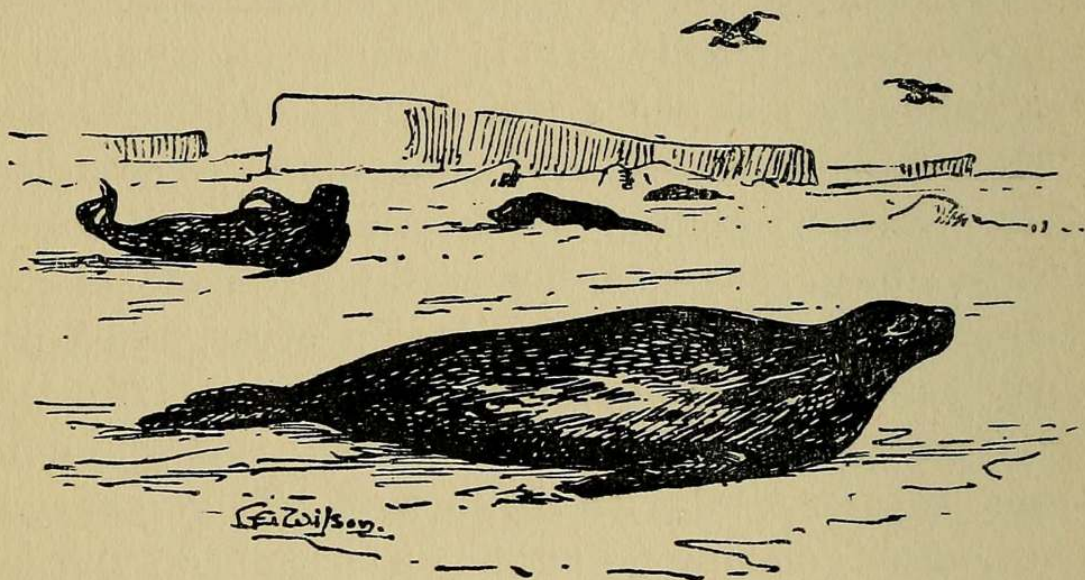
Four days after his accident the Captain's leg was worse, so he gave up all idea of sledging himself for some time. He was good enough to ask me if I would care to take charge of the party. Although I should have liked the journey, I did not care to go in charge at such short notice, as I had had nothing to do with the organization of the party, and everything had been arranged very hurriedly.

The following day the party departed under Royds. He, Koettlitz, four men, and four dogs dragged two sledges. Barne, Skelton, and a similar number of men and dogs dragged two other sledges. Some of the crew aided in dragging the sledges across the hills, returning in the afternoon with one dog, badly bitten. They reported that all was going well. At midnight another dog returned with his harness on him.

Those of us remaining at the ship occupied our time in various ways. The men continued discharging stores under Shackleton's supervision. Bernacchi worked at the magnetic station. Hodgson and Wilson interested themselves in their special work. Amongst other things, Hodgson caught six fish in a small trap, the largest being about 6 inches in length. One day both of them crossed the Gap to the eastern side, and shot ten seals. There were a great number of seals on that side of the peninsula, chiefly Weddells. They saw three crab-eating seals, too, one of which they secured. I made observations for time with the theodolite, and erected a tide-pole near the shore. Young

ice formed in large quantities during the night, and, as the tidal current flowed in and out of our bay with considerable swiftness, the tide-pole continually suffered, and had to be abandoned. Big pieces of old ice were continually breaking away from the western side of the sound, and came very close to the ship at times, but did not strike her.

Two of the members of our mess, Shackleton and Bernacchi, were very fond of poetry, and, of course, each had his favourite author. Many were the



WEDDELL SEALS.

arguments raised as to the respective merits of Browning and Tennyson, so it was decided that Shackleton should read extracts from Browning, and Bernacchi from Tennyson, while the remainder of us listened and carefully judged between the two, voting after each pair of extracts had been read. They declaimed in their best style, endeavouring to point out the beauty of the passages chosen by them. Ferrar caused much amusement, after an extract from 'The Pied Piper of Hamelin' had been read, by saying: 'Well, I'm not



much on poetry, but I go on rats.' Browning won by a single vote.

The Captain's leg had been put in splints, so it was rather a trial for his patience. He occupied his time by reading, writing, and forming plans for the future during the mornings; and in the afternoons we generally played dominoes until some of us amassed quite a large amount of counter wealth.

The young ice formed in our bay was not yet strong enough to bear our weight, nor even that of a dog; evidently my dog Vainka thought that it was, for, on being taken on shore one day, she endeavoured to get on board by crossing the ice, but broke through, and I had to hurriedly lower the dinghy to rescue her.

We had been here just a month, and since crossing the Antarctic Circle everything had certainly exceeded our most hopeful anticipations. Remarking on this, some of our staff said that 'we were rather frauds, for we had endured no hardships or risks such as the home folks believed that we should.' So I told them to wait a bit, as I felt sure that, before the year was over, they would agree with me that Polar work was not all a picnic, especially after they had experienced the darkness and sledging, and suggested that they should not treat it too lightly, little knowing that we were all to receive an object-lesson within forty-eight hours.

Six days after the departure of the sledge-party for Cape Crozier, Wilson sighted them returning. They were about ten miles distant, so that we expected them on board the following day. A moderate east-south-east wind was blowing, which quickly increased

in force, and on the following morning was blowing a fresh to strong gale.

At half-past eight on the night of March 11 the quartermaster reported that four men were near the ship. The Captain, who was now able to walk, went on deck, and soon returned looking very anxious. The four men, Wild, Weller, Heald, and Plumley, were brought into the wardroom, and gave us the following disquieting news :

The party had kept together until the morning of the 9th, and then, as they had been making very poor progress because of the thickly-drifted snow which they encountered, Royds sent back the men and dogs in charge of Barne, while he, with Koettlitz and Skelton, endeavoured to reach Cape Crozier, taking with him seventeen days' provisions on one sledge. As they had only about 300 pounds weight to drag, and had ski with them, they expected to be able to do so.

Barne and his party met with no mishap until the morning of the 11th. On the eastern side of the peninsula the weather was fine, although blowing hard at winter-quarters. They had no hot breakfast, because their cookers were out of order. They hauled their sledges up the eastern slope of the hills, and, on arrival at the top, met the full force of the gale, which soon became a howling blizzard. They pitched a tent as best they could, and huddled into it without putting on their furs, then had some cold food. Being tired, with nothing warm inside them, they soon became very cold, some of them suffering from frost-bites.

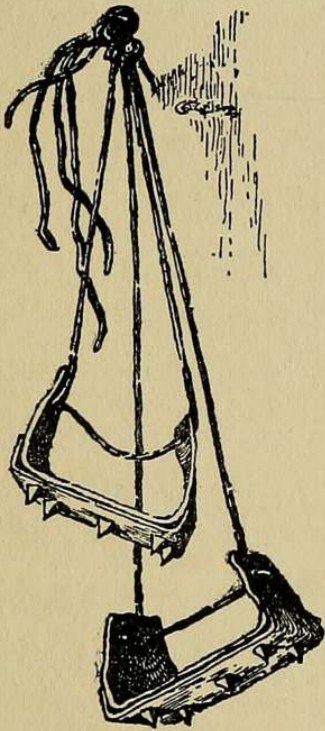
Barne, who knew they were only about two miles

from the ship, for they had passed Castle Rock, determined to leave the equipment where it was, release the dogs, and return home as speedily as possible. He told the men to remove their fur boots and put on their leather boots. The latter were hard, and painful to wear by reason of the low temperature, zero F., so two of the party, Hare and Vince, neglected to put them on.

Soon after they started the blizzard became still worse; they could not see five yards ahead of them, and they missed the right direction for the ship. Instead of going down the slope (Ski Slope) between Harbour Heights and Crater Hill, they wandered on to the slope that runs past Castle Rock and to the west of Harbour Heights. Hare and Vince had been continually slipping about in their fur boots, so the former turned back towards the sledge to put on his leather boots. When he was missed, the others spread out to look for him.

Suddenly Evans disappeared down the slope. Barne went down to look for him, and, as the others could hear nothing, Quartly followed Barne. The others waited at the top of the slope, shouting loudly and all together, but could neither see anything nor hear any answering voice. They endeavoured to proceed along the top of the slope, supporting Vince as best they could. They could not keep him up, they would not let him go; so all plunged down the slope, separating as they fell, Vince slightly ahead of the others. Wild, just behind Vince, saw his unfortunate comrade launched into eternity over the edge of the ice-cliff in which the slope terminated, a dog disappearing with him at the same time.

Wild dug his fingers and boots into the ice in a desperate endeavour to stop his way, at the same time shouting to the others to do likewise. A patch of snow and a slight rise in the slope providentially helped them, and there they lay for some moments, hardly daring to believe that they had still a chance for their lives. Inch by inch they crawled up the slope, and fortunate it was for them that they had their leather boots on, for without them there is little doubt that they would have followed poor Vince. After arriving at the top of the slope, they scrambled over the cliffs and reached the ship. They feared that their leader, Barne, as well as Evans and Quartly, had made the last great journey of all.



CRAMPONS.

The Captain was terribly agitated, and wished to set out himself with a party in search of the missing men. It was only by telling him that he might retard us in our search, through his leg giving way, that he consented to remain on board, for no consideration of self would have restrained him. As speedily as possible a search-party was organized. Wilson, Ferrar, and thirteen men accompanied me, and we dragged a sledge with us laden with furs and a few medical necessaries. Before departing from the ship, the party mustered in the wardroom, and was inspected to see that each one was properly clad to face the blizzard. All of us wore our wind-clothing, and had crampons on our feet. Steam was raised, and

when we were a short distance up the slope we could hear the weird shriek of the *Discovery's* siren, which was kept continually sounding to direct the lost men to the ship.

Shackleton, with a boat's crew, went away in the whale-boat to search for the missing men at the foot of the ice-cliffs on the western side of the hills. Every now and again, as we climbed up Ski Slope, some of our party would be certain that they heard a shout in answer to that which we sent forth to herald our approach, and figures like men were constantly seen, only to take the shape of rocks that loomed hazily amidst the murk of the blinding blizzard which surrounded us.

As we got more on the level the gale abated somewhat; Castle Rock became visible, and, to our great relief, three figures appeared in front of us. They were Barne, Evans, and Quartly, who were wandering about looking for the sledges in a more or less dazed and frost-bitten condition. I sent them to the ship under Ferrar's care, and continued the search for Hare. Wild had pluckily accompanied us on our search, to point out where the sledges had been left. After wandering about for some time we found them. They were just at the top of the slope leading down to the sea, and some of the dogs were sheltering under their lee. It was indeed fortunate that Barne had given the order to camp when he did, for had they marched a few yards further with their sledges, it is more than probable that all would have been lost. Although we sought long for Hare, and shouted with one accord at our loudest, there was no sign of him, so we reluctantly returned to the ship, where we arrived at 2.30 a.m.

Shackleton did not not return until 4.30 a.m. They had managed to pull along the shore-line for about two miles, when they were driven off by the gale, and were barely able to regain the ship after four hours of the most arduous toil. Thus ended a night such as, I am sure, not one of us would care to experience again.

One of the peculiarities of the Siberian sledge-dog is that, on the return of those that have been away, they are treated as strangers by the dogs that have remained at home, so that battles and murders result unless precautions are taken. All the dogs were therefore chained until they became accustomed to one another once more.

The weather became much clearer, so Wilson again searched the slopes with a party of men, and hauled in the sledges. They could see no trace of the missing men.

On the morning of the 13th the quartermaster reported that a man was descending the hills. Some of the crew who were ashore rushed to meet him, and brought him aboard. It was Hare, whom we had all given up as lost! Although exhausted, he was otherwise quite well, and without even a frost-bite. We gave him a cheer, which seemed to revive him considerably. When he left the main party he had missed the sledges, and wandered about until he dropped exhausted. He remembered nothing until he recovered consciousness thirty-six hours afterwards, recognised Castle Rock, and descended to the ship. Fortunately, he had on his Jaeger blouse, and all his wind-coverings were well secured. He had drawn his arms inside his blouse, the snow had drifted over him,



55

ADMIRALTY RANGE FROM THE SEA.





and he never even felt the cold. We all thought it perfectly marvellous, and I must say that I felt rather proud of the clothing equipment.

On the afternoon of Hare's return steam was raised ; we unmoored, and proceeded to the western side of the hills so as to view the whole slope. There was not a sign of poor Vince. He had been a great favourite on board, and was regretted by all, for we felt that heavy toll had been exacted by the Antarctic in taking away the life of such a gallant young man as our cheery comrade.

On our return to the anchorage we moored in 14 fathoms of water. Hare was none the worse for his exposure, and was able to turn to work in another day. The frost-bitten men were progressing favourably, Barne's fingers being the only serious case. All the young ice was cleared away by the recent gale, but was forming rapidly again.

The 15th of the month is a magnetic term day, so Bernacchi was landed after dinner, and warned that he might not be able to get on board in the morning, as the ice was thickening so quickly. He slept in the hut, where a stove had been rigged up, and where, of course, there were plenty of eatables.

Some of the dogs were, unfortunately, let loose by someone, and two of them were soon murdered by the rest of the pack. This was the more annoying because we had so few of them.

Captain Scott now decided to moor the ship permanently with her stern towards the shore and her head to the westward. No more cruising was to be done that season ; and the idea of establishing another station for scientific work at some distance from the

*Discovery's* winter-quarters was quite abandoned, if, indeed, the Captain had ever seriously intended doing so. The port bower was therefore lifted; a wire hawser being passed through the stern lead, and made fast to an anchor buried in the shore ice, was hove taut, and the port anchor again dropped on the bottom. The shore abeam of us, where the huts were situated, was about 130 yards distant.

As we were surrounded by young ice, this evolution occupied considerable time, and Bernacchi, who was on shore, watched the operation with great interest. He could not walk over the young ice, and it was doubtful if a boat could reach him. When the ship was moored, a boat was sent for him, and just managed to get him on board in time for lunch, which Bernacchi enjoyed even more than he ordinarily did; for he had gone without breakfast, notwithstanding the fact that, as Shackleton pointed out, there was a stove in the hut, plenty of coal, and provisions sufficient to ration one man for thirty years.

As this was the first Sunday since the death of Vince, a service was held in the evening, at which we had prayers and hymns appropriate to the occasion. The Captain alluded to the tragedy, and endeavoured to impress on the men's minds the absolute necessity there was for them to exercise their individual intelligence for their own safety. In this respect Wild had much distinguished himself, so that I felt a pride in the knowledge that he was an ex-P. and O. quartermaster who had only recently joined the Royal Navy.

The winter routine of meals was commenced in the middle of March. Instead of having breakfast at 8 a.m., lunch at 1 p.m., tea at 4 p.m., and dinner at

7 p.m., we now had breakfast at 9 a.m., tea at 2 p.m., and dinner at 6 p.m.; for during the winter months, when we were unable to be out in the open air so much, we did not feel a desire for so much food as we had been accustomed to have.

A strong southerly gale set up a swell which had a peculiar effect on the recently-formed ice in our bay. The ice was so elastic that for some time, owing to the motion of the water underneath, it presented an undulating appearance like a stage sea; but after a few hours it all drifted away, so that we were not to be frozen in yet a bit.

After being absent for fifteen days, Royds, Koettlitz, and Skelton returned. They had not succeeded in reaching the post-office at Cape Crozier, although they had been very close to it, and had camped on Mount Terror, where they experienced rough travelling, severe weather, and low temperatures. On one night the thermometer registered as low as  $-42^{\circ}$  F.

The Captain now desired to make another sledge journey; his leg was well, so he wished to go himself. The objects of the journey were to train the men, and to lay out a depot in preparation for a future journey. The party was to consist of the Captain, Wilson, Ferrar; Messrs. Feather and Dellbridge; Allen, McFarlane, Walker, Smythe, Williamson, and Blisset; together with myself and eighteen dogs. The general arrangements were left to me, with one exception: the Captain did not wish to have the depot provisions unpacked from the cases. I should have liked to do so, for the cases form much more of a dead weight, and to a certain extent nullify the pliability of the sledges. From my experience in the North, I did

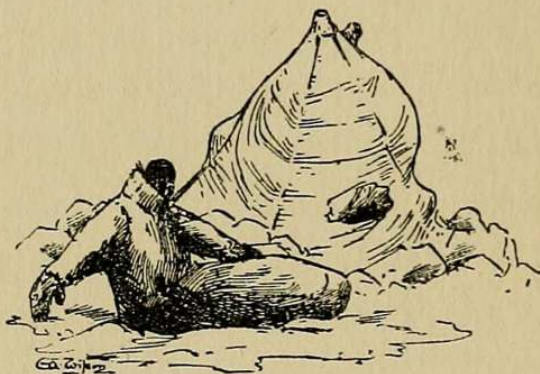
not care either for the idea of men and dogs dragging together, which had been arranged. When they are harnessed to the same sledge, they seldom pull together.

We left the ship on the last day of March, taking our sledges through the Gap, and lowering them on to the sea-ice on the eastern side of the peninsula. The ship was by this time firmly frozen in, apparently for the winter, as the skuas had all deserted us. The sea-ice was very sticky with salt, so that the sledges dragged heavily, some of our party remarking, after we had dragged for about a mile, that they thought we must have covered four miles. In the evening, at 6 p.m., we arrived on the old ice, which was 2 to 10 feet above the young ice. We camped on this old ice, which appeared to be the north-west corner of the Great Ice Barrier.

As soon as the dogs had been fed and we had finished our dinners, there was considerable amusement caused over getting into our furs. We were using reindeer-skin blouses, which joined on to half-bags of the same material. The temperature was  $-38^{\circ}$  F., so that, although the men had practised getting into their furs on board the ship, when they were warm and pliable, it was now a very different affair, when the furs were hard and stiff with cold. As a rule they required too much arranging to be done in the tent, and, if one happened to fall in them outside, one had to stay there.

At this time of the year it was dark by 7 p.m., so dinner had to be consumed by candle-light, the candle being placed in a small collapsible mica lamp, which we hung up in the tent. The Captain shared his tent with Wilson and one of the quartermasters, who was

a particularly broadly-built man. This man seemed to find great difficulty in fitting on his blouse, so Captain Scott very kindly endeavoured to help him on with it in the tent, Wilson staying outside until the operation was over. Ferrar and another quartermaster shared my tent with me, and as we were snugly lying in our furs smoking a pipe before going to sleep, suddenly we heard a great commotion. The Captain had managed to haul the blouse over his companion's head, but when the latter struggled to get his arms through the sleeves of the obdurate garment, he hit the candle-lamp, 'dowsing the glim' most effectually, with one sleeve, and banged the Captain with the other. The exclamations that followed sent us into fits of laughter, but soon all was peace, and the quietness of the camp was only broken by the occasional snarling of the dogs, who never seemed to sleep, and by the snoring of one or two fortunate individuals whom nothing could disturb.



HALF SLEEPING-BAG AND BLOUSE.  
AN UNFORTUNATE TUMBLE.

We made very poor progress, for the dogs were mostly dragged instead of dragging. The temperature fell to  $-49^{\circ}$  F., by the ordinary thermometers. The minimum thermometer did not work properly, so very probably the temperature during the nights was lower still. This sudden great change was certainly too much for our dogs, for they appeared to be quite curled up by it, neither sleeping nor eating well. I think, too, as a first experience, it was too much for

the men, especially as we had to drag the load that the dogs were supposed to pull. In consequence the Captain, after being out three days, deemed it advisable to return to the ship. Before doing so the bulk of the provisions was cached, amounting to 2,000 pounds in weight. The dogs knew that they were on their way home, and raced along so quickly that we had actually to restrain their ardour. We covered the distance in six hours. The short trip was not quite useless, as it had shown those who were totally inexperienced in sledging work something of the realities of it.

## CHAPTER V

### WINTER OCCUPATIONS

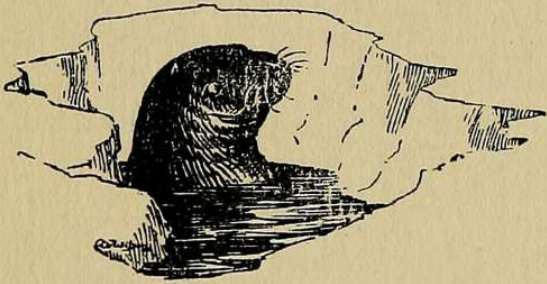
Preparations for winter—Killing Weddell seals for food—*The South Polar Times*—*The Blizzard*—Meteorological and tidal observations—Emperor penguins—The windmill damaged—Hodgson and his work—Ice formations and temperatures—Disappearance of the sun—Effects of its absence—Eclipse of the moon—Debates—Entertainment in 'Gregory Lodge'—A blizzard and its effects—A tide register—'The Order of Asses'—Distinctive odours—Music and games—Characteristics of the warrant officers.

ON our return to the ship, preparations were commenced with a view to making the dark months of winter as cheerful, and our wooden home as comfortable, as possible. The winter covering, a kind of large tent that completely shut in the deck over the living-quarters, was tried on. It had been made in Dundee, but, not being at all a satisfactory fit, had to undergo considerable alterations.

Weddell's seal, or the false sea-leopard (*Leptonychotes Weddelli*) was the species of seal which collected in the greatest numbers on the thick, fast ice near the land during the breeding season. Indeed, they were procurable throughout the year, for they kept breathing-holes open as long as they possibly could, and constantly came up to breathe at the holes kept open by Hodgson for his biological work. Among the

herds of Weddell seals we occasionally saw the crab-eating or white seal (*Lobodon carcinophagus*), but not in great numbers. I shall have occasion to refer to this seal later.

A number of seals were killed off Cape Armitage, the carcasses cut up, and the meat brought to the ship on sledges, as an addition to our larder. The manner of killing these seals was to stun them with a heavy blow on the nose or front part of the head, and then pierce the heart with a knife. The confiding nature of these trusting beasts allowed of a close approach to them. They knew not man, neither had they any



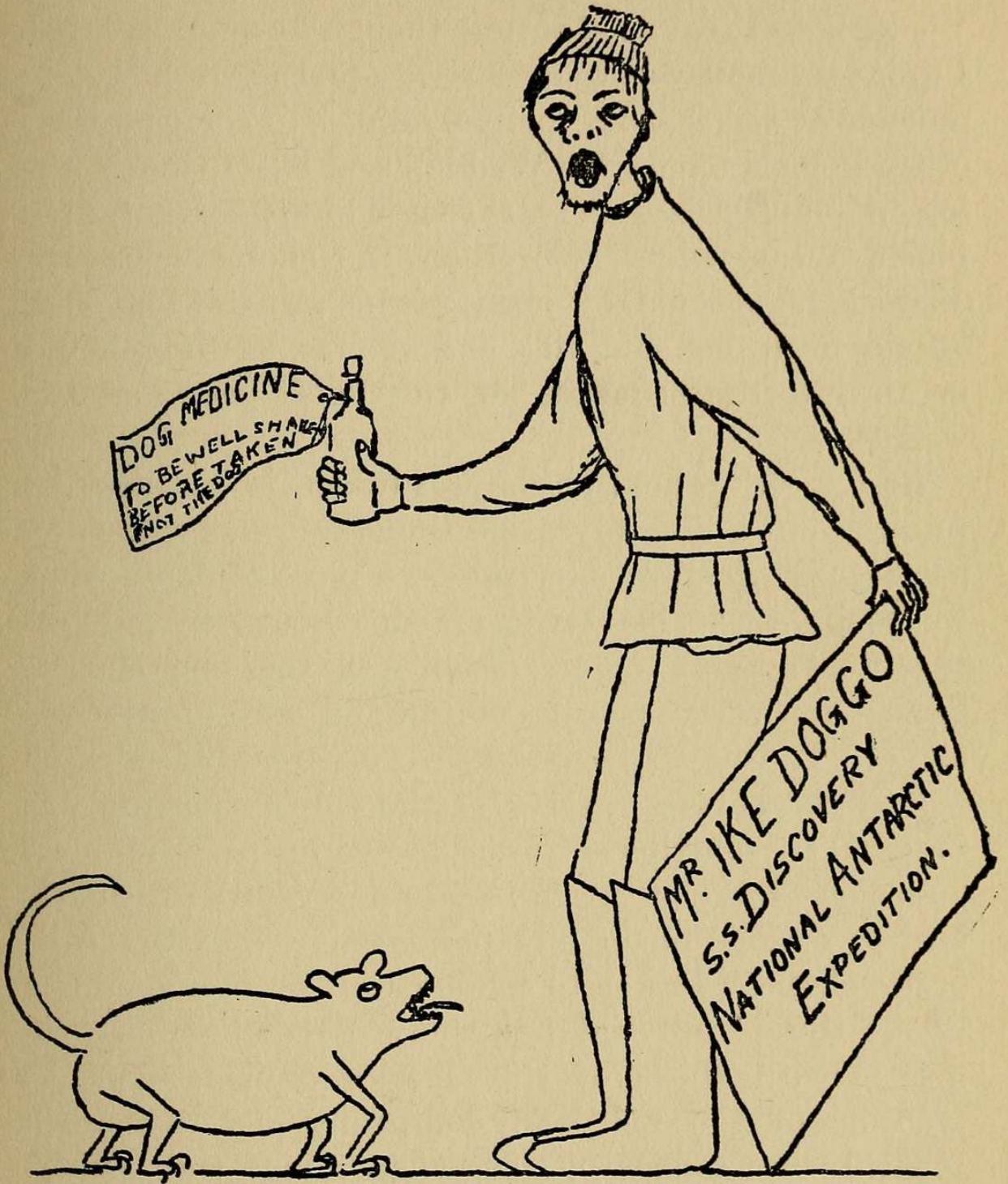
A SEAL IN ITS BLOW-HOLE.

intuition of his destructive tendencies. Perhaps they looked on us as emperor penguins of abnormal size; certainly their behaviour gave no evidence that they had any cause to fear an

enemy when away from the water.

The Weddell seal formed our staple meat diet, more especially during the second year. Its flesh is a dark brown colour and coarse-grained. If attended to properly by the cook, thawed gradually, and all fat eliminated, it is very palatable, and readily lends itself to any culinary treatment—like beef, for instance. By itself, without seasoning or sauces, etc., it is somewhat flavourless—something like poor horse-flesh, which I have had the pleasure of eating in the North Polar regions. For about nine months our cook did not appear able to tackle the problem of serving it with any variety; we had fried seal-steak day after day until many of us loathed the sight of it. Subsequently,





NO I

FROM 'THE BLIZZARD.'

with a change in the method of cooking it, we all voted Weddell seal real good eating, though I cannot say that I ever went so far as to declare it equal to fresh beef or mutton, as some of our company did. In common with other Polar animals, the Weddell seal has a thick coating of blubber as well as a tough hide; so that, at a pinch, a castaway explorer on the shores of South Victoria Land could, by means of this valuable mammal, obtain food, fuel, clothing, and shelter, as Nansen did in the North by means of the Polar bear and the walrus.

At a meeting held in the wardroom, it was decided to bring out a monthly paper something like a London magazine. Each of us wrote on a piece of paper what we thought the best title for this Southern publication. *The South Polar Times* was the one chosen. Shackleton was appointed editor, and Wilson principal artist. It was to be published on the 1st of each month; and every member of the ship's company was invited to contribute towards making it the most amusing, instructive, up-to-date journal, with *the* largest circulation of any periodical within the Antarctic Circle. It was to combine all the best qualities of all the penny and halfpenny London dailies, together with those of the superior comic papers, as well as of the fourpenny-halfpenny and half-crown monthly magazines. Notwithstanding this super-excellence, *The South Polar Times* was to be issued free to all the population of our small colony, the cost of production being more than covered by the grateful feelings of the recipients, to say nothing of the advertisers. Needless to say that a rival magazine which was brought out, named *The Blizzard*, whose

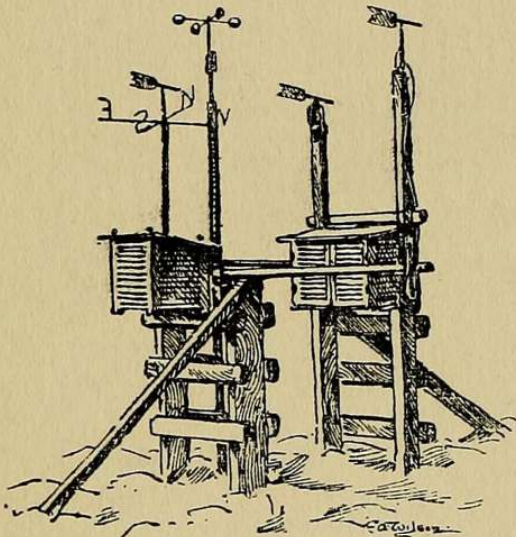


NO II

FROM 'THE BLIZZARD.'

contents consisted of poetical effusions rejected by *The South Polar Times*, did not survive the first number. On most days during the first month of the winter the clicking of the typewriter could be heard in Shackleton's cabin as he busily 'set up' the paper; and frequently a shy and conscious-looking blue-jacket would enter the editor's sanctum to ask that worthy man's advice. A carved box was placed outside the office for the receipt of contributions, but would-be authors much preferred a personal audience; so our

editor, in self-defence, removed his office fittings to a storeroom in the bowels of the ship, where the wicked ceased from troubling, and his poetical nerves were at rest.



METEOROLOGICAL SCREEN.

Royds was our musical director, and organized the few concerts that we had during the winter months, and Barne undertook the

management of the 'Terror' Theatre. We had a number of properties and an excellent make-up box, Mr. Harry Nicholls having been so kind as to help Shackleton to get them before we left London.

On April 12 the meteorological screens were set up on the sea-ice about 50 yards astern of the ship, and regular readings were taken of the instruments throughout the twenty-four hours. Royds recorded the observations at two-hourly periods from 8 a.m. to 8 p.m. inclusive; and each of the officers and members of the scientific staff, in turn, sat up all night, so as to

keep the record unbroken. The men took it in turns to be on watch during the night, too, to keep the fires trimmed, and to call the observer, if necessary, at the requisite time. Most of us preferred to pass the time by reading or working, and by preparing savoury dishes of toasted cheese or fried sardines over a spirit-lamp.

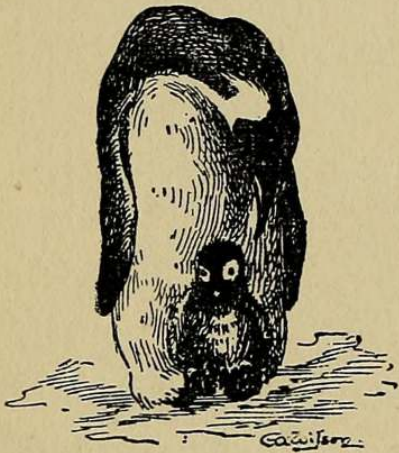
The tides were measured by means of a tripod, erected on the sea-ice, at the apex of which a block was suspended. Rove through the block was a length of thin sounding-wire weighted at each end. The heavier weight rested at the bottom of the sea, while the lighter weight was suspended above the ice. As the action of the tide caused the ice to rise or fall, the height of the tide was read off on an index, the thin wire easily cutting through the ice.

On April 9 there was open water only 400 yards distant from the ship, and stretching away to the west-north-west as far as we could see; so it was not surprising that we were visited by a large number of emperor penguins, as well as by seals. On one occasion thirty emperors were killed and captured at one time, as specimens. Wilson made some beautiful colour sketches of the captives. The emperor, although unwieldy on the ice, is a powerful bird, and makes a game fight for it before being captured. It was dusk when the above large number were taken, and those of us who did not take part in the struggle were immensely amused by the laughable scene that took place. One man received a violent blow on the head with a stick from another who mistook him for a penguin. Others, again, found that it was all they could do to prevent their captives' escape to the water;

they had to lie on the unfortunate birds, at the same time keeping a firm grasp on their necks and bawling for help. These splendid birds, with their beautiful plumage, form a fine trophy. Their flesh, which is dark-coloured, is good eating, though rather strong, and we rarely indulged in it.

Open water extending so far up McMurdo Sound had a considerable effect on the temperature and weather conditions generally at our winter-quarters. The thermometer readings were high, and we had frequent strong winds and blizzards, with damp snow

falling, which was very unpleasant. The sails of our windmill were severely damaged during one of these gales, and our electric light, in consequence, suspended until they were repaired—an exceedingly cold job for Skelton and his staff to execute.

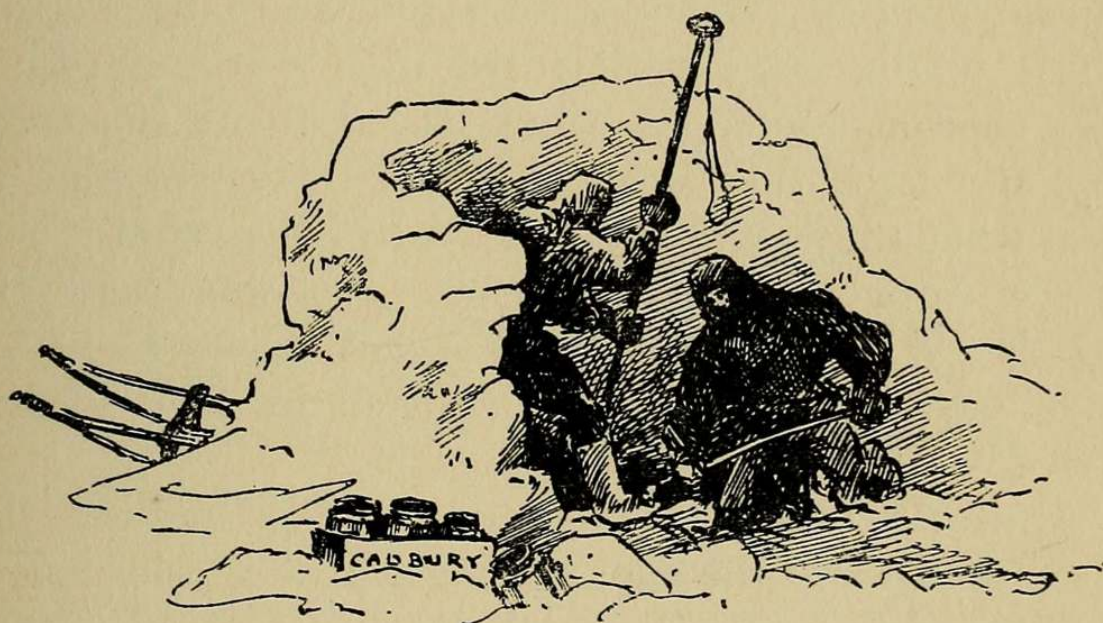


EMPEROR PENGUIN AND  
CHICK.

Wilson and Shackleton daily climbed Crater Hill, at the summit of which they had placed a thermometer, so as to obtain a comparison of the temperatures at different levels.

Hodgson, assisted by Barne, made several holes in the sea-ice, and surrounded them with shelters built up with ice. Through these holes he lowered traps and nets, and so obtained many species of marine life, which, in marked contrast to the solitary specimen of life discovered on the land—a diminutive insect—was most abundant. These holes had, of course, to be kept open, and in nearly all kinds of weather Hodgson could be seen, soon after breakfast, sallying forth,

towing a small sledge on which were packed lines, nets, slices, bottles, etc. Later he would return with his hauls. Sponges with long tentacles in which were concealed many forms of life; starfish, sea-urchins, crustacea, worms, sea-cucumbers, slugs, spiders, etc.—all came into Hodgson's net, were sorted out, and pickled. As the laboratory on deck was far too cold a place in which to work during the greater part of the year, Hodgson's pickling operations were conducted in the wardroom, where, notwithstanding the odour they



THE BIOLOGIST AT WORK IN HIS SHELTER.

caused, they were of considerable interest to the rest of us. The lovely canary colour resulting from the flow of picric, which so added to the beauty of many objects—not collected by our biologist—also frequently called forth exclamations of admiration from his mess-mates. On one occasion he discovered amidst his haul a spider with five pairs of legs. As a rule they have four pairs only, so this little stranger caused quite a stir in our scientific circles, being looked on as a very wonderful nymph indeed. Once our scientist

got immersed to his middle in one of his holes, but emerged none the worse and with undamped ardour.

Captain Scott was intensely interested in ice-formations. He carefully watched and noted the formation of ridges in the ice as it was slowly pressed against the land to the eastward of our winter-quarters. The growth of the ice—that is, its increase in thickness—at various points in our little bay was measured at regular intervals of time, especially during the second winter. Thermometers were placed at various depths in the land-ice, which were attended to by Ferrar. The Captain, too, experimented with platinum-resistance thermometers, one being placed above the main top, and two others over the side. He was able to read what they recorded on a dial in his cabin. The temperature of the sea-surface also was regularly taken. Wild, A.B., the blue-jacket whose ability I have previously mentioned, assisted in most of the above work.

April 23 was a notable day, for it marked the disappearance of the sun, a total eclipse of the moon, and the début of *The South Polar Times*. I doubt whether those who have not experienced it can at all imagine what the loss of the sun means. It is not the mere fact that there is less heat and light. Indeed, in regard to the former, it is not so cold during the long absence of the sun below the horizon as after his return in the spring. But it seemed as though some vitalizing force had been withdrawn from our lives. We knew by the clock, by the departure and return of the moon each month, and by the movement of the stars, as well as by the increasing shortness of daylight during each succeeding twenty-four hours,



that the days were passing by. Still, one did not realize it to nearly the same extent as when the sun, each morning and evening, rose above our horizon and dipped beneath it; and as midwinter approached it seemed, to me at least, as though all the days were rolled into one long night. Walks were taken more as a matter of duty, for our health's sake, than for pleasure, and as time passed by we felt less inclined for each other's society when taking our daily constitutionals. The great depression felt by some Polar explorers was certainly not developed during our stay in the Antarctic; nevertheless, there was a slight amount of it, as well as a tendency to irritation, which, I am glad to say, was kept well under control by all our company. We saw nothing of the total eclipse of the moon, for, so far as we were concerned, that luminary was entirely eclipsed by clouds during the phenomenon. When all was over, she showed herself near the southern horizon, and a very distorted object she appeared, there being much refraction.

The first number of *The South Polar Times* was voted a great success, the illustrations by Wilson being admired very much indeed, and the reading matter well edited. For some weeks during the first winter, debates were held in the wardroom, after dinner, on one day in each week. We took it in turns to occupy the chair, commencing with the Captain. The subject of our first debate was, 'Is the Great Ice Barrier Aground or Afloat?' and proved most interesting, opinions being about equally divided. All of us hoped and believed that we should have far more knowledge on which to base an opinion, however, after the main sledge journeys had been made.

Discussions were held during the following weeks on such subjects as the following: 'What Meteorological Conditions are likely to Prevail at our Winter-Quarters during the Winter—Settled or Unsettled?' Five of our number considered that the former condition would prevail, and five thought that we should have generally unsettled weather. One of the most amusing debates was that on 'Woman's Rights,' all of us, with the exception of Hodgson, being agreed that the fair sex suffered from disabilities, in comparison with man, that should be remedied; and that they should have, when capable of maintaining them, equal rights with man. 'Our Commercial Supremacy: Are we taking Proper Measures to Maintain it?' drew forth the opinion of the majority that we are certainly not doing so. 'Would Conscription Benefit the Empire generally?' produced a majority against forced military service. Humorous speeches were made on 'Spiritualism' and 'Sport.' But perhaps the most interesting of all our debates were those entitled 'Seals and their Habits,' Wilson giving us a delightful paper on the subject; 'Is South Victoria Land Part of an Antarctic Continent or not?' and 'What are our Prospects of Successful Exploration in the *Discovery*, to the East and West, when the Ship is Freed from her Winter-Quarters?'

On May 1 we held a house-warming in the living-hut on shore, 'Gregory Lodge,' so named after Professor Gregory, F.R.S., who had superintended its building in Australia. We had an entertainment consisting of a concert, prefaced by a show of lantern slides, exhibited by Royds, illustrating the building of the *Discovery*. Clarke, cook's mate, scored the success of the evening

with 'Pherson's Feud,' in broad Scotch dialect. The whole show was highly appreciated and received with much applause.

Commencing on May 2, and continuing until the 4th, a furious blizzard raged. During the afternoon of the 2nd the weather was gloomy and threatening, with a moderate easterly wind, which increased to a strong gale during the night, and, veering to the south-west, blew with renewed vigour. The thickly-falling snow was driven fiercely along by the tremendous force that impelled it. The cowls of the mess-deck and wardroom funnels were whirled away by one of the screeching squalls that scurried through the *Discovery's* rigging. Shortly after, another storm-gust carried the head of the windmill away, snapping the thick steel standard as though it was a rotten carrot, and rendering the expensive plant useless for purposes of light in the future. These squalls were the general accompaniment to the many gales of wind that kept the weather conditions from being too monotonous in our part of the world, and, as they howled overhead, might well be taken for the spirits of the lost winging their way to Mount Erebus' crater, and shrieking as they were driven towards the entrance of that fiery pit.

A drift 12 feet high was formed to windward of the ship by this blizzard, at a distance of about 10 feet from the ship's side. The back-draught caused by the wind blowing on the side of the ship made a great hollow alongside, and the *Discovery* herself was simply smothered in snow. The meteorological screens were buried, and much of the recently-formed ice was broken up, and drifted out to the Ross Sea, taking with it the

shelters built by Hodgson and Barne at the observation holes. One of them had contained a pick, shovel, and trap. A small Lucas sounding-machine that had been used for kite-flying also disappeared, not ignominiously dragged up towards the heavens by a patent box-kite that never knew its own mind for two consecutive seconds, but on its real legitimate business of sounding the depths of the sea.

Open water was now only 100 yards from the ship, and seals were obtainable close at hand. The tripod for measuring the height of the tide had to be removed, and the ship was in future used as the float from which the wire was suspended. The wire was led through a tube, which was filled with oil and placed in the ice, while a cork with a small hole in it was fixed in each end of the tube. This, an invention of Wilson's, prevented the wire from rusting, and from being gradually worn away by the ice. The accumulation of snow was soon cleared off the ship, and the winter covering, which had been badly damaged, was repaired. Hodgson had to construct fresh shelters. He also laid down a trawl with an endless line attached, which led up through the ice at two holes situated about 50 fathoms apart, so that he could haul it up at either one as he wished.

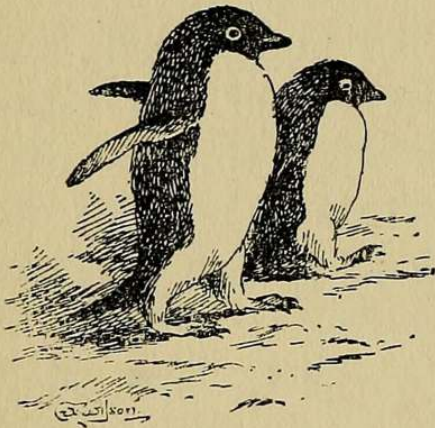
Before we left England Koettlitz was presented with a complete bacteriological outfit by the students of Guy's Hospital, where he had studied more than twenty years previously. He now utilized the interiors of the Weddell and crab-eating seals, as well as those of the penguin and skua, for his experiments. He also made some beautiful coloured sketches in connection with his phyto-plankton work by aid of the

microscope. We generally peered through when he had any specially beautiful object on view. Occasionally one or other of us would make some would-be facetious remark. If the culprit was one of his scientific colleagues, Koettlitz would solemnly remark, 'So-and-so, you surprise me! I should not have expected it of you!' If, however, the jester happened to be a nautical man, or Bernacchi, he would be punished by not being allowed to see the next curiosity that emerged from the cabin, and by a stern silence that spoke volumes. Soon our good-natured surgeon would relent, and again allow us to share his interest in the fascinating work that he had undertaken, and showed some of the younger members of our mess, who were most persistent in their chaff, that he also was capable of a jest, for he created the 'Order of the Ass,' and classified them according to their respective merits.

Of course, after being some months in such close companionship, we exhausted each other's little yarns and jokes somewhat, and I often admired the attentive manner in which an oft-told tale would be received by the narrator's audience; the joke, too, that had frequently served its turn would still raise a laugh from us all. If a stranger could have been suddenly conveyed from the centre of civilization to our wardroom, he would, I am afraid, have felt a trifle nervous as he heard the merriment that ensued on some remark being made, in which he, without doubt, would have been unable to discern any cause for laughter, but which to us sounded very funny indeed. A most fortunate thing it was, too, that we were able to see the humorous side of our existence in those regions;

otherwise our life in the secluded South would have been a most melancholy affair.

The penguins that had been killed for specimens were frozen until Wilson could deal with them, and then brought into the wardroom to be thawed out. They were generally placed on beams that crossed the skylight over the table, and often remained there until they commenced to 'talk,' as we termed the scent that evidenced their thawed-out condition. They then made a hurried exit. In time we grew quite adept at distinguishing, as we entered the wardroom,



PENGUINS.

whether the bacteriologist, the zoologist, or the biologist, had been hardest at work, or, perhaps I should say, had secured the strongest subject on which to operate.

It was a singular fact that we had only one musician amongst the officers of the expedition.

One or two could manage to strum a popular antediluvian tune or two, but Royds was the only officer who could perform with pleasure to his companions. On most evenings he would delight us with his playing, and no doubt, as was the case with myself, each of our small number would find his thoughts 'homeward-bound' as some well-known air reminded him of his dear ones in the Old Country. Of course we could all manipulate the pianola with more or less success. It was a great source of entertainment. Royds, naturally, was the best performer, but there were others of us who imagined that we possessed no mean skill, and who

would sit at the instrument for an hour or two rattling off the finest compositions one after another in the most brilliant style. Eventually, some months before the *Discovery* was released, the pianola broke down, after thoroughly proving what a great amount of work it was capable of. Of course we played cards, bridge being the favourite game. Some of us, too, played chess, and another game in which we found much amusement was parlour quoits.

During the whole of the time that we spent in the Antarctic the morale of the men was excellent. Certainly they were picked men; but notwithstanding that fact, their conduct, shut up as they were in such close quarters, was wonderfully good. It would be absurd on my part to pretend that either officers or men were, speaking vulgarly, 'little tin saints,' for we were nothing of the kind. Neither would it be correct to say that we never had dissensions, for we had; but after having read about numbers of Polar expeditions, and having heard at first hand of several modern explorers' experiences, I can truthfully say that, taking them all round, it would be exceedingly difficult to gather together a body of men more amenable to discipline, who would agree better together, show a more intelligent interest in all that concerned the objects of the expedition, or give more loyal aid to their officers than those on the *Discovery*.

The warrant officers always had plenty of employment. The assistant-engineer, Mr. Dellbridge, was, of course, chiefly employed in the engine-room. He was one of the handiest of 'handy men,' and invaluable to an expedition like ours, where so much had to be made out of so little material. Being a very good-

natured man, he was frequently called on by someone to do some small job or another, and most of us have some souvenir of his art. Indeed, Skelton had to protect him by giving orders that he should do nothing, even in his spare hours, without his (Skelton's) express permission.

One might travel round the world, and not find a more suitable man for the position of boatswain of an exploring vessel than Mr. Feather. A quiet, determined man, he would carry out exactly what he was ordered to do. Under the supervision of Royds, he saw to all the executive work of the ship. The contented spirit that prevailed throughout the mess-deck, as well as the first-rate condition in which the *Discovery* arrived at New Zealand on her return from the region of frost and snow, were largely due to him.

Needless to say that, in a wooden ship, the carpenter held a very responsible position. Mr. Dailey showed himself fully equal at all times to the work that he had undertaken. Apart from the actual work constantly required about the ship, there were many other jobs that fell to his share ; and whether it was erecting 'Gregory Lodge' or fitting the sledges, he was equally at home in anything that he put his hand to.

Our chief steward, Mr. Ford, not only had to keep an account of all the stores, and see to their issue, under the control of Shackleton during the first year, and Barne during the second year, but he also acted as secretary to Captain Scott, and weighed and bagged all the provisions that were taken on the various sledge journeys. He was a good photographer, too, and always ready to aid in anything that might con-



duce to the comfort of the various messes. It is a difficult task to satisfy the cravings of a hungry sailor, especially when economy has to be exercised in certain foods that appeal to him. Mr. Ford, however, managed to satisfy us all, and even astonished us by the variety of the bill of fare that he provided on festive occasions, such as Christmas and Midwinter's Day, etc.

## CHAPTER VI

### LIFE ON BOARD

Some account of the petty officers and blue-jackets—Providing fresh water—Arrangements for cleanliness—Evils of dampness—The coal-bunker—Ventilation—Preparations for sledging—Sleeping-bags—A young seal—Pleasant weather—Midwinter's Day celebrations—Mess regulations—The library—Amusements of the crew—The warrant officers' snugery—Our boats buried by a gale—An interesting event—The 'Dishcover Minstrels'—Monthly measurements—The Aurora Australis—Return of the sun.

It would be invidious to mention specially any one man on the mess-deck when all were so good. Of course, during the length of time that we were associated each one became known for special qualities. Of the petty officers, Cross, for instance, made a first-rate assistant to Wilson, becoming quite an adept at skinning penguins, etc. His yarns about his diving experiences were of the most thrilling character. Evans was distinguished by his great strength, boxing qualities, and good-nature. Allan, Kennar, and Macfarlane were, as quartermasters, specially associated with myself, and capital men as such I found them. Macfarlane was a fine boxer and oarsman. On his return to England after the first year, Smythe took his place, which he filled with equal success. Allan had a tuneful voice, with which he sang plaintive Scotch ballads; while Kennar, on

the other hand, was tone-deaf, though exceedingly fond of singing. Duncan, Mr. Dailey's able mate, was



P. T. O

FROM 'THE BLIZZARD.'

another large man with a harmonious but very plaintive voice, who delighted in chanting to us the most sentimental of Scotch ditties.

Of the others, Dell acted as butcher, as well as being an able performer on the mandolin and a capital boxer. Poor chap! he suffered from blood-poisoning for some months during our stay in the South, and had to undergo operations on two or three occasions. He contracted the complaint through cutting his finger with the knife that he was using on a seal. Heald and Pilbeam were experts in explosives, the former being ready for any desperate deed, and the latter having evidently missed his vocation as a music-hall star. Wild I have already mentioned. Williamson was a sprinter. Crean was a long Irishman with a fund of wit, and an even temper which nothing disturbed. Walker had been a Scotch whaler, and could spin many a yarn about the big fish of the Northern seas. Croucher was the philosopher of the mess-deck, and of a very ambitious nature. Joyce and Handsley were distinguished for their smiling faces, and readiness at all times to help anyone. Peters was a quiet man, who returned after the first year, and about whom I knew little.

Of our six stokers, two, Page and Hubert, returned to England after a year's sojourn in the Antarctic. The other four were splendid specimens of their class. Quartly was, I should think, the most powerful man on board the ship. Being about 6 feet in height, and beautifully proportioned, he certainly presented the handsomest figure amongst the ship's company. Lashby and Whitfield were also very strong men. The former was a quiet man, who was never happier than when he was working, and could turn his hand to anything. He was a great favourite with us all. The latter was, perhaps, the bulkiest man on board, with a

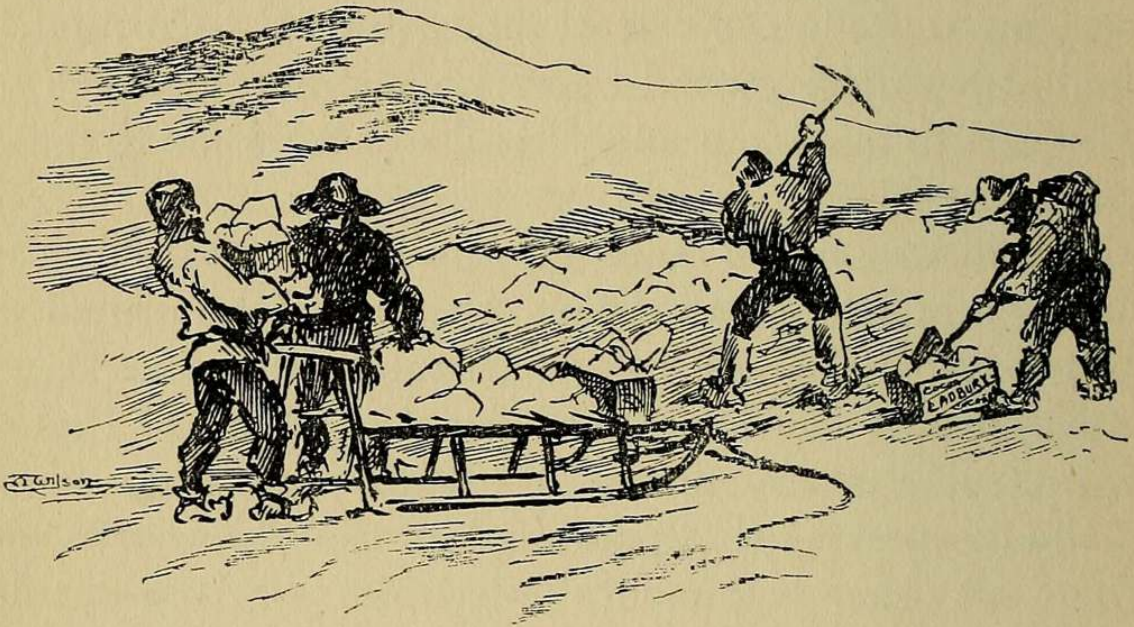
great gift of argument. Plumley was a very clever blacksmith—a necessary quality for at least one of the members of an expedition like ours to have.

The two Royal Marines, who attended in the ward-room, had no sinecure. Their work commenced in the early morning, and was seldom finished before nine or ten at night. One of them, Blisset, had the reputation of being a good light-weight boxer, and possessed a pair of arms of which he had reason to be proud. The other, Scott, was an untiring worker, with an unfailing stock of cheerfulness. To him I shall always feel grateful for the manner in which he attended to my cabin and did all in his power to make it comfortable.

Clarke was cook's mate for the first year, and cook during the rest of the time, the man who joined as cook in New Zealand returning there after one year's experience of the ice. 'Charley the cook,' as Clarke was popularly termed, was Whitfield's great opponent in the discussions that prevailed on the mess-deck, and when all other arguments failed him, he would turn on a broad accent that fairly bewildered and routed his antagonist. Buckridge and Hare were two young men who joined the expedition from a spirit of adventure. Buckridge had fought in the South African War and explored in Australia before he joined us at Cape Colony. He was laboratory attendant to the scientific staff. Tiring of the Antarctic after one year's service, he left us, only to meet his death, poor fellow! in an endeavour to circumnavigate the world in a small boat. Hare left us at the same time as Buckridge. He had acted as assistant steward, and was a quiet, reserved man with considerable powers of endurance.

There remains one other member of our community to be mentioned. Weller was the man who was in charge of the dogs between England and New Zealand. He played the mandolin, and was a most interested assistant to Hodgson, keeping holes open in the ice, etc., during our second winter.

Nearly every one of us was known by some nickname or another, suggested either by the individual's name, his occupation, or by some characteristic that



THE WATER-SUPPLY FOR THE DAY.

was particularly to the fore, so that, from the 'Skipper' downwards, hardly anyone was known by his proper name.

One of the principal duties of the men was to keep the ship provided with fresh water. This they did by quarrying out ice from a neighbouring ice-slope, which they loaded up on to one of the rough sledges, and dragged to the ship. Round the galley funnel, over the stove, a tank had been fitted in which the ice was placed, where it soon melted, giving us a plentiful

supply of excellent fresh water, which was, of course, filtered for drinking purposes. We were able, therefore, to keep ourselves clean by washing every day, and could enjoy a hot bath at least once a fortnight when on board the ship. Macfarlane, Lashby, and Scott were first-rate hands at hair-cutting, so that there was no necessity for the ship's company to look like a lot of poets let loose. Indeed, we rather flattered ourselves that we were a decidedly cleanly-looking crowd for a Polar expedition, especially after reading the accounts and seeing the photographs of one or two other South Polar exploring-parties.

We had one large bath in the sick-bay, but it was never used, officers and men alike using small, portable hip-baths. It would have been much more healthy to have had a bathroom, which could also have been used as a drying-room for our clothing. As it was, the steam from the hot baths and from the clothing which was hung about in the living-spaces caused a great deal of dampness. This dampness in the living-spaces, in fact all over the ship generally, was a continual source of annoyance. As the cold took a firm grip of the ship, we were able to see what a great deal of moisture there was in her interior. Underneath our bunks, in the chests of drawers, wherever the bolts penetrated the ship's side, all round the flanges of the deck-lights, and in many odd corners, quantities of ice collected. In the ship's holds it was some feet in thickness, where the bilge-water had become frozen. During the summer, when this ice was in the melting stage, it emitted an unpleasant odour that pervaded some of the cabins.

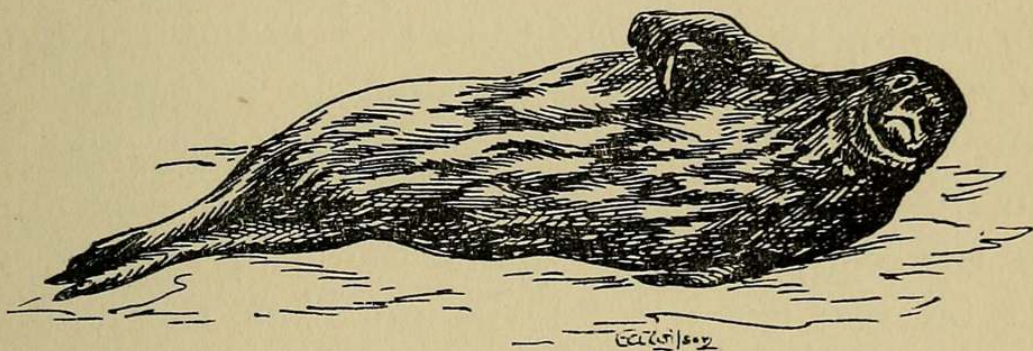
Our coal was stowed underneath the wardroom, the

deck of which was not lagged, and as this large space became nearly empty, and the deck seams opened, a considerable draught ensued. When the coal was disturbed, a fine layer of dust covered everything in our cabins. Some thought and expense had been bestowed on the ventilation. Nevertheless, it was not satisfactory. The ventilating-shafts became filled with ice, so that it was necessary to open the skylights to obtain a sufficiency of fresh air. All this, however, did not prevent us from being very comfortable—more so, perhaps, than any previous Polar expeditionary party whose home has been their ship—and I merely mention the above circumstances to give an idea of the conditions under which we lived, and to point out to those desirous of visiting icy regions that a ship may be made even more comfortable than the *Discovery*.

During the latter half of the winter the men were kept constantly employed in preparing gear for the sledge journeys. All the food for these journeys was packed in small linen bags, each bag containing a ration of some particular food sufficient for three men for one week, and with the name of the contents plainly marked on the outside. All the small bags were then packed in one large waterproof bag, on which was painted a letter and a number. The biscuits were kept in the cases in which they were supplied, after the tin lining had been removed. These cases were specially light and durable. They kept the biscuits from being broken into small pieces, and as a case was emptied it could be thrown away. Some of the sledge-parties adapted a large canvas tank in which to pack their provisions. This was lashed to the sledge and divided into compartments.



We had tried it on the Jackson-Harmsworth Expedition, and discarded it. As it is emptied it becomes unwieldy, and is also a constant weight. When opened in a blizzard it gets partially filled with snow, and is not nearly so readily removed from the sledge, when necessary, as the bags. Numbers of sleeping-bags were made, too—some to contain three men, others for one man only. Most of the wardroom party supervised the making of their own sleeping-bags. The chief points were, to see that the bag was made large enough to allow for contraction in the low temperatures, that the aperture was big



A WEDDELL SEAL IN THE ACT OF SCRATCHING HIMSELF.

enough for one's entry and exit in a hurry, and that it could be closed in such a manner as to admit a minimum of cold air. All these conditions had to be thought out with a due regard to weight, which is, of course, the great factor in sledging.

The month of May during our first winter was not at all a pleasant one, and the wild weather often caused us to contrast our surroundings with those that we associated with remembrances of that month in England. On the last day of May three seals came on the ice, and were killed. On examination, one of them, a Weddell, was found to have inside it a small,

perfectly-formed young male seal, about 2 feet in length, which Wilson placed in spirit.

About the middle of June the Captain had a yarn with me about the sledging programme for the summer. He told me that he should push as far South as possible, taking one or, at the most, two officers with him and all the dogs. Royds was again to attempt to leave despatches at Cape Crozier, and, if possible, scale Mount Terror. I was to take the Western Mountains in hand, with a party of men.

For two days before Midwinter's Day, (June 22), we enjoyed glorious weather—that is, of course, in comparison with some of the weather that we had been having; for without the sun I do not think that any weather is deserving of such an adjective. The moon was about the full; the atmosphere was very clear; calms and light winds prevailed. Although it was the middle of the Antarctic winter, seals were seen on the ice, not far distant from the ship. It was very pleasant to go out in such weather, the temperature not being very low, only about  $-20^{\circ}$  F. On the 21st I went for a long walk over the ice of McMurdo Sound. A red glow from the sun was distinctly visible over the northern horizon, shading off until it blended with the blue at an altitude of  $15^{\circ}$ . There was even a faint reflection from it in the south, although the moon was bearing due south and nearly at the full.

The 22nd fell on a Sunday in 1902, so we celebrated it on the following day. The mess-deck was gaily decorated with coloured papers, which were hung in festoons across the messes. Each mess, too, had some special design, besides being adorned with pictures

and draped with flags. A large inscription in red letters on a white ground read: 'God bless the New Zealand farmers.' Some of the mutton given to us by them formed the *pièce de résistance* of our mid-winter dinners. Just before they commenced their dinner on the mess-deck, the Captain, accompanied by all the wardroom party, inspected the messes; and we wished the men a jolly good time. The stokers' mess invited us to partake of some excellent ices that they had concocted. The Captain then distributed a box of presents. These, together with the coloured papers, had been sent on board by Mrs. Royds, mother of our First Lieutenant. She had been most kind and thoughtful in getting together a present and card for each individual on board the ship. The simple gifts afforded us more pleasure than, perhaps, she had any idea of when she collected them. Mrs. Wilson, our zoologist's wife, had sent us each a card, too. We left the men to enjoy their good fare, and, to judge by the sounds of revelry that issued from the mess-deck, they did so most thoroughly. Were further evidence required of the satisfaction afforded by their feast, it could be heard by anyone passing through the men's quarters some three hours later, when the only sounds that broke the silence of the ship were the contented snores that serenaded one from all sides.

Our dinner in the wardroom was no less a success. Fresh mutton, seal, turtle soup, tinned fish, jellies, plum duff, etc., formed a menu that nobody need despise. Mr. Kinsey, of Christchurch, New Zealand, had generously given us some magnums of champagne, and port and liqueurs were not wanting. The Captain contributed some excellent cigars, and a bottle of wine

that had been North with the expedition of Sir George Nares, R.N., in 1875. Admiral Sir Albert and Lady Markham had sent us each a Christmas card, and Dr. H. R. Mill and his wife had sent us cards on which were printed a representation of the *Discovery* under sail, with appropriate quotations from Kipling and Tennyson underneath. A young lady, whose warm-hearted sympathies we very much appreciated, had sent us two cakes, on which her name, Miss Sylvia Hope-Ruxton, was inscribed, together with kindly greeting. One was sent to the mess-deck; the other remained in the wardroom. Three cheers were given for all these friends, whose kindly thoughts were so dear to us, exiled as we were from those we loved.

At the close of dinner the Captain's health, coupled with that of the crew, was drunk, and we sang 'For he's a jolly good fellow.' The crew mustered at the wardroom door, and gave three cheers for the Captain and officers, receiving yet another ration of grog in return.

After dinner we sang songs, and imbibed punch—brewed by myself—until it was time to turn in, thus ending a very enjoyable day. To me it was a double celebration, as it was my father's birthday. I have no doubt that his thoughts turned to me on that date, most probably with pity, as he remembered that it was Midwinter's Day in the Antarctic. Little did he, or, indeed, any of our friends, imagine what a jolly day it was for us.

On June 25, after dinner, we all adjourned to 'Gregory Lodge,' and enjoyed a capital entertainment. Several of the men sang. Kennar, as usual, was very amusing, having not the slightest idea of tune. One

of the songsters, on being told by the accompanist (Royds) that he was too high—meaning his voice—promptly stepped down from the platform, causing roars of laughter. Page gave us a song of his own composition, in which he alluded to Koettlitz and Skelton. The concert was followed by a farce, our first and last theatrical attempt, entitled ‘The Ticket-of-Leave.’ It was a great success, the ladies—Scott and Buckridge—being especially good. At the end of the show cheers were given for Barne, the stage-manager, and for the actors. It seemed a pity that we did not have any more theatricals, but the longer we stayed in the Antarctic, the less inclined did we feel for that kind of effort. A blizzard was howling as we returned to the ship, and some of the party had to warm their noses when we arrived on board.

Each member of the wardroom mess was in turn president of the mess. His duties were: To keep order at dinner between the times that he said ‘Thank God’ at the beginning, and proposed the King’s health at the end of the meal; to propose the health of any member whose birthday it happened to be; to see that the meal was properly served, etc. He was provided with a mallet and a circular piece of wood. The latter he banged with the former whenever he wished to draw the attention of the mess to anything that concerned its members.

No one was allowed to make a bet, or to pass any remarks derogatory to the president before the King’s health was drunk. If an individual offended in this respect, bang would go the mallet, and the autocrat of the dinner-table would sternly say, ‘So-and-so, you are fined for calling the president a “juggins,”’ or what-

ever it might be. Sometimes two of us in heated argument would bet a dinner to be given at some favourite restaurant in London, and would be immediately called to order and fined for our lax behaviour. The fine consisted in paying for the wine consumed at the end of dinner. There were a number of bets booked similar to the above. I don't know whether any of them have been paid, or were ever thought of after our return to civilization. They served their purpose, in amusing us at the time. Before our departure Sir Clements Markham had given Captain Scott a small book, in which were recorded the birthdays of the various members of the mess, and the dates of events interesting to us, such as the launch of the *Discovery*, etc. On all such occasions the wine was passed round a second time, in order to duly honour the toast.

On the mess-deck the men contrived to amuse themselves very well. Many of them kept exhaustive diaries; others made models of sledges, etc. All of them, of course, made free use of the large library with which we had been provided, apart from the scientific library that had been paid for by the expedition authorities. Many of the publishers in London had generously given us a number of volumes. A 'well-wisher' had presented us with fifty novels, and some authors had given us copies of their works, Bullen, Whympers, and F. H. Burnett being amongst the number of those who had done so. Sir Clements Markham and Sir Alfred Harmsworth, too, had sent us several books on Polar exploration from their own libraries, and the proprietors of the large illustrated weeklies and of the monthly magazines had bestowed

quantities of their publications on us, so that we were never at a loss for reading matter.

The men also took full advantage of the numerous games provided for our use by the kindness of Mrs. Longstaff, and it was significant of their cheerfulness that they took advantage of the moon's light to play football on the ice as late as June 14, only a few days before Midwinter's Day. Their favourite indoor game appeared to be shove-ha'penny, of which 'John o' Gaunt,' to give Wild the name by which his comrades called him, was the champion. There was one custom—for it could hardly be called a game—that created a great deal of merriment in the men's quarters. A medal was made out of tin, and was conferred on the biggest 'Jonah.' As to what quite constituted the particular merits of the holder of this decoration I could never properly make out, but every now and again we would hear uproarious cheers from the mess-deck, which proclaimed that it had been transferred to someone who was considered more entitled to wear it than the previous holder. There was also an anti-swearing club formed, but it sooned died a natural death.

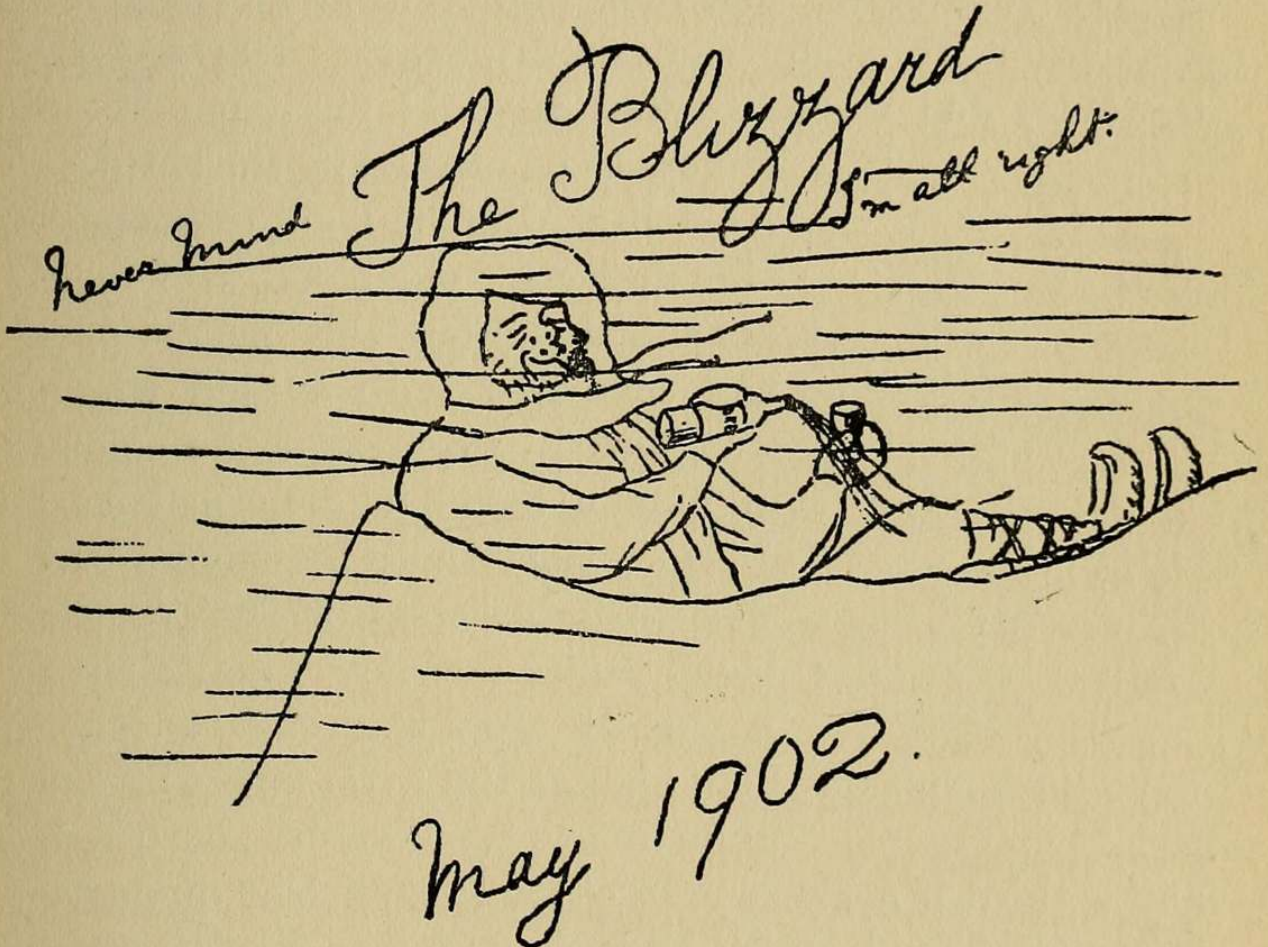
On two or three occasions, during bad weather, we had a little excitement, caused by the absence of some of our people. On one occasion two of the warrant officers were absent for some hours; two or three times the biologist was adrift; and Barne's delay in returning from one of his sounding trips caused us some anxiety. Each time that this occurred, preparations were made to search for the missing ones, and once the search-party had actually left the ship. Fortunately, however, we always found that we need not have been alarmed.

The warrant officers had a snug little berth on the mess-deck, which was boarded off, so that they had a room to themselves. Some of the wardroom party would frequently visit them and have a game of bridge or a yarn with them about their experiences in various parts of the globe. It was like paying a call at another house, where we could glean new ideas on subjects that had been well threshed out in our own domicile. Sometimes, too, one of the officers would give the men a talk. Nearly all the members of the scientific staff did so at various times, so as to give them a good notion of the objects of the expedition and gain recruits in their special departments. One evening I gave them instruction in the use of the prismatic compass, which we used when sledging, and Skelton kindly operated at the lantern for me while I showed them a couple of dozen views illustrating exploration in the North Polar regions. I closed my address by showing them a large portrait that I had of Nansen, as a reminder of what might be done by a man determined to succeed.

In the month of July we had one of the severest of gales experienced during the winter. Our boats, which had, unfortunately, been placed on the sea-ice, not far from the shore, on their keels, were completely buried, and as the weight of snow pressed the ice down, they were flooded with water, which froze solidly inside them. As they were stowed close together, we subsequently had great difficulty in freeing them. During this month, too, Bernacchi obtained pendulum observations, in which he was assisted by Skelton, and my dog Vainka gave birth to a fine litter of puppies.



We were to celebrate the anniversary of our departure from England by an entertainment in the hut. 'The Dishcover Minstrel Troupe' were to be the entertainers, and for some time they had been busy rehearsing under Royds. At last the eventful day (August 6) arrived. Poor Royds had been laid up with rheumatic pains and sore throat, so was not able to



FROM 'THE BLIZZARD.'

take the active part in the show that he had intended to. He played the accompaniments, however, and had the gratification of witnessing the success of the minstrels whom he had worked so hard to train. Of course the usual string of topical jokes came off, the windmill being the general butt. One of the original conundrums was: 'Why is the Captain not worth a

parson's damn ?' Answer : ' Because he is only a great Scott !'

On the 1st of each month throughout our stay in the Antarctic regions, the two doctors made measurements of every man on board the ship. Our chests, waists, biceps, forearms, and calves, all had the tape passed round them. Koettlitz experimented, too, with a ' Try your blow ' machine, and Wilson had a rival attraction in a squeezing-instrument. The ordeal, however, was when we had to hold forth our little



WAIST MEASUREMENTS.

fingers to be pierced by the ruthless Koettlitz, who had an unquenchable desire for our blood, which he examined under the microscope, and compared with a fluid which was tinted to represent the colour of human blood in a normal condition. Sometimes he made a bad shot with his steel pricker, or the blood would not flow freely ; then Koettlitz would make another fierce jab at the little finger of the unfortunate who would not bleed,

and a third if necessary, to obtain a sufficient quantity of the vital fluid, which he sucked up into a small glass tube that was fitted like a patent pen-filler. These operations always created a lot of merriment ; for while no one desired to have the champion waist measurement, a quarter of an inch would be disputed in the other measurements, in order to prove that the muscular development of one of our youthful members exceeded that of another.

In the wardroom Ferrar topped the list in all but

the waist inches, the belt never being taken from me in that competition. Koettlitz was the tallest, and Bernacchi, until the advent of Mulock, the shortest, member of our mess. Ferrar, Royds, and I ran one another very closely in regard to weight. Wilson had a trick of drawing in his breath until his ribs bulged out in a most extraordinary manner and his waist became most attenuated. We would gaze on him with admiration, and, like a lot of children, would say, 'Do it again.' The chest expansion of some of the crew was very fine indeed, and their physical proportions would have called forth admiration from the Sandowists. Those with the most showy physique, however, did not always display the greatest powers of endurance. Koettlitz found, somewhat to our surprise, that, taking us all round, the number of red blood-corpuscles increased, rather than diminished, during the winter, and the amount of hæmoglobin was, in the generality of cases, above normal.

The Aurora Australis sometimes favoured us with a fine display of light, but never attained the brilliance that the Spirits of the Dead, as the Esquimaux poetically term the Northern Lights, shed over Franz-Josef Land when I was there. The auroral light would generally commence in the north and east, and gradually spread to the southward with a lateral, pulsating movement, rising to an altitude of  $60^{\circ}$ . It appeared at times to fade away into space; then it would return again to the same position, or suddenly disappear altogether. On rare occasions the light would open out like a fan, and send streamers shooting up to the zenith; then a corona of coruscating light would be

formed, which in turn would throw out flashes all round the heavens. These would, again, take many extraordinary shapes, serpentine and scroll-like, that contracted and expanded like some monstrous medusæ. On these occasions prismatic colouring of the most delicate hue could be detected amid the usual pale straw colour, and, as one watched the streamers in their whirling dance, the shimmering shades of green and rose and cream colour in which they were arrayed suggested a charming idea for an Empire or Alhambra ballet. Bernacchi made a special series of observations of the auroral light in connection with his magnetic work, and requested to be called whenever a really good display took place. From the erratic nature of the phenomenon, it was always even chances whether Bernacchi would arrive on deck in time to see a final glimmer or not. After being called two or three times in one night, with the temperature many degrees below zero, his ardour would be considerably cooled, and he would express his belief that the night observer was competent to enter any details concerning the Aurora, without disturbing his (Bernacchi's) slumbers.

And so the winter night drew towards its close. Day by day the light from the still hidden sun increased, until on August 22 our eyes were gladdened by the sight of the great renewer of life—the glorious sun. It was a great event, and was fitly celebrated, in true British fashion, by a special dinner.

## CHAPTER VII

### SPRING EXPLORING EXPEDITIONS—SCURVY

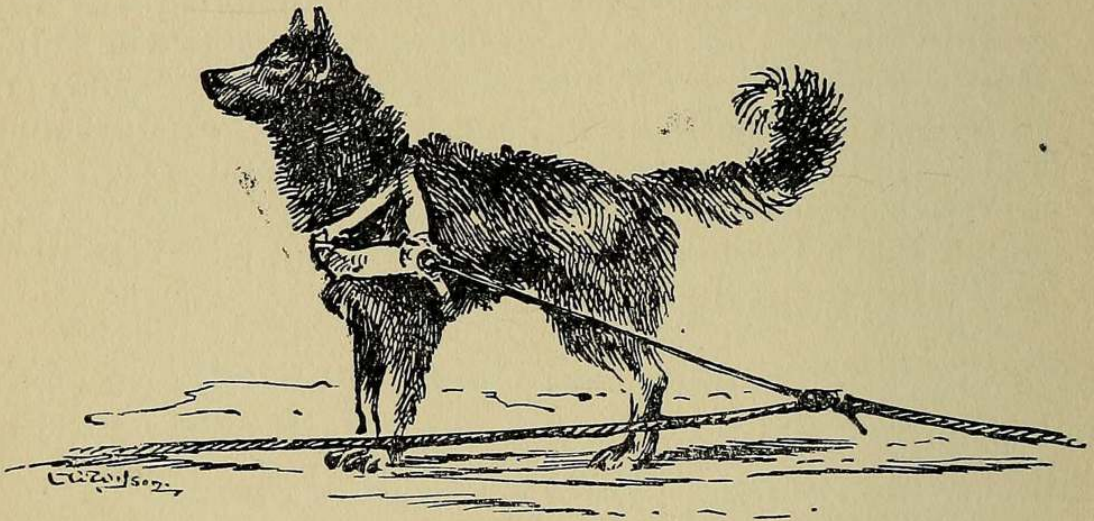
Spring sledging commences—Captain Scott visits Dellbridge Islands—Reconnaissance journeys by Royds and Armitage—Armitage's experiences—Remarkable-looking ice—A wonderful valley—The 'demon' scurvy—Return to the ship—Royds' bad luck—An unfortunate blizzard—Scurvy defeated—The importance of good cooking—Two dogs and a seal—The Captain lays out a depot, and meets with crevasses—Koettlitz, Bernacchi, and Dailey make a trip round Black Island—In search of fresh meat—Ware tinned food—Midnight light.

CAPTAIN SCOTT commenced the spring sledge journeys on September 2 by making a short trip to Dellbridge Islands, which were eleven miles north of our quarters, taking with him Shackleton, Skelton, Wilson, Ferrar, and Mr. Feather, the boatswain. The sledges were dragged by four teams of dogs, which went away at a great rate, and were soon out of sight in a whirl of driving snow raised by a fresh wind.

The Captain had told me to take a party of men and bring in the provisions that we had cached the previous autumn. We were to have made a start the following day, but, as the wind increased, I postponed our departure for a day. Then, all being ready, Barne, ten men, and myself went away in the morning, and that afternoon found the depot on the barrier completely buried in snow, but with the flag that we had erected

over it still flying. After digging out the bags and cases, we camped for the night, loaded the sledges the following morning, and were back at the ship the same day. We were not in good condition after the winter, so were quite pleased when some of the men from the ship gave us a helping hand for the last mile or two.

We found that the Captain's party had returned shortly before we did. They had remained camped for sixteen hours on the day after they left the ship,



DOG HARNESS.

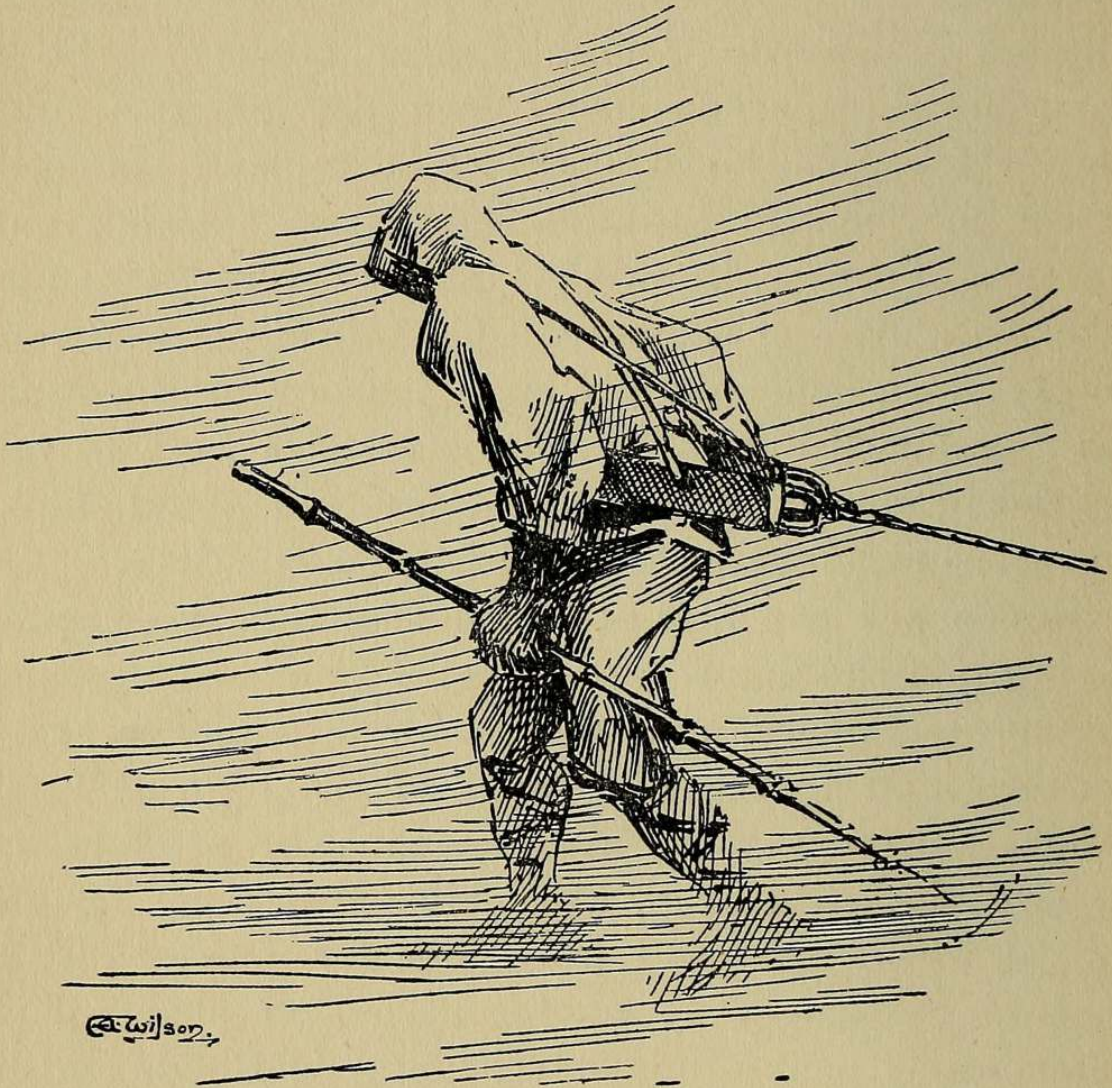
weather-bound, and then crossed a long tongue of ice which extended from the ice-slope of Mount Erebus to the westward, between our quarters and Dellbridge Islands. Ferrar obtained specimens of rock from the latter, which were, he said, of considerable geological interest. The long tongue of ice which they crossed was an interesting problem to us, for it was evidently afloat, as was proved by soundings subsequently made by Captain Colbeck in the *Morning*; but how it remained in position we could not decide.

I had asked Captain Scott to allow me to make

a journey to the mainland, to look for a way through the mountains. We rather differed as to the best route to take on the main journey. He thought that a pass would be found up the Koettlitz Glacier to the north of Mounts Discovery and Morning; while I favoured the fjord that we had seen when we first entered McMurdo Sound (Ferrar Glacier). So he determined to send away two parties—one under Royds towards the Koettlitz Glacier, and the other under my charge towards the Ferrar Glacier. We did not, of course, know that glaciers were there until later on. At the same time Captain Scott was going to lay out a depot for his main journey to the south, making for Minna Bluff. Royds and I were to take parties of men with us, and the Captain would employ the services of our four-footed friends, the dogs.

Royds was the first to leave the ship, the Captain giving him the following orders: To proceed west past Mount Discovery, and search for a pass across the western land to the southward of the high mountain range. To survey the coast as much as possible, and to give Koettlitz every available opportunity for geological work. He had provisions for fourteen days. It was customary to photograph each sledge-party immediately before they started, and as Royds and his companions posed in front of the camera, harnessed to their sledges, they formed as likely-looking a lot of men for the job they were undertaking as could be imagined—Koettlitz, over 6 feet in height, spare, and hardened by his previous Polar experience; Royds and Quartly, both six-footers, lithe and active, and remarkably strong; Evans and Lashby, tall, deep-chested, powerful men, endowed with great powers of endurance;

and, lastly, Wild, who although small in appearance, was as tough and wiry as a bit of flexible steel wire. Their comrades on the mess-deck nicknamed them the 'guarantee party,' for they felt sure that they could guarantee them to go anywhere and do anything.



SLEDGING HARNESS.

On the day that Royds departed, my sledges were packed, and a trial of dragging them was made. Two sledges were connected, and the traces made fast to a bridle on the foremost one. The traces were kept apart by two pieces of bamboo, 2 feet in length, and the harness attached to toggles spliced on to the traces.



The harness consisted of a broad band of webbing, which had a strong ring at each end of it; a line, strong enough to bear any strain that might be put upon it, was spliced on to one of the rings, and rove through the other; the band of webbing was passed round the body across the hips, and was supported by braces, so that part of the strain when pulling would be taken by the hips, and part by the shoulders. The line was long enough to allow men to drag behind one another when using ski, and was generally doubled when they were not in use.

The members of my sledge-party were: Ferrar, Cross, Heald, Walker, and Scott. We were provisioned for fourteen days, and dragged two sledges—one 11 feet, and one 9 feet, in length—with a cyclometer, or sledgometer, as we called it, attached to the rear sledge. My orders were: To proceed to the westward and make a reconnaissance, the primary object being to discover, if possible, a practicable route to the interior of South Victoria Land; failing that, to examine a fjord which lay about forty miles west-north-west of us, and as much of the coast-line and general nature of the country as possible. I was to give Ferrar every possible opportunity of studying the geology of the country.

The following day, September 11, at 10.30 a.m., we left for the west, and, as there was a fair wind, we were able to make use of our sledge sails for a couple of hours. These sails were very useful when the wind was anywhere abaft the beam; indeed, in the squalls the sledges travelled faster than we could go, and frequently ran into the rear men. We were steering for the fjord before mentioned, and, when about three

miles from the ship, we passed a Weddell seal that had been badly bitten about its flippers by our dogs.

When we camped in the evening, after travelling nine miles, there was a thick mist all round, and every appearance of open water not far ahead of us; and on turning out early the next morning we could plainly see water half a mile distant from us, extending through an arc from north to west. The ice, too, where we had camped was thin and salt, and sparsely covered with snow, so that we had some difficulty in obtaining fresh water. We again got under way, but soon had to camp, as a dense wet mist enveloped and detained us the whole day.

On the third day, with a change of wind to the east, the mist cleared away, and we were able to proceed to the westward, soon arriving at the edge of the old ice that had attracted our attention when we steamed up McMurdo Sound. We dragged our sledges on to it, and travelled along its edge, as the newly-formed ice was not strong enough to bear our weight. In many places ice from 1 to 4 feet in thickness had been pressed and piled up on to the old ice to a height of 20 feet. At one spot we had to venture on the thin sea-ice again for half a mile, as the old ice was too rugged for the sledges. This was nearly due north of Dailey Islands. Fine particles of rock were constantly blown on to the ice, not only from these islands, but also from all the surrounding land to the southward and westward of it. It caused this ancient ice to present a very peculiar appearance, somewhat like a rough sea with billows rising to 20 feet high, here and there interspersed with sharp pinnacles and deep drifts. This unevenness was caused, of course, by the

rock débris, which absorbed the sun's heat, and so caused an irregular melting of the ice on which it had settled. At the time I could not well account for this dilapidated ice-sheet, but later on traced it to its source.

On the old ice, near its edge, were many Weddell seals, all in an advanced stage of pregnancy. Most of them lay on their backs, and appeared unable to move, although evidently rather nervous when we approached them closely. One, which was lying on recently-formed ice about 20 yards from a hole, made a peculiar sound, something like that made by a cow in distress but very much softer, when I went close to her; and immediately a large bull seal showed his head and shoulders above the edge of the water-hole, glared round, snorted viciously, and then, thinking discretion the better part of valour, disappeared.

As we neared the mainland the bay ice looked firmer, and we were able to sledge on it, and again keep on our course. This was on the sixth day after our departure from the ship, and we had only travelled twenty-nine miles. The previous day we had had to remain camped, not being able to see more than 20 yards in any direction. To the northward of us we could see much open water, near which were a number of emperor penguins, a few of them coming close to us, generally in couples. Cruising about the edge of the ice, and occasionally breaking up through it, were several whales, probably 'killers' on the lookout for a feed of seal.

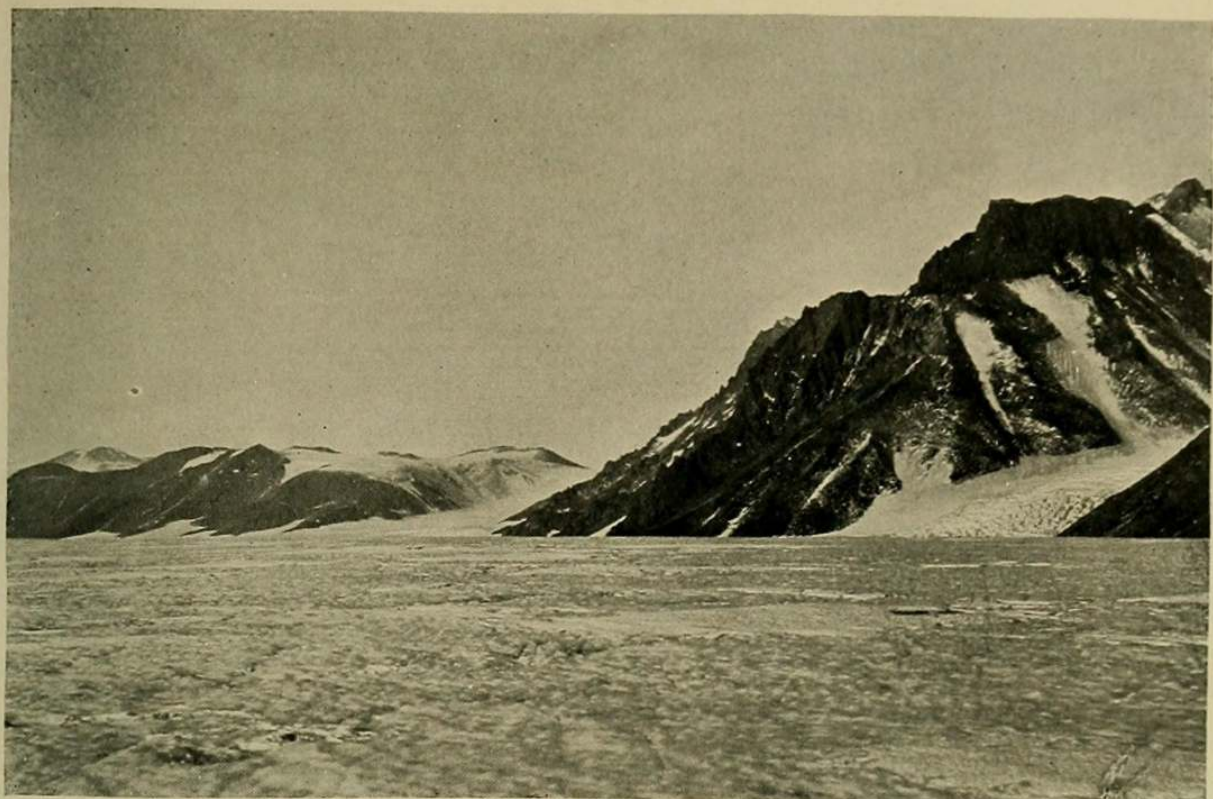
We found the ice, on which we were now dragging our sledges, to vary between 6 and 18 inches in thickness. It was thickly encrusted with a salt efflorescence,

which acted like a brake on the sledges and made the going very hard indeed. Ahead of us we could see what looked like a miniature chain of mountains, which lay at the foot of an ice-slope that flowed down from a block of hills forming the southern boundary of Ferrar Glacier at its north-east extreme.

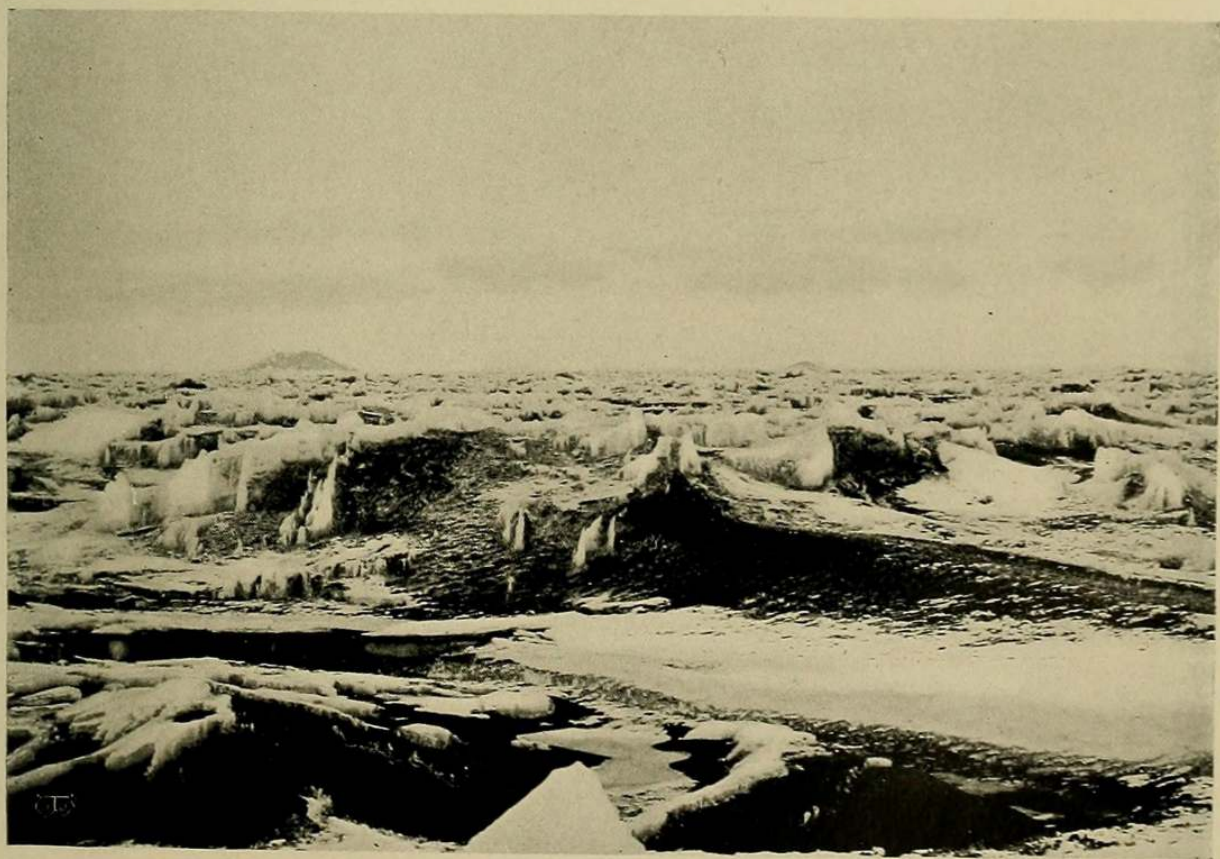
We camped at the northern end of this curious formation, and examined it the following day, finding that it consisted of a mass of plutonic rock débris left behind by the ice as it receded. Large erratics were strewn here and there on its surface, and masses of black-looking ice were mingled with the débris. Its highest point, by aneroid, was 200 feet above sea-level, and it extended for about three miles along the foot of the ice-slope.

While we were examining these 'eskers,' as Ferrar termed them, some of the party hauled the sledges up an incline to the ice-slope, for the sea-ice was again unfit to bear the weight of our sledges; indeed, much of it had drifted out seawards. We ascended the slope to a height of 500 feet, keeping towards the fjord we wished to examine, and then camped. The surface of this slope could easily be penetrated by a ski-pole to a depth of 6 feet, and was much cut up by wind, rendering the dragging hard work. Every now and again the crust would sink beneath our ski and sledges with a hollow sound that alarmed us somewhat until we became accustomed to it.

We were now a week out from the ship. One of our party had been suffering from pains in his lower limbs for four days, another had complained of a sprained ankle for a similar period of time, while yet another was suffering from sore gums, and none of them could



BIG WESTERN GLACIER.



PINACLE ICE.



sleep at night. So I made up my mind to proceed no further with the sledges, but to make a day's journey up the fjord without them. We were again detained in our tents for a day by very thick weather, the result of the near proximity of open water; but on the following day, in the early morning, the weather was fine, clear, and calm—a beautiful day, although the thermometer showed 77° of frost.

Leaving Cross and Scott in charge of the camp, the remainder of us left it at 8 a.m., taking with us a compass, a camera, ice-axes, an Alpine rope, and some chocolate and biscuits in our pockets. After a fine run down the slope, we found ourselves in the valley up which we hoped to find a road to the interior of Victoria Land. This valley presented a most remarkable appearance. Bordered on each side by cliffs 2,000 or 3,000 feet in height, surmounted on the northern boundary by peaks 4,000 to 6,000 feet, it was filled with glacier ice that appeared to be quite level for some miles. Higher up the valley we came to huge masses of ice mixed with rubble, several of them supporting enormous boulders. Along the southern side of the valley, after proceeding some way up it, we found huge heaps of morainic débris, 10 to 60 feet high. Between them and the cliffs was a watercourse of clear, smooth ice 20 to 100 feet in breadth. At the apparent head of the glacier, which seemed from our point of view to be much crevassed, was a noble-looking mountain towering more than 7,000 feet above us, to the northward of which there appeared to be a pass extending inland.

When we had walked for about four miles up this wonderful place, one of our party felt too ill to go on

any further, so he and another returned to camp. At the same time wind commenced to blow down the valley in such furious squalls that we were compelled to seek shelter under one of the big boulders. As soon as possible one of the men and myself continued our search for a suitable route for sledges, but daylight failed us, and we had reluctantly to return, having come to the conclusion that the road was far too rough for sledging over. Had we been able to proceed for another two hours, we should have found the way on to the glacier which was used by Captain Scott in the following year.

As we were ascending the slope towards our camp, we saw the footmarks of two people going in a different direction to that in which it lay. At first we thought that they must be those of Cross and Scott, and then came to the conclusion that Ferrar and Heald had passed that way. We followed them for three miles past the camp and back again. In some places a sort of bed seemed to have been made in the snow, and, knowing that both of them were far from well, I was rather fearful of what had happened, the temperature being  $45^{\circ}$  below zero.

On the backward track we suddenly saw Cross and Scott dragging a sledge towards us; they had become nervous at our continued absence, and set out in search of us. A tent which they had thoughtfully brought with them was soon erected, and after imbibing some hot tea and brandy, we quickly reached camp at 5 a.m., having been absent for twenty-one hours. We were relieved to find that our other companions had been in camp for three hours. They had lost their way, and were fortunate in sighting the lamp which Cross



had made fast to a bamboo pole stuck in the snow; for otherwise, in such a low temperature and in their fatigued condition, they might easily have perished.

We were very glad, after a hearty meal, to turn into our reindeer sleeping-bags, where, frozen though they were, we slept soundly until midnight. Then I was awakened by hearing the wind blowing against the tent, so turned out all hands to make everything secure in case of a gale, and then turned in till daylight.

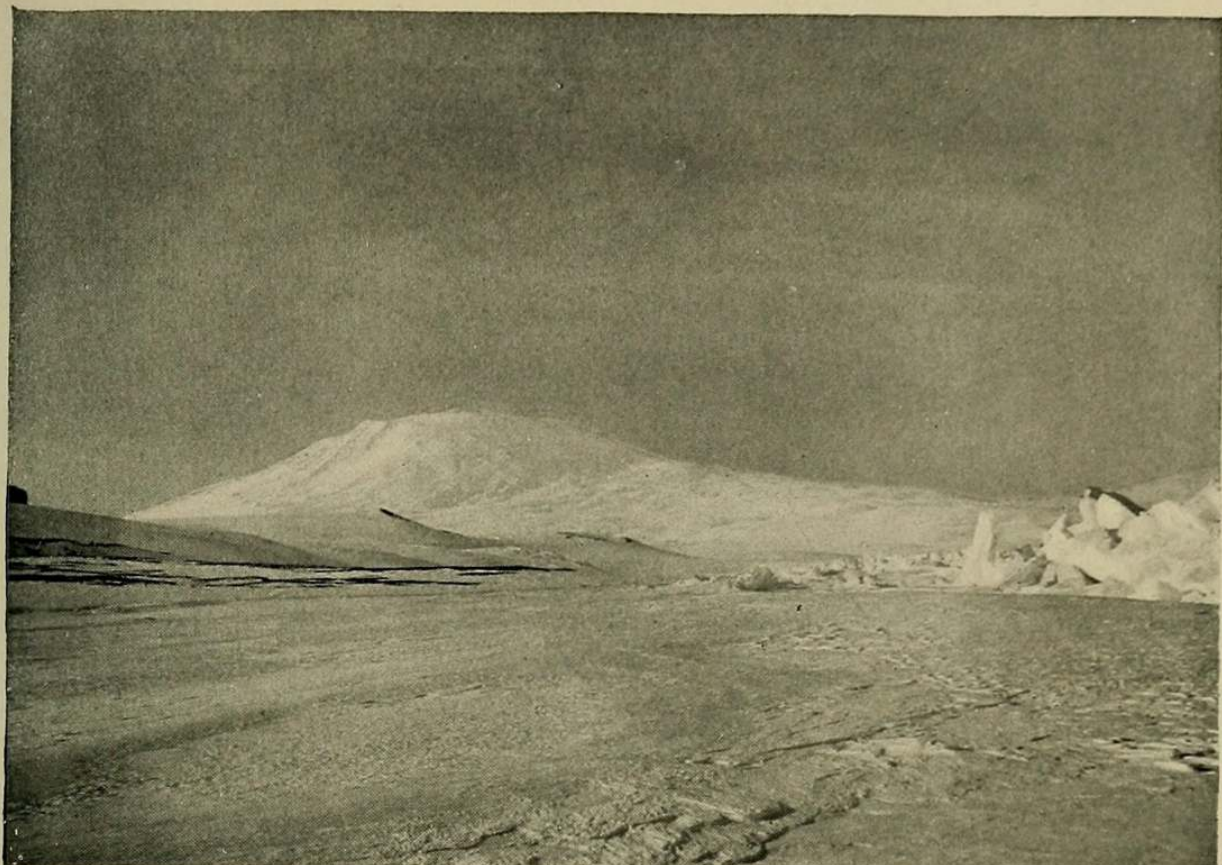
Our return journey was commenced on the eleventh day after our leaving the ship. We ascended the slope, on which our tents had been pitched, to its highest point, 1,000 feet, and then gradually descended on to a glacier which runs down from the Royal Society Range, of which Mounts Lister and Huggins form the most conspicuous peaks. As we descended, the glacier became more rugged, and we had to lower our sledges, one at a time, into deep pits, and laboriously drag them up the other side, finally descending at the termination of a lateral moraine. Here there was a gorge between the glacier and the cliffs that bordered it. A fine exposure of the side of the glacier showed alternate layers of black mud and clay, and ice, chiefly the former. It was studded with small boulders and stones which could be picked out of it. At the summit there was from 6 to 10 feet of névé, the whole face being about 50 feet in height.

We now shaped a course for Dailey Islands, which Ferrar wished to examine; but before arriving at the old ice by which the islands are surrounded we had to cross sea-ice which appeared to be of only one year's growth. It was nearly four miles broad where we

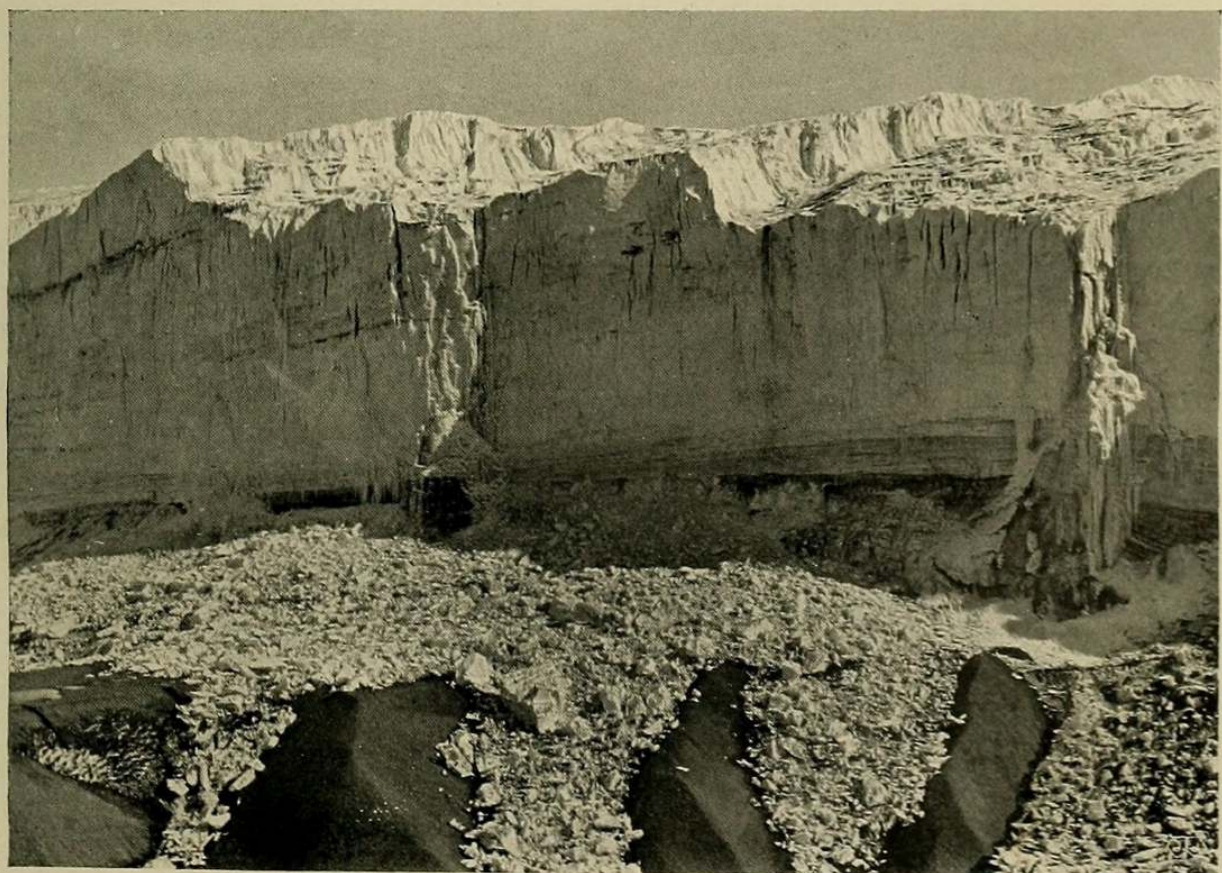
crossed it, and the sledges ran over it very easily, so that we could scarcely feel that we were dragging anything. On arriving on the old ice, we camped, and, owing to thick mist, had to remain there for the whole of the next day before we could continue our journey.

We could not take the sledges quite close to the island that we visited, because the ice was so rugged. On its northern slope we found a quantity of moss underneath the snow, which was about 6 inches deep. When we left the island, we kept on until we reached the very rough ice that we had seen on our outward course, and camped for the night.

It might be thought that after a hard day's tramp we should look forward with a certain amount of pleasure to a well-earned rest. As a matter of fact, during spring sledging, we did nothing of the sort. For the first two or three days the sleeping-bag is a thing of comfort and a joy, and then it gradually gets worse and worse. The perspiration that collects in the bag during the night freezes immediately we leave it in the morning, and there is not sufficient heat from the sun to dry the bag when it is packed on the sledge. The bag, therefore, has to be thawed out by our bodies each night, so that it gradually becomes heavier with moisture, and more and more uninviting. Each morning, too, the tent salutes us with a shower of snow which has formed inside it during the night; all our clothing feels clammy and damp. In fact, we often wish that there was no necessity to camp at all. Still, one can get accustomed to anything; the hot pemmican and tea soon make us feel cheery enough to joke at the discomforts of the night, and half an hour after we are on the march we have forgotten all about them.



MOUNT EREBUS AND CASTLE ROCK.



FACE OF GLACIER—100 FEET HIGH.



By this time I was feeling somewhat anxious about my party, there being only two of us who were not gone in the legs or otherwise unfit, so I made up my mind to march on until we arrived at the ship.

We skirted the very heavy ice until we were able to make a direct course for our winter-quarters. A fresh head-wind had sprung up, which, with a temperature of  $-32^{\circ}$  F., was distinctly unpleasant. The driving snow, too, covered the surface of the ice like sand, and made it very difficult to drag the sledges. By midnight the wind had increased to a blizzard, and was blowing a fresh gale, but we managed to pitch a tent, all getting frost-bitten as we did so. The six of us scrambled into it, and enjoyed a good hot meal, after which we felt considerably heartened. Then, as the weather was improving, we again harnessed up, and arrived on board the *Discovery* at 6 a.m. on September 26.

I was glad that we had pushed on all night, for most of my party were rather done up, and I strongly suspected that scurvy was the cause. There had been no apparent reason for the sprained (?) ankles that two of them suffered from, and in the case of Heald, with his sore and swollen gums and pains at the back of his knees, I had no doubt that he was suffering from that complaint.

We had marched for twenty-three and a half miles on this last day, and had very frequently to halt during the last few miles, but made as brave a show as possible as we approached the ship. No one, however, saw us until we were quite close, as all, except the quartermaster on duty, were turned in. We had been speculating as to whether Captain Scott and Royds had returned, and were, of course, anxious to know

how they had got on. The latter welcomed us as we descended to the wardroom, and, while we were enjoying a hearty meal, gave us a brief account of what had happened during our absence.

After our fifteen days' camping out in the pure atmosphere of these icy regions the wardroom looked inconceivably small and dark and dirty; also—shall I confess it?—the pervading odour was not such as one would desire to be always at home with. We realized for the first time the conditions under which we had perforce been living during the dark, dreary winter months; but, notwithstanding our newly-acquired knowledge of these conditions, we hugged ourselves with a sense of well-being as we climbed into our bunks and nestled down into the welcome warmth and dryness of our old friends and comforters, the Jaeger sleeping-bags.

Six days after our departure, the Captain, accompanied by Barne and Shackleton, had left the ship with four sledges and fifteen dogs. The object of their journey was to reconnoitre the land near Minna Bluff, to determine the best route to take on the main journey to the South, and to lay down a small depot. They took provisions for three weeks with them.

Royds had left the day before us. Soon after his departure from the ship he had got amongst some very rough ice of a similar nature to that which we had seen on our journey. From his description of it, I gathered that it was probably the termination of a glacier that flowed down to the northward of Mount Morning. Mixed with this rough ice was much morainic matter, and many watercourses were interspersed amongst it. These were now frozen over, of course, and the ice,

where water evidently flowed in the summer, was very smooth, and of a lovely sky-blue colour that was perfectly dazzling when the sun shone down on it. It was exceedingly difficult work to make any headway over such a road as lay before Royds, and, to add to his difficulties, one of his party lost his sleeping-bag, it being blown away in a gale of wind. The weather, too, was most unpropitious, so he decided to return to the ship, and on the return journey fortunately recovered the sleeping-bag.

When a day's march from our winter-quarters, he had met Captain Scott outward-bound. After they had parted, a furious blizzard swept over both camps and the ship, although, curiously enough, we did not experience it at our camp. It blew with such force that the Captain's tent was nearly blown away, and he and his companions had to sit on their gear most of the night to prevent its disappearance into the vast unknown. As everything had been made very uncomfortable by the damp snow which fell during the blizzard, Captain Scott thought it better to return to the ship, and make a fresh start in more suitable weather. He and Royds arrived at the ship on the same day.

Poor Barne had again suffered severely from frost-bitten fingers, so that he was unable to go away with the Captain when he left the ship for the second time, five days later, Mr. Feather (boatswain) taking his place.

On the same day that the Captain left, another party took their departure. It consisted of Koettlitz, Bernacchi, and Mr. Dailey (carpenter). They had gone, provisioned for ten days, to examine the morainic

deposits, and lines and channels of the glacial ice which Royds had been on.

The winter covering had been removed, making a very welcome change in the wardroom and on the mess-deck, as we were now able to do without artificial light for the greater part of the twenty-four hours.

Wilson examined us all, and told me that Ferrar's legs were very much swollen; Heald showed marked scorbutic symptoms, and Cross slight ones. Of course it was absolutely necessary to take strong measures to eradicate the 'demon' that had assailed us. I had seen the disabling results of scurvy during my first voyage at sea, and had not forgotten how it had claimed its victim on the Jackson-Harmsworth Polar Expedition. After I had consulted with Wilson and Royds, the following measures were taken to banish our enemy: Mr. Ford (the chief steward) was ordered to give all hands fresh seal-meat for dinner every day; to place lime-juice on the mess tables at dinner; to give all hands oatmeal porridge as well as meat for breakfast each morning; to see that their jam supply was liberal, and to serve out an extra ration of bottled fruits. I made the cook thoroughly understand that there were a variety of ways of cooking and serving up the seal-meat and the dried potatoes and vegetables, and that I quite intended to have them placed before us in a palatable form. Royds commenced a thorough cleansing of the holds, which were far from being sweet, the mess-deck and the living-quarters were kept well ventilated and dry, and all clothing and bedding was aired. A regular system of outdoor exercise, too, was promoted; and before the Captain's return the symptoms of



scurvy, that bugbear of Polar explorers, were already disappearing.

On the Sunday after our return to the ship, in the Captain's absence, I conducted Divine Service, and took the opportunity of saying a word or two in praise of my sledge-party, who had behaved so admirably under trying and painful circumstances. Afterwards, when the men were at dinner, I inspected the different messes. The food could not have been better cooked, and consisted of New Zealand fresh mutton ('God bless the New Zealand farmers!' said the men) with mint sauce, plum duff (the plums *not* thrown in from the main top), green peas, and dried potatoes. Their plates were heaped up, and satisfaction beamed on every face.

Barne brought in seven carcasses of seals, so that we had a plentiful stock of fresh meat. It was cooked in a different way each day of the week, which made a wonderful difference in the amount eaten. Seal olives, seal pie, seal pudding, ragout of seal, seal with onions, and curried seal, all made their appearance, and, flavoured with various sauces, were eaten with relish. Those of us who had been sledging had acquired abnormal appetites, and it became necessary for us to restrain them, lest we should suffer from the results of overeating.

Two or three days after our return, we were surprised to see forty-six emperor penguins marching past our quarters on their way to the southward, and wondered where they could be bound for.

On the day that Royds had left the ship for his sledge trip two of our dogs disappeared, and were supposed to have followed him, but, as he had seen

nothing of them, they were given up for lost. Eighteen days afterwards some of the men went for a walk towards a rock which was a few miles north of the ship, and saw, to their great surprise, the two missing dogs. They had, apparently, killed a seal—a habit that they were rather given to—and the seal, in its death-agony, had rolled on to the chain which was still attached to the collar of one of the dogs, and imprisoned it so that it could not move its head more than a foot either way. The other dog was loose, but would not desert his companion, and had evidently been making his meals off the dead seal. The prisoner was rather emaciated and weak, and his companion was a bit thin, too; but both of them were quite lively soon after their return to the ship.

On October 2, in the evening, Koettlitz and his party returned. A good dinner and hot baths had been ordered for them; the remainder of us in the wardroom sat round the table and watched Koettlitz and Bernacchi tuck into the good things, and as soon as their mighty meal was finished we listened to the tale they had to tell. They had been quite round Black Island, and brought back geological specimens from it; they had also examined the morainic deposits and obtained a good view of the land immediately to the west of the island, but Koettlitz could see no practicable route for sledges in that direction.

On the following day the Captain returned. They had made a very good journey to about eight miles beyond Minna Bluff. From there, they said, the land trended to the westward, and, with the exception of one or two small islands, they could see no other land to the south of them, only the flat barrier surface

extending to the visible horizon. On his main journey the Captain intended to go to the eastward of White Island, as he found the ice much ridged and crevassed near the bluff.

On one occasion, as they were crossing a crevasse which was  $3\frac{1}{2}$  feet broad, and when Mr. Feather was harnessed to the traces, in front of the dogs that were dragging the sledges, the dogs stopped short in front of the crack, and dragged the boatswain back into it, and he was suspended by his harness just below the surface of the ice. Shortly after he had been dragged up and had resumed pulling, the toggle connecting him to the traces carried away, so he had a near shave. When asked if he was hurt, he only replied: 'Damn the dogs!' On another occasion one of their sledges, on which were stowed most of the provisions, went down one of these treacherous places, and Mr. Feather was lowered down to unpack it before it could be recovered. They had left a depot near the Bluff, with provisions for three men for six weeks, and rather more for the dogs. All the dogs had pulled very well, and were quite fresh when they arrived back at the ship.

After they had dined well, I told the Captain about the appearance of scurvy, about which he was, of course, very much concerned, and expressed his intention of postponing the main sledge journeys until it was thoroughly eradicated. He was very pleased with what had been done, and had a long consultation with the doctors about the best steps to be taken in regard to it. Koettlitz advocated the banishment of all tinned meats from our dietary scale. The holds were pumped out, the stench from the bilge-water being most abominable, and were whitewashed.

Some of the men slept in the hut ashore, so that there were greater facilities for cleaning the mess-deck; and, as seals were scarce near our quarters, Wilson, Barne, and four of the men went for a trip to the northward of the ship to bring in fresh meat. They killed eighteen seals, and brought in the meat.

The general work of the ship proceeded as usual, and everything necessary for the principal journeys of the year was prepared. We all, perhaps, were in a state of more or less unrest pending the summer sledging, from which we hoped so much.

Almost imperceptibly the light from the sun increased, until at midnight on October 6 there was enough light to read the thermometer by.

## CHAPTER VIII

### JOURNEYS TO CAPE CROZIER

The second journey to Cape Crozier—Departure of Captain Scott's supporting party—The Commander's instructions—The southern sledge-party leave the ship—A harbinger of summer—Return of the Cape Crozier party, and their experiences—A nursery for emperors—New Zealand microbes—We celebrate the birthday of the expedition's patron—'God save the King'—Royds' third journey to Cape Crozier—An emperor's egg—Adélie's eggs—A letter from the Captain—Return of the southern supporting party—Further news from the front—All ready for the pioneer inland journey.

ON October 4 Royds went away in charge of a sledge-party consisting of Skelton, Evans, Quartly, Lashby, and Wild. They dragged two sledges laden with provisions for a month. They were to again attempt to reach our 'post-office' at Cape Crozier, and leave records there, and afterwards examine the ice-formation that lay between the slope of Mount Terror and White Island, so as to trace the series of ridges that had been noticed there. They made a good start, going away on ski, and, as they had all had previous experience, we had every hope that they would succeed in their mission.

On the 30th of the same month the Captain's supporting party took their departure, under Barne's leadership. He had with him Mr. Dailey, Mr. Feather,

and nine men. They were dragging 220 pounds per man with apparent ease as they left the ship.

Captain Scott intended leaving on November 1, but bad weather detained him for a day. We had fully talked over affairs, and before he set out he handed me instructions, from which I quote the following extracts :

‘I leave to-morrow for the South, under arrangements of which you are fully cognisant, and which are only subject to alteration in the event of our finding further land to the southward before the return of the relief-parties.

‘In regard to the western exploration, I leave the detail unreservedly in your hands. I fully approve of your plans and of the men you propose to select, and shall expect you to take such aid as you require for extending your trip.’

Then followed instructions as to the various short journeys he wished to be undertaken by the other officers, especially desiring that every possible facility should be given by the executive officer left in charge of the ship to the scientific officers to carry out any work that they might wish to do. The instructions continued as follows :

‘Should I not return before a date at which there is any possibility of the ship being again frozen in, you should take the ship back to New Zealand, provisioning the hut, and leaving, if you think fit, a search-party, which could be recovered in the following season.’

After various items as to the work of the ship and arrival of the relief ship, the instructions concluded with the following paragraph, which was especially gratifying to myself :

‘I take the opportunity of thanking you for the loyal support you have given me throughout since we were first associated, to record my confidence in your ability to meet every emergency that may arise in my absence, and to wish you the success you deserve in your western journey.’

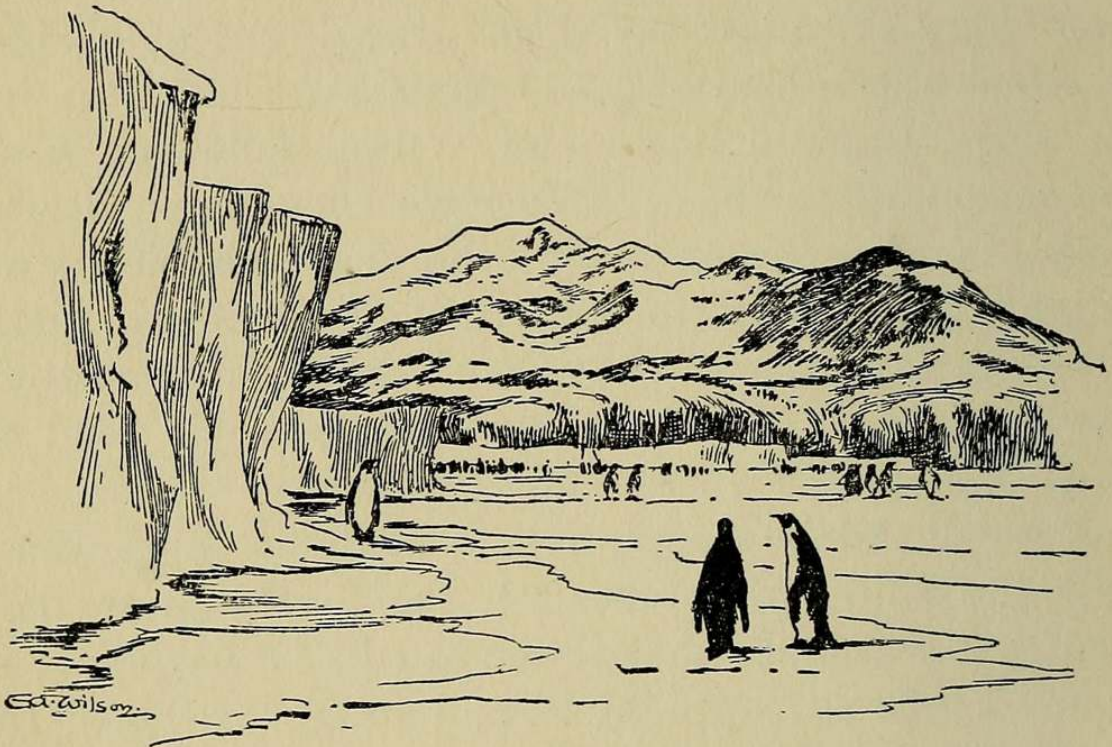
The evening before the Captain's departure we had a champagne dinner in the wardroom. At 10 a.m. on November 2, the southern party commenced their long journey, nineteen dogs dragging five sledges on which was a load of 1,700 pounds. Shackleton led the dogs, Captain Scott and Wilson following after and encouraging them. We gave them three hearty cheers as they went away, the dogs yapping with delight and racing for all they were worth, little knowing, poor beasts! that they were starting on their last journey of all: for they were on their road to death.

A small Adélie penguin had made its appearance near the ship on October 24, the first that we had seen that season, so that it seemed like a harbinger of summer. Cross captured it, and brought it into the wardroom to Wilson; but it was such a comical, plucky, friendly little beggar that he allowed it to go free again.

Before either Barne or the Captain had left us, Royds and his party returned to the ship after an absence of three weeks. They had established a camp on Mount Terror, where wretched weather had prevailed. For five days a blizzard had raged around them, almost burying the tents, and keeping them prisoners. Poor Royds had been laid up with internal pains, and was unable to go on to the post-office; but Skelton had

reached it and found the post still erect, and had left the despatches sent by the Captain. They followed the ridges between Mount Terror and White Island for a short distance, and then returned to the ship.

On one occasion Skelton, together with Evans and Quartly, had descended the barrier cliffs, although they had had to negotiate, roped together, some very difficult ice-ridges. They had descended on to sea-ice,



THE EMPEROR PENGUIN ROOKERY, MOUNT TERROR, AND  
ROSS'S BARRIER.

formed in a bay which lay between the barrier and the high cliffs of Cape Crozier. Here they had discovered an emperor penguin rookery—the first time that a breeding-place of these fine birds had been seen. Unfortunately, the eggs had been hatched, but they secured a number of young ones as specimens; and Skelton took several beautiful photographs of the colony. It must seem a cold world to the





RECONNAISSANCE SLEDGE PARTY TO THE SOUTH-WEST.



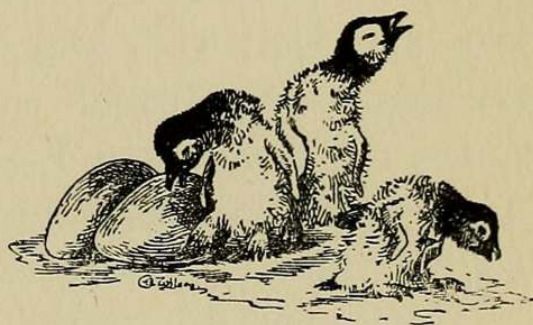
CAPTAIN SCOTT, DR. WILSON, AND LIEUT. SHACKLETON BEFORE STARTING SOUTH.



little penguins when they first enter it; and although Nature has provided the parent birds with a hood of skin and feathers for the protection of their offspring, while their tender little bodies are kept clear of the ice by resting on the adult birds' feet, there is great mortality amongst the newly-born emperors. As the fond mother or father, as the case may be, waddles along, and the youngster, perhaps, becomes somewhat fidgety, the small bird tumbles out from its warm covering. Then all the grown-ups with empty hoods make a rush for the little one in an attempt to restore it to safety. One may grab a leg, another the other leg, and still another may seize it by its neck, the result being dismemberment of the little penguin.

Either the emperor penguins look upon the preservation of their chicks as, so to speak, an affair of national importance, or they look upon them in the light of hot-water bottles. Wilson came to the conclusion that something like 70 per cent. of the young ones met an untimely end.

Before the Captain left for the South, I asked him if we might celebrate the King's birthday on November 9, and he told me that he should be very pleased for us to do so. About a week before that date I had a notice posted up in the mess-deck, saying that His Majesty's birthday would be celebrated on Saturday, November 8; that the ship would be dressed; sports would be held during the day, and a concert and supper in the evening. A committee was formed, con-



FROZEN EMPEROR PENGUIN  
CHICKS AND EGGS.

sisting of the officers on board and four of the men—Cross, Wild, Whitfield, and Quartly—who were elected by their shipmates. A toboggan race was to be one of the events, to be run on contrivances of the competitors' own construction ; and every evening before the eventful day arrived, those who intended entering for this race could be seen laboriously dragging their vehicles up steep icy slopes, and shooting down to the level on—or off—they in great form.

On November 3, Royds, who wished to further examine the emperor penguin rookery, left again for Cape Crozier, taking Blisset and Plumley with him, and provisions for fifteen days. I sent Allan, Macfarlane and Dell with him to give him a hand for thirty-six hours, after which they were to return.

On the same date Koettlitz, Skelton and Hare left, with provisions for five days, to examine the glacier tongue which lay to the north of our quarters.

Two days afterwards, when I was out to the eastward of Cape Armitaeg, I met Royds' assisting party returning. They had accompanied him for thirteen and a half miles, and enjoyed their trip immensely, as well as gained good experience in dragging on ski.

Shortly after dinner, the other party, under Koettlitz, returned, all suffering from bad catarrh. They had been to Dellbridge Islands, and camped there in the midst of a large Weddell seal rookery and among numbers of emperor penguins. The glacier tongue, on which flags had been placed six weeks previously to mark any movement, showed that a fair amount had taken place.

The catarrh from which they, as well as several others of the ship's company, were suffering was due,

apparently, to the spring-cleaning. The thick, heavy carpet in the wardroom had been taken up and beaten, no doubt shaking into virulent activity the germs which, fired with a spirit of adventure, had stowed away in New Zealand. For several days we dosed ourselves, stimulated thereto by the excellent example of our senior surgeon, with a stiff mixture of hot grog before turning in, which speedily had the desired effect on the teetotal microbes.

On November 8 the ship was dressed from stem to stern, and the great silk Union Jack, which had been presented to the expedition by Admiral Sir George Nares and the officers of the 1875 North Polar Expedition, was hoisted for the first time on the flagstaff at Hut Point. The weather was not suitable for sports after breakfast, so I inspected the ship and told the hands that we would wait for its improvement. At noon we fired a most curious royal salute, which consisted of two socket signals, each making a double report ; five pistol signals, which on exploding showed a coloured light ; and twelve rockets ; concluding by giving three cheers for the King. The rockets were somewhat erratic in their flight ; one narrowly missed our Union Jack on Hut Point, and some of the others endeavoured to investigate the crow's-nest. The ' Ah-h-hs ' of the men, as each rocket broke into a shower of golden stars, were really quite worthy of a Thursday evening at the Crystal Palace.

After luncheon we commenced the sports with the toboggan race, which was a great success. The favourites were two Scotchmen, Duncan and Walker, who certainly owned the fastest toboggan. Duncan was carpenter's mate, and had utilized his skill in

fashioning wood by making a toboggan on the model of our sledges. The others had made the runners out of cask-staves, on which they had fixed battens or cases. Quartly and Hubert had made one which they could steer, and so came in easy winners, as the other competitors all either capsized or collided with some patches of stones which lined the course down which they ran. Then followed the other events: dragging weighted sledges, six men in each team; putting the weight; tug-of-war; and ski-running down one of the slopes. The last was the most exciting, and was won by Skelton. We had not time to finish all the events on the programme, because of the unfavourable weather in the morning.

After dinner, a specially good one, we had a magic-lantern display on the mess-deck, Koettlitz showing a number of pictures of various places in New Zealand; Hodgson, illustrations of Maoris and Maori life; and Skelton, views of various parts of the world and of ships that he had been in.

We then repaired to the wardroom, where a very successful concert was held, followed by the distribution of prizes, which were gracefully given to the fortunate winners by H.R.H. Princess Lobodon Carcinophaga (Scott, the marine), who was attended by Lord Hyperoodon Plainfrons (Allan), both being suitably arranged for the parts they played. The Princess was most dignified, except when she put her foot through her gown, and rebuked his lordship with a cold, stony stare of contempt when he jogged her elbow and told her to 'buck up and look pleasant.' The prizes were of a very varied description. Several small silver medals had been specially made before we

left England, to be distributed as prizes to the winners of any kind of competition that we might have, and a limited number of these formed the first prizes. The Captain and each of the officers had given some little things as prizes, the most sought after being some coloured sketches by Wilson. Skelton won the Captain's prize, a small silver - mounted aneroid barometer, and nearly every competitor got something or another—a stick of shaving soap, a packet of cocoa or chocolate, a tin of tobacco or a glass of grog, or it might be a geological specimen.

After singing the National Anthem and giving three rousing cheers for the King, we had a really fine supper. The cooks had made us excellent cakes and jellies, which we ate with tinned fruits and washed down with magnums of fizz. What we enjoyed more than anything else was some mustard and cress grown by Koettlitz in the wardroom skylight. He had prepared it and made it into sandwiches, of which there were quite a number for each person; and the men were so pleased with this taste of fresh green food that they mustered at the wardroom door and gave our medico three hearty cheers. We then turned in—at 3 a.m.

We were very busy each day, when work could be carried on outside, endeavouring to free our boats from the grip of the ice that had laid hold of them. We had exposed one, and managed to get the gear out, although somewhat damaging her with the picks in the process, and hoped to haul her clear by means of purchases rigged on shear-legs and from the foremast head of the *Discovery*. But we had unusually heavy tides that completely swamped the boats again, and

the water froze into a mass of ice during the night, so we had to leave them as they were for the time being.

On the Saturday following the King's birthday, as soon as the usual week-end routine was over, we finished the sports. There were three events: a two-mile flat race on ski, weighted-sledge dragging on ski, and a rifle-shooting competition. We had a very enjoyable afternoon, succeeded by an impromptu sing-song in the wardroom after dinner, and the presentation of the remainder of the prizes. After honouring the Saturday night's toast, 'Sweethearts and wives, the ship that goes; the wind that blows; and the lass that loves a sailor,' the pianola struck up 'God save the King,' and we turned into our bunks and hammocks, to dream, mayhap, of those who had been in our minds when we had said, 'Sweethearts and wives, God bless 'em!'

On November 17 the quartermaster on watch reported that Royds and his party were in sight, and some of the hands went out to meet them and give them a haul in. They all looked very fit on their arrival at the ship, said that they had enjoyed their journey very much, and had marched in from Cape Crozier in four days. All of the party had suffered much from snow-blindness, Royds in particular.

They had spent two days at the emperor penguin rookery, and brought back with them, not only a dozen dead little emperors, but the first authentic specimen of that bird's egg. It had been found by Blisset (corporal of Marines), and, although slightly cracked, was a fine specimen—a noble-looking egg, nearly four times the size of an Adélie's egg. They had also visited the 'post-office' and brought away from



the Adélie penguins' rookery there a sufficient number of eggs to allow of each member of the ship's company having two for breakfast. The day after their arrival at Cape Crozier all the emperors put out to sea, and they could distinguish no youngsters among them that were not dead. Many skuas and snow-petrels were there.

The next morning we all enjoyed our fresh eggs for breakfast, and those who have never been obliged to do without eggs cannot possibly conceive how perfectly delicious they tasted to us. I had one poached and one boiled. Most of the others first blew their eggs, so as to keep them for specimens, and then scrambled the contents.

On November 19 the first detachment of the Captain's depot party ought to have returned, and when they were two days overdue I organized a relief-party to go in search of them. Fortunately, however, they were sighted the following afternoon, and nearly the whole ship's company went out to meet them. They arrived at the ship in the evening: Mr. Dailey was in charge of the party, the remaining members of it being Buckridge, Weller, Williamson, Kennar, and Peters. All of them looked very well, in spite of their having had very little to eat for twenty-four hours, their provisions being exhausted. Mr. Dailey handed me a note from the Captain, which contained the following news:

‘Lat. 78° 54' S.; Long. 168° 30' E.,

‘MY DEAR ARMITAGE,

‘Midnight, *November 12.*

‘We have had a heavy and annoying time so far, from the frequency of blizzards; but I hope that

is now over, as we seem to have left it behind with the land. The work has been very trying for the men, but they leave us in splendid health and spirits. The dogs, I find to-day, will drag 2,100 pounds; they have brought that amount ten miles. This modifies my plan; I shall send Barne back in two days, going on from that date with twelve weeks' provisions, plus 70 pounds of seal for our party, and about forty days' food for the dogs. If the conditions hold, we ought to do well. The dogs are dragging splendidly. We see nothing yet but a vast white plain to the south, though the weather is quite clear. Barne has done splendidly, and I want him given all the aid possible in his southwest trip, which I think should prove most important, as it seems about certain the land must trend north round from the farthest point we see.

'He (Barne) will be able to leave some of his provisions at the depot, which is very easy to find, and, starting again from the ship earlier than was expected, will be able to make a more extended journey. He has worked his men very well and looked after them thoroughly.

'The men are all very pleased at being "Farthest South." I leave all details to be explained by those returning, but there is certainly a very extraordinary surface here which requires special arrangement for footgear.

'I don't think ski would do for men dragging heavy weights, though they would be very good when the weights came down, say, to 120 or 130 pounds; but even of this I am not sure, as in places the surface of the sastrugi is quite hard and polished, and one can only get a grip with a ski boot by digging in the heel.

'Will send you another note by Barne—for the present, "Au revoir." Remember me to all.

'Yours ever,

'R. F. SCOTT.

'P.S.—Should like Barne to have Mr. Dailey's party of six kept intact.'

We were all very pleased with this good news of the Captain's progress, and eagerly looked forward to the return of Barne with further information.

Mr. Dailey, on his return, had been compelled by bad weather and mist to camp for a day and a half and had crossed many snow-bridged crevasses which were broken away at the edges. On ski they would have found no difficulty in crossing these cracks, and run little or no risk; but, unfortunately, they had been unable to recover their ski, which had been left



FOR SUN AND FROSTBITE.

near White Island on the way out. Most of the party had suffered severely from snow-blindness, through a disinclination to wear their goggles. We celebrated their return, the next day, by an informal sing-song held in the wardroom, and had a very jolly evening. Besides the many songs, Skelton performed on the pianola, and Bernacchi recited.

While we were at church on the following morning (Sunday), Barne and the remainder of the Captain's supporting party arrived alongside the ship. They had left the Captain two days later than Mr. Dailey,

and had very similar experiences to relate in regard to weather and travelling generally. Barne and Crean had dipped into a crevasse together on one occasion, not disappearing below the surface, however. They could see no bottom as they peered down the fissure.

The Captain had sent me the following note :

‘ Lat.  $79^{\circ} 12' S.$  ; Long.  $168^{\circ} 15' E.$ ,

‘ MY DEAR ARMITAGE,

‘ Barne leaves us to-morrow, so I send you this last line. We are doing pretty well with our heavy loads ; yesterday about eight miles—stopped by snow-storm ; to-day ten at a push.

‘ The dogs will not continue this rate whilst so very heavily loaded, and I think it wise to take it easy, keeping their strength up ; but if all goes well, and the surface holds as at present, we ought to be able to make a pretty good show. We are all very fit, and feel very well fed, seeming to find our allowance ample. We go everything now on the Plasmon.

‘ The surface is changing out here, growing somewhat softer—less sastrugi, but mounds of blown snow. The light has been fearfully bad, and one has to stumble along without a chance of seeing where your feet are going.

‘ Temperatures are excellent so far. The land certainly trains west-south-west from the bluff, ending in a cape from which, I think, there is little doubt it turns northward again ; but there is no high land behind this coast-line, and the western hills form a very distinct ridge with an obvious descent on the opposite side.

‘ Whether you will come to barrier level again, one

cannot say at this distance ; but I certainly think it looks as though Victoria Land was very narrow at this end. Barne will tell you all about it, however, so I will not write more, except to again wish you all luck.

‘ Yours ever,

‘ R. F. SCOTT.’

It was very gratifying to receive such a good report of the Captain's progress, and we all felt convinced that he would make a splendid journey, with ordinary good fortune. It appeared, from what Captain Scott had observed, as though there were no ice-caps of any extent at the back of the lofty ridge of mountains past which we hoped to make our way. As he wrote, however, it was impossible to form a correct judgment at the distance he was from them.

With Barne had returned one or two men who were going west with me, as well as a couple of sledges that I needed. Every article that we intended taking with us was carefully weighed before being stowed on the sledges, for each pound is of importance when it has to be dragged by one's self. Our journey being made in the dark, as it were, we had to be prepared for any eventuality in the way of travelling, and had to take many things that we could otherwise have left behind.

Before leaving, I made arrangements that would enable the members of our scientific staff to go on short trips of investigation in the neighbourhood at various times, and for Barne to have all the assistance possible on his journey.

On November 29 all was ready for our departure inland.

## CHAPTER IX

### THE PIONEER SLEDGE JOURNEY INLAND

Departure of the pioneer sledge expedition inland—Main and supporting parties—The teams and their loads—Provisions—Across the Sound—Ascent of the valley—Magnificent scenery—Departure of the supporting party—Men's condition—Descent Pass—A stiff haul ends in disappointment—An exhilarating glissade—Ascent of the glacier—Wet snow prevents our progress—Sounds on the glacier—Crevassed ice falls—The end of 1902.

IT was a fine, clear morning on November 29, 1902, when the teams who were to endeavour to wrest their secrets from the mighty mountains which faced us in the west were drawn up abreast the ship. They formed the largest sledge-party that left the *Discovery* on an extended sledge journey, and were composed of the following men :

#### MAIN PARTY.

##### 'A' Team.

Lieut. Armitage, R.N.R. (in command).  
Eng.-Lieut. Skelton, R.N.  
Pte. Scott, R.M.L.I.  
Buckridge.  
Quartly.  
Evans.

##### 'B' Team.

Allan.  
Macfarlane.  
Wild.  
Walker.  
Hendsley.  
Duncan.

SUPPLEMENTARY PARTY.

<i>'C' Team.</i>	<i>'D' Team.</i>
Dr. Koettlitz (in charge).	Mr. Ferrar.
Croucher.	Dell.
Clarke.	Pillbeam.
Whitfield.	Hubert.
Mr. Dellbridge.	

'A' and 'B' teams were provisioned for eight weeks; 'C' and 'D' teams, for three weeks. Each team dragged the following loads respectively:

<i>'A' Team.</i>				Weight.
Articles.				lb.
2 Sledges (fitted)	...	...	...	128
1 Sledge (fitted)	...	...	...	52
Sundries	...	...	...	22
2 Tents (complete)	...	...	...	55·5
3 Sleepings-bags (single)	...	...	...	60·5
1 Sleeping-bag (3 men)	...	...	...	45
3 Kit-bags (including medicines)	...	...	...	68·5
1 Repair-bag	...	...	...	12
2 Shovels	...	...	...	6
6 Pairs ski and sticks	...	...	...	60
2 Cookers	...	...	...	28
3 Ice-axes	...	...	...	10
1 Crowbar	...	...	...	8
6 Instruments (with two tripods)	...	...	...	47
2 Cameras (60 plates)	...	...	...	43
Alpine rope (20 fathoms)	...	...	...	5
Books and forms	...	...	...	5
1 Mast and sail	...	...	...	5
2 Blocks	...	...	...	2·5
2 Lamps	...	...	...	5
12 Tins oil	...	...	...	126
16 Packages food	...	...	...	611
Total weight				1,405

(Weight per man, 234·2 lb.)

## 'B' Team.

Articles.	Weight. lb.
3 Sledges (fitted) ... ..	155
2 Sleeping-bags (for 3 men each) ...	96·5
3 Kit-bags (including carpenter's and medical bags) ... ..	73·5
2 Shovels ... ..	6
3 Ice-axes ... ..	10
Alpine rope (10 fathoms) ... ..	2·5
1 Mast and sail ... ..	5
6 Pairs ski and sticks ... ..	60
2 Cookers ... ..	28
2 Primus lamps ... ..	5
6 Pairs crampons ... ..	6
2 Tents (complete) ... ..	56
6 Tins oil ... ..	63
19 Packages food ... ..	717
Straps ... ..	10
Total weight ...	1,293·5

(Weight per man, 216 lb.)

'C' and 'D' teams dragged two sledges each, 'C's' sledges being loaded with a weight (including the sledges) of 1,156 pounds, and 'D's' with 869·5 pounds, equal to 231·2 pounds and 217·4 pounds per man respectively.

Attached to the rear sledge of 'A's' team was a sledgometer, as we called it, which recorded the distance traversed in geographical miles.

Our provisions, with the exceptions of biscuit and seal-meat, were packed in bags, each bag containing a sufficient quantity to last three men (one tent party) for a week. The biscuits were stowed in cases containing 45 pounds, and the seal-meat, of which there were 112 pounds, packed in three bags, was an extra.



It had been cooked in fat and dried in the oven. The food-bags were marked W, WA, WB, and WC for the main party, and were numbered from 1 to 8 for each tent, this method enabling us to see at a glance which bags to unpack when we camped, and it prevented, too, any dispute as to the ownership of the respective bags. Each bag contained the following articles of food, packed in small bags and tins :

Marked	Contents.	Weight.	Packed in
P	Pemmican - - -	10 lb.	Bag
B	Bacon and soup squares	2½	”
Nao	N A O rations - -	2	”
R	Bovril rations - -	2	”
Choc	Chocolate - - -	1½	”
S	Sugar - - - -	5	”
C	Cocoa - - - -	1	”
Cheese	Cheese - - - -	2	”
Pl	Plasmon - - - -	1	”
PS	Pea soup (powder) -	1	”

In each bag except Nos. 3 and 7 : 1 pound of tea (in tin), one small tin of matches.

In bags Nos. 1, 3, 5, and 7 : 1 pound onion powder (in bag, marked OP).

In bags Nos. 1 and 5 : 1 pound pepper (in tin).

In bags Nos. 1 and 7 : 1 pound salt (in tin).

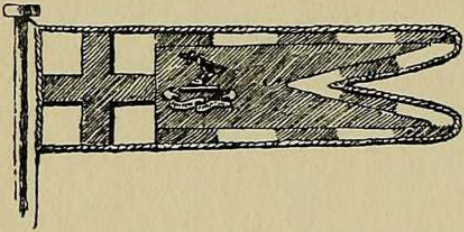
In bag No. 3 : 3 pounds salt (in tin).

The above, with 1 pound of biscuit per man per day, amounted to 2·4 pounds of food for each man each day, and we found it to be an ample allowance.

At 10.45 a.m. we started away on a west by north course, our comrades at the ship cheering us for all they were worth. A fair wind helped us for an hour or two, but, as soon as it dropped and the sails

had to be lowered, we found it hard work to drag our loads over the ice. All the teams except 'C' had detachable wooden runners fixed on to the permanent runners, for we thought that the wood would go better over the ice than the German silver. We soon found, however, that on the surface over which we were travelling such was not the case, so we unshipped the wood and made better progress.

On my reconnaissance journey in September, I had noticed a glaciated valley in the foot-hills of the Royal Society Range, which, I believed, led up to a pass in the mountains by which we could penetrate to the interior. This valley lay immediately to the southward



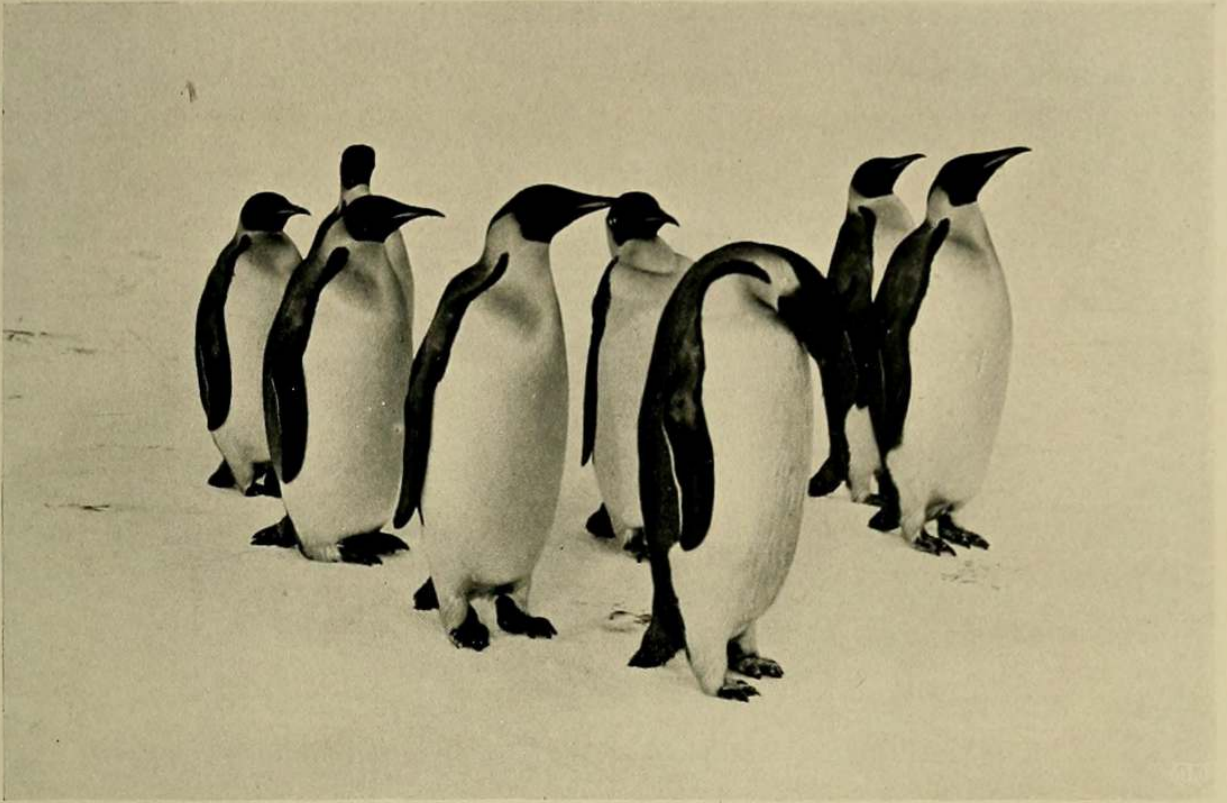
THE AUTHOR'S SLEDGE FLAG,  
'SEMPER PARATUS.'

of the entrance to Ferrar Glacier, and we proposed ascending it. Again we had to travel over the old ice, which formed the termination of the Koettlitz Glacier, and pitched our camp amid

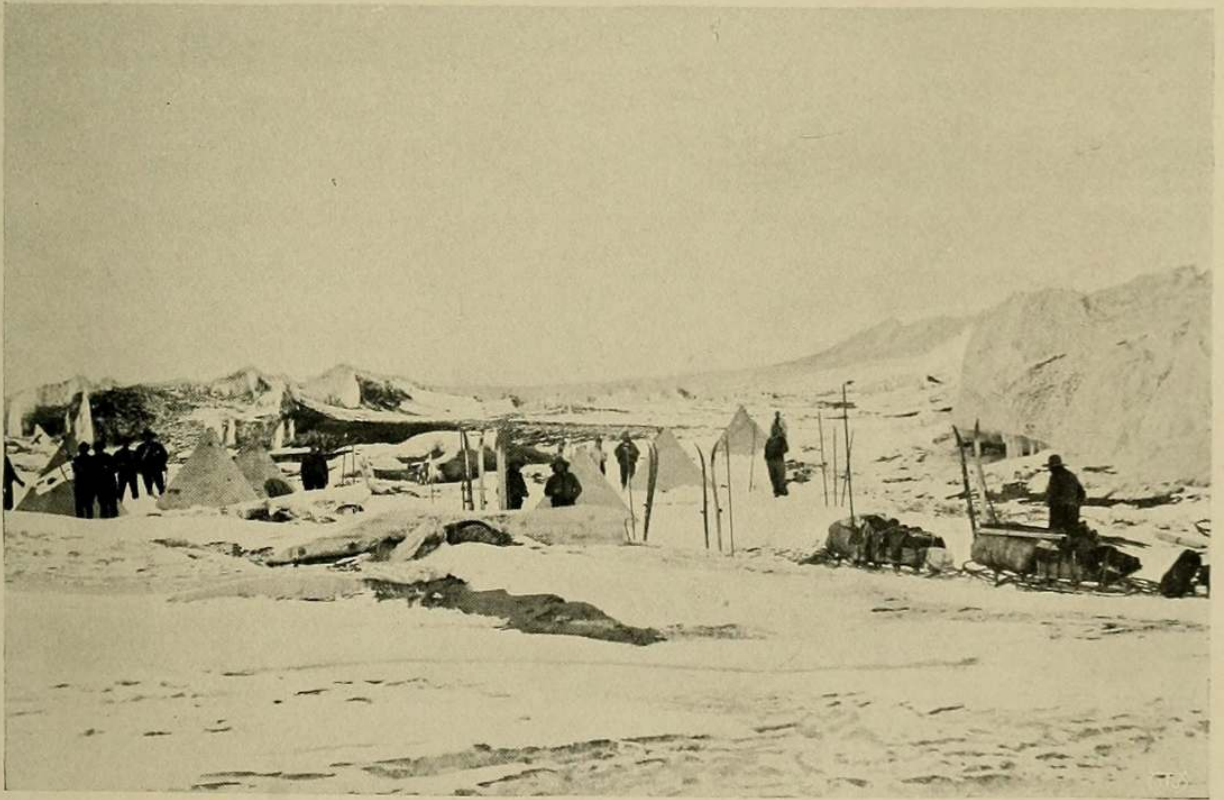
huge masses of ice which had been melted into all kinds of distorted shapes, and which were intermingled with quantities of rubble and fine grit.

On the following day we passed close to several seals, some of them with calves; and we killed one pair—mother and son—carrying with us the meat of the latter, and making a cache of the former for Koettlitz's party for use on their return journey.

It had been part of my plan to make some magnetic observations on this journey, and with this end in view one of our sledges was a seven-foot sledge, on which were placed all the instruments which could easily be detached from the main team, and dragged by two men.



EMPEROR PENGUINS.



SLEDGE CAMP IN THE MORANIC ICE.



I commenced these observations (dip, total force, and declination) on the sea-ice. The short sledge was detached; Skelton remained with me, and the others proceeded on the course. When the observations were completed we hurried after them, and caught them up shortly after they had camped at the foot of the valley up which we intended dragging our sledges the next day.

This camp was formed at the southern extreme of the mass of morainic débris which I described in Chapter VII. The following morning we breakfasted on young seal, and found it to be delicious eating; and then, as Ferrar desired to make a further examination of the moraine, we all went for a walk across the miniature mountain range, disturbing many skuas that were evidently nesting on it. Skelton was an expert at snaring these birds with a simple loop of twine, so we obtained a few to give us a change of diet during the first week of the journey.

After lunch we commenced the ascent of the valley. It was gradual and easy at first, but soon became more difficult. We thought that, perhaps, the wooden runners would move better over the surface that we were on, so shipped them again, only to find that we could not move the sledges at all, and they had to be removed. As the strain was very great, we only dragged one at a time of the heaviest sledges, and two of the lighter sledges, thus having to cover the same ground three times.

At a height of 1,080 feet, Ferrar laid out a line of sticks to measure the movement of the ice-slope by our return.

On the third day of our ascent the sledges seemed to be going more easily, so we tried pulling them all

together once more, but soon had to single up again. Gradually we ascended, until at a height of 3,000 feet, we came to where the slope was not so steep, and were able to drag on all the sledges together.

Here we had arrived at the western termination of the bordering cliffs, and there was an extensive plateau, with one arm stretching away to the southward between the Royal Society Range and its foot-hills, another to the westward, and still another to the northward. The whole source of supply appeared to come from the mountains in front of us, and there was evidence that the ice had at one time overrun the hills between which we had been travelling.

Here and there were mounds of 300 to 500 feet in height above the general level of the ice, which, with the exception of their summits, were entirely glaciated, and I ascended one or two of them to look out a route. On the top of one of these hillocks the rocks were hollowed out, apparently by wind, in the most extraordinary fashion, so that what had been large boulders were now mere shells of rock. Ahead of us were some very grand-looking high cliffs, which I had noticed on my previous journey. It was near these cliffs that I had seen a pass on to the Ferrar Glacier, as I thought, so we made for them in the hope of finding a way through to the interior.

Before arriving near them we had to negotiate another very steep little hill, which taxed our physical powers to the utmost, although it was only 210 feet high. The strain was added to by a fall of wet snow, which acted like a brake on the sledge-runners, clogging them very much indeed. We then camped—the last camp at which we should all be together, for my sup-

porting party were to return to the *Discovery* on the following day.

When we turned out, Koettlitz medically examined the main party, and pronounced them fit to proceed on a lengthened journey. He warned me at the same time against overtaxing the men, as at least two of them were not all that could be desired, apparently; and all of us, he assured me, had the taint of scurvy in our systems. This was not very pleasant news, for the work that we were engaged on required that a man should be in the pink of condition in order to endure the strain his constitution was called upon to stand.

After repacking the sledges, and seeing that Koettlitz's party had an ample supply of food and fuel for their return journey, I went away on ski to seek a road for our sledges. After about half a mile's walk, I came to a sharp ridge, lined with crevasses, and a glorious scene suddenly opened into view. A typical glacier, having all the appearance of a river, lay some 2,000 feet below me. It appeared to be much crevassed, and to have rapids and falls of considerable extent. Opposite me, the grim-looking cliffs, which form the northern boundary of this glacier, extended east and west, gradually turning and terminating at north-west. Far to the westward could be seen a lofty range of mountains, 7,000 to 8,000 feet high, trending towards the north-west, and bordering the glacier on its southern side. The glint of the sun was on the ice, making the frozen river sparkle and shine like polished silver. It was the same glacier that I had seen earlier in the year, from another point of view, and evidently flowed from some source to the

westward of the mountains, which were remarkably bare of ice or snow, and backed by high snow-clad heights.

The pass, at the summit of which I was standing, was not quite half a mile in breadth, and was bordered by high cliffs and ice-slopes. From where I was, it looked quite a precipitous descent to the Ferrar Glacier, and not what one would desire for sledges. I ascended the slope on the north side of the pass, 800 feet, and found myself on a plateau from which a more extended view could be obtained. Koettlitz and Ferrar joined me here; and while the latter climbed to the summit of the cliffs, 400 feet above us, the former held on to a rope to which I was fastened, and so enabled me to go close to the edge of the slope overlooking the pass, which certainly did not look a promising road.

After consulting with Koettlitz, I came to the conclusion that it would be better to seek a route across the mountains, more to the southward of our position, which might lead on to the inland ice. Although, from our point of view, there appeared to be some steep slopes to negotiate, the route seemed practicable. We descended to camp, and after lunch all hands hauled the sledges of the main party to the foot of the slope up which we had to drag them. Then, while Koettlitz and Ferrar examined the rocks, and I made some observations for position, the men climbed to a spot where they could obtain the best sight of the newly-discovered land.

Our supporting party dined in our tents, and afterwards left for their own camp, making the surrounding cliffs echo with their cheers as they bade us farewell. I told them that any success achieved by us would, in





WESTERN GLACIER—SIDE VIEW.



TRIBUTARY CASCADE ON WESTERN GLACIER.



great measure, be due to their aid. All of them were greatly disappointed at having to turn back, and it was amusing to hear some of them asking the members of the main party if they would not rather go to the ship, and allow them to go on instead.

On the morning of the twelfth day out from the ship we started on our new route. The sledges had to be hauled up the slope one by one; and as we could not drag them up in harness, they had to be hauled up by tackle. Fortunately, warned by my Northern experience, I had brought blocks and rope for this purpose, as well as a small crowbar. The crowbar and two ice-axes were driven into the ice, a tailed block made fast to them, and a line rove through the block and secured to the bow of a loaded sledge. All of us, with the exception of two men at the block to see that the crowbar did not draw, and one man to guide the sledge, then hauled down the slope, hanging on to the rope; and as soon as the sledge was as high as it could go, it was secured and another one hauled up. As may be imagined, it was a hard and tedious job. On the first day of this kind of work we only succeeded in getting two of the sledges to the top of the slope, and having secured them there, we descended to our camp for the night.

In the morning I had made a series of magnetic



FUR GLOVES, HALF-MITS,  
HARNESS, ETC.

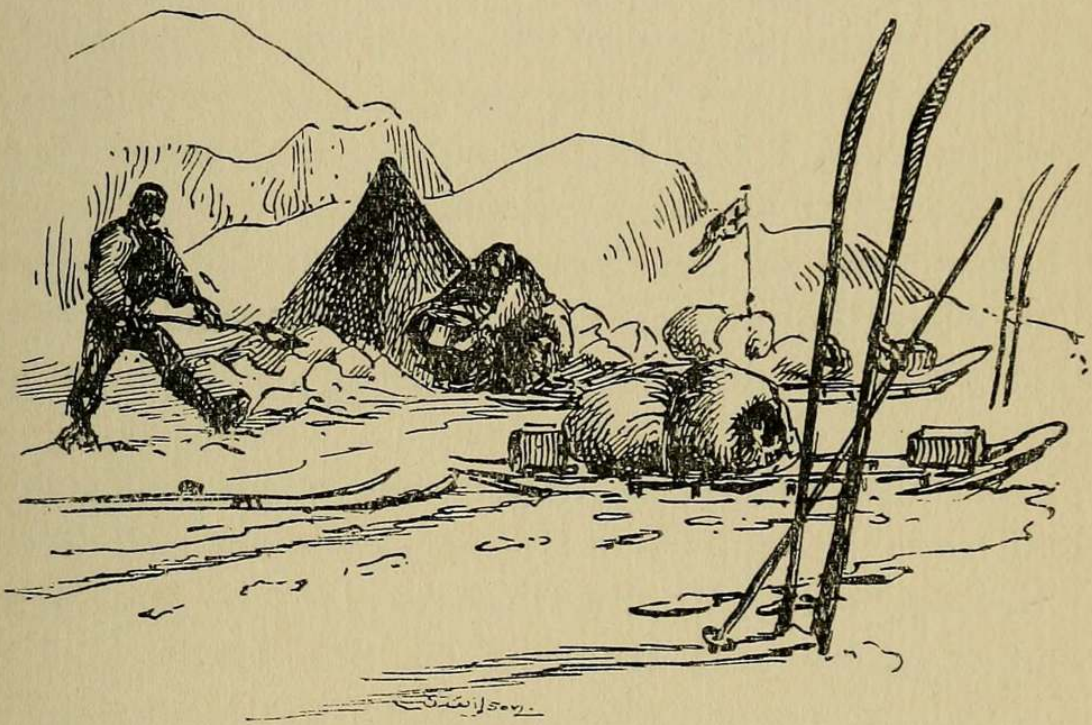
observations, and Koettlitz, after seeing his party off, had visited us to get copies of the observations and our last letters. We had some of the cooked seal-meat for dinner, or, rather, we tried to eat some of it; but it had evidently been cooked in rancid fat, and was so nauseous that some of the men were violently sick. It was a very good thing for our cook that he was not within reach of the irate blue-jackets, to judge by what I heard them say. We picked out the best-looking pieces of liver, and made a depot of the remainder.

The next day we hauled up the remaining four sledges; it took us ten and a quarter hours, including an hour's spell for lunch, to get to the top, ascending 900 feet and covering 2,500 feet. At the summit, where we camped, was a gradually-rising snow-covered plateau with rather ugly-looking crevasses at its ridge, and towards the top of the slope it was so icy that we had to wear crampons to prevent our tumbling at every step. During the ascent the friction was so great on the *lignum vitæ* pins of our blocks that they burnt through, and new ones had to be improvised out of the shaft of our sledgometer, and the sheaves bushed with some of the German silver that we stripped off a sledge-runner, where it did not bear on the ice.

On turning out the next day, the weather was very threatening, and thick damp flakes of snow falling, so I decided not to shift camp. There was another slope ahead of us, about the same height as the one we had ascended, and crowned by a ridge of rocks. I ascended it, accompanied by Scott and Wild, to reconnoitre the country in front of us.

We found a considerable amount of weathered rock protruding out of the ice on this ridge, forming two mounds with a small saddle between them. The ice-ridge connecting the two was not so broad as the sole of my foot. On the further side it descended precipitously to an undulating plain of ice in which we could see large open crevasses and holes.

Beyond this was a mass of broken-up blue ice, which lay at the foot of the mountains, the latter rising sheer



CAMPING-TIME.

to heights of 7,000, 10,000, 12,000, and 15,000 feet. To our intense disappointment, there was no route for sledges; all our toil had been for nothing, and I felt sick at heart as we returned to camp with the bad news that we should have to retrace our footsteps, and find some other way by which to succeed in our quest.

At 3 a.m. the next morning I awoke and heard the wind blowing hard, so went outside the tent to see

that everything was secure. The weather continued much the same throughout the day—squally, with thick, wet, falling snow—and we could hear the blizzard blowing with increased force during the night.

For still another day we had to remain in our tents, for a dense mist rolled up from the sea and enveloped us, and rime thickly encrusted everything.

On the fourth day of our detention in camp by thick weather the wind changed, and we welcomed the appearance of the sun and a clearer atmosphere. From the edge of the plateau on which our tents were pitched I obtained a much better view of the steep pass beneath us than I had hitherto done, and came to the conclusion that we might descend it.

I saw some of the sledges off down the slope, and then, with Skelton and Quartly, again climbed to the ridge above us to obtain observations, bearings, and photographs.

From this height we had a magnificent view for a great distance around us: Mounts Erebus and Terror to the eastward, Mount Discovery to the south-east, Mounts Lister and Huggins to the south, and the heights bordering the Ferrar Glacier to the north of us, made a very grand sight indeed. Seawards there appeared to be about twenty miles of ice stretching from the land, and beyond it nothing but the open, ice-free sea. On the rocks protruding from the ridge we found two lichens, one black and the other green, which we collected.

On our return to the camp we ran the remainder of the sledges down the slope, and pitched the tents for the night. The sledges ran down very well, as we hung on to and guided them. After breakfast next

morning, Skelton, Evans, Wild and I examined the pass down which we proposed to glissade. We took an empty sledge with us, on which I sat, a rope being attached to me, and another to the sledge, and the others lowered me down. I sounded with an ice-axe as the sledge was lowered, and when the others came to the end of the rope I anchored the sledge with the axe, and they followed on. This performance continued for 630 feet, when we came to a level stretch of ice. There were two other slopes, not quite so steep as the first one, divided by level plains of ice. The whole pass formed a magnificent amphitheatre of ice-rock and snow about half a mile in breadth at its widest part, and three miles in length.

While we were absent the sledges had been loaded, and after our lunch was over we dragged them to the summit of the pass. I had them lashed two abreast; rope brakes were passed round the runners, and I told the men to use the bridles as extra brakes. There was a party of four men to each pair of sledges, and Skelton, Allan, Macfarlane, and I led the way with our pair. It was a most exhilarating run, far more exciting even than the water-chute at Earl's Court. We all arrived safely at the bottom of the first slope, and the remainder was comparatively easy.

We had to remain camped for a day at the foot of the pass, because of a thick mist which had come up from the sea. This annoying mist appeared to ascend the valley every morning; then, as the sun heated the valley, it would retreat for an hour or two, and then once more roll up thicker than ever. We stood by till it commenced to clear away, when we hurried on as quickly as possible to get outside its limit.

The recent fall of snow had covered the glacier to a thickness of 4 inches, so that it was impossible to say what kind of ice we were travelling over ; and I had to go on ahead, on ski, sounding continually with my ice-axe for crevasses. This coating of damp snow made the dragging terribly hard work ; the runners were clogged with it, and had to be frequently cleared, causing many stoppages. At times it was impossible to drag all the sledges on together, and we had to go three times over the same ground.

We saw many small cracks in the glacier, and two large crevasses bridged with snow, during the first day's march. I marked them as I went on ahead, so that the men could avoid stepping into them, for a twisted or broken ankle on these kind of journeys is distinctly unpleasant for the whole party. We lightened our sledges by leaving a week's provisions and fuel at the foot of the cliffs, in a cleft which was marked by a conspicuous black rock above it. Water could be heard trickling down amongst the rocks ; it had formed a pond at the base of the cliffs about 4 inches deep. After our hard drag it was most welcome to us, as we knelt down by its edge and sucked up delicious draughts of the ice-cold water. These cliffs were exceedingly weathered, and, with their pinnacles and buttresses, looked at a little distance like some vast ancient cathedral falling to decay.

It was near here that we found carcasses of the crab-eating seal, at an altitude of 2,000 to 3,000 feet above sea-level, and thirty miles from the coast-line. This seal, apparently, knowing of its approaching dissolution, crawls painfully and wearily up, and ever upwards, until death overtakes it. At one place was



an old cow seal, and not far from her was the skeleton of a young one.

Slowly we made our way up the glacier over the sticky, wet snow, never being able to drag the sledges on all together until we arrived near what looked like frozen rapids; and then, although the ascent was steeper and the surface rougher, we were able to make better progress with all the sledges than we had done with only one before, for the snow had been swept away by the wind.

Before we arrived at this point, however, we had been compelled to camp again for thirty-six hours by bad weather—thick mist and falling snow. The worst feature of a pioneer journey inland is that, not knowing where the road leads to, it is impossible to proceed in thick weather. We could see that the glacier branched off to the westward, and also to the south, but which was the best route to take we had not yet determined. Before we arrived off the rapids, we laid out a line of sticks to determine the rate of flow of the glacier. We were very glad to get out of the mist-zone, but no sooner had we done so than a furious gale of wind met us, forcing us to camp once more; and as there was not sufficient snow to keep our tents down, we had to put the food-bags on the snow-cloths instead.

After we had passed the rapids, we came to a large plain of ice, where two branches of the glacier met. The southern branch descended between the Royal Society range of mountains and the mountains extending to the westward, and the western branch dipped down for about 300 feet from where we were, and could be seen ascending as far as the eye could see

to the westward. We chose the latter branch, as it appeared to me to be the best route to the ice-cap.

We now made good progress over the ice, which was quite denuded of snow, and resembled the surface of the sea when disturbed by light airs ; but, although much easier to drag over, the sharp edges of the little hollows in the ice soon began to tell on our sledge-runners. We all had to wear crampons, so as to get a grip with our feet ; and when one man lost one of his crampons, he had to ride until another was made out of a bit of wood and leather and some screws, for without them he was quite unable to walk.

On Christmas Eve we camped under the lee of two huge boulders of granite near a grand-looking mountain which had two remarkable knobs at its summit, and which was exceedingly weathered. Our camp faced a small branch of the glacier that dipped sharply down between an isolated mass of rock and the wedge-shaped range of hills which give the Ferrar Glacier its bifurcated appearance. There was a patch of snow under the lee of the boulders, on which we pitched our tents, the only snow to be seen anywhere near, and we congratulated ourselves on the fine shelter from the sharp wind that was blowing, and on the soft bed we prepared to enjoy.

We were now well to the westward of the Royal Society range of mountains, which made an even grander display viewed from our camp than from the winter-quarters. There were no foot-hills on their western face, so that they appeared to have a much steeper declivity than on their eastern side ; and the general surroundings helped to show them up better.

We were compelled to spend Christmas Day in

camp, for the wind was blowing up to a strong gale in furious squalls, which made us feel glad to have our boulders to windward of us. During the night the heat of our bodies had caused our snow-bed to melt, so that the bags were wet through by reason of lying in 6 inches of water. I am afraid that, in consequence, some of the Christmas greetings were more forcible than is usually the case. Fortunately, there was a good heat from the sun, which soon dried our bedding.

We celebrated the day, as we were unable to travel, by playing euchre, and by having fried cheese and bacon mixed with horse-radish for dinner; and I dare say that we enjoyed it much better than many people enjoyed their dinners at home. All the same, we would not have turned up our noses at a slice of good old roast beef and a pound or two of plum-duff. In fact, we mentioned to each other the various dainties to which we were partial, and, when we slept that night, we dreamt of the many good things that we had not got; and in our wakeful moments we thought of those whom we had left behind us in the old country, who at this joyful season of the year would breathe many a heartfelt prayer for the safety and well-being of the *Discovery*.

We made a start again the next morning, and soon came to very rough ice which resembled a ploughed field, and was caused, apparently, by the sharp curve taken by the glacier in its course round the cliffs. As we proceeded, we saw that there was another arm to this glacier, to the north of the one that we were on, but how far it extended we could not tell. The mountains to the south of us, bordering the glacier, were quite bare of ice or snow, and their colouring

was most beautiful, consisting of all shades of red, brown, and yellow. The layers of light (sandstone) and dark coloured (basaltic) rocks ran in remarkably even lines throughout the range, except where, here and there, a fault occurred.

Still upwards we dragged our sledges on this ice-river, which was at times quite silent, on other occasions full of strange sounds. During the heat of the day water formed in all the little hollows that had been made by the wind, and as it did so there was a curious sibilant sound made by the escaping air, like softly-dropping rain. Again, at the close of day, as the ice cooled, it crackled like a newly-lit fire; and the mountains furnished their quota of sound as they sent down avalanches of rocks and stones, the roar made by their descent echoing amid the surrounding cliffs, and rumbling like distant thunder.

At a height of 4,500 feet up the glacier we came to an ice-fall up which we dragged the sledges with considerable difficulty. This fall presented the appearance of a crystal dome which had been cracked in every direction. The slabs of ice were not more than 4 to 6 inches in thickness, and between them, where the cracks were not filled with snow, it looked as though there was a great void space beneath. This gave us a curious sense of insecurity, a feeling that at any moment our party might be launched into unknown depths by the final bursting asunder of the ice on which we stood.

At the summit of these falls the glacier stretched away in front of us in an easy ascent for some miles, and then we saw still more falls, at the top of which

we hoped to find the ice-cap. We found these falls to be very rough and badly crevassed in many places. We soon had to take the sledges on singly, not being able to manage the lot. It was rather a strain, which was increased by a moderate head-wind springing up at a time when we could have well dispensed with it. When we were on the summit of these falls we could see that there was a much more gradual ascent at their northern extreme, and that the ice there was almost smooth.

We had to remain camped for thirty-six hours again, weather-bound; and I noticed, when we again pulled into our harness, that some of the party were evidently weakening, although in the best of spirits. It had been impossible to avoid heavy strain—first of all, when searching for a road, and afterwards when dragging over the wet snow and up these crevassed ice-falls. After negotiating another lot of tumbled-up ice, with yawning gaps in it, we made another depot of a week's food and fuel, at the base of a nunatak composed of chocolate-coloured columnar basalt. We also left a sledge and all our spare wooden runners, which had been a nuisance on this kind of ice, behind us. In front of us there towered falls which stretched from side to side of the glacier, forming, as it were, a gigantic amphitheatre. Here and there, between the crevassed parts of the falls, were smooth ice-slopes, and up one of these we dragged our sledges.

At the base of this amphitheatre the glacier is depressed, and along the greater part of the depression the ice is smooth and polished and undulating. Near the top of the falls we had to cross a wide crevasse

bridged with snow, which was falling away at the edges. I picked out the best spot, and crossed it on all fours, and after some of the others had followed me, a rope was thrown across the crack and the sledges hauled over. Near where we crossed, the bridge had fallen through, and showed us what to expect if we did likewise. These falls were about 800 feet in height, and we were 7,500 feet above sea-level when on the top of them.

We now marched across a plain of ice looking like very coarse linen, which was quite hard on the surface, but comparatively soft a few inches below. The temperature at this height was considerably cooler than in the valley below us, the thermometer registering  $+ 6^{\circ}$  F. in the middle of summer, for this was the last day of the year. When we camped, I had to attend one of our party for snow-blindness and frost-bitten fingers—a painful combination.

New Year's Day was ushered in by a gale from the westward, so we made ourselves as comfortable as possible in our tents, and reflected that, although it was summer with us, and winter with the good folks at home, we, with our temperature of  $40^{\circ}$  of frost, certainly had the advantage of those who, as they watch the drizzling rain that so often prevails during December at home, long for a good old-fashioned winter.

## CHAPTER X

### THE HEIGHTS OF SOUTH VICTORIA LAND

Storm-bound—Macfarlane collapses—'B' team camps and 'A' team proceeds—The source of the Ferrar Glacier—Our last outward camp—The summit of South Victoria Land—I celebrate Scott's birthday—Allan's camp—A camera and a brandy-flask—A glacial torrent—Magnetic observations—We ascend Descent Pass—Fresh meat—We sight the *Discovery*—Welcomed back—Christmas Day on board—Work done at the ship.

CERTAINLY the New Year did not open very auspiciously for our party. To begin with, we were detained by the gale; and I know of nothing more disheartening when one is sledging, than to be cooped up in a tent doing nothing for one's grub, and compelled to listen to the Storm-fiend outside as he howls in derision at the helplessness of man. It was not until the afternoon of the 2nd that we were able to proceed on our journey, and we had only marched two miles when our ill-luck overtook us once more.

We had ascended a short but steep slope, when, seeing that 'B' team was some distance astern of us, we halted for them to catch us up. As they approached, one of them fell, and, seeing that he did not rise again, I ran back towards them. Allan met me, and said that Macfarlane had collapsed. The poor chap looked ghastly, and was quite unable to

move. He breathed in short, sharp gasps, and I thought that he was dying. We quickly erected a tent and got him into it; then made some hot tea and poured it down his throat, which revived him somewhat. It was out of the question for him to continue ascending the glacier, and on questioning the other members of 'B' team I found that all of them were more or less unfit to proceed. Wild suffered from breathlessness, his tent-companions remarking that his heart ticked like a grandfather's clock at night, and kept them awake. Duncan and Walker had felt 'queer' several times; and Allan and Handsley, although feeling fit, said that they had suffered from their respiratory organs rather frequently.

I told Allan, therefore, that I should leave him in charge of the team, and that they were to camp where they were, and gave him strict orders not to move far away from it until our return. The team could not be sent back to the ship without an officer in charge, and I did not think it fair to Skelton, who, of course, was just as keen as myself to get to the summit of the ice-cap, and who had assisted me so greatly, to send him back in charge of a sick crowd.

After marking out the cardinal points and telling Allan that we should return in five days at the latest, we continued on our way. We left one of our sledges, and all impedimenta not absolutely necessary, at Allan's camp; and after marching for a mile over a 'coarse linen' surface similar to that which we had noticed before we came to the falls lower down the glacier, we arrived at the base of what proved to be the last of the crevassed falls of ice on this glacier.

As we had observed at the foot of the other falls,



the ice, instead of continuing its rise, dipped down slightly towards the base; and on this occasion, we crossed numerous narrow cracks, bridged over with snow, across which we could easily stride. The steep part of these falls was very much broken up, and interspersed with crevasses 10 to 60 feet in width, but all of them well bridged over by hard snow.

We camped at an altitude of 8,200 feet, and had at last arrived at the source of the Ferrar Glacier. As we camped a most beautiful parhelion appeared, with mock suns and overhead circle, and long shafts of light shooting out from the suns on either side in lovely prismatic colouring. High over our heads scud was being driven rapidly from the south-west, and, from the appearance of the sastrugi, that was the prevalent direction of the wind in this locality.

On resuming our march, we proceeded in the south-west direction, the ascent being far more gradual. We were very pleased to discard our crampons for ski, the hard icy surface having given place to snow which was much cut up by the wind. These drifts of hard snow, although disagreeable to drag the sledges across, were very useful as guides for directing our course by, being always formed by the prevalent direction of the wind, so that even in thick weather, if there are lines of sastrugi, one is to a great extent independent of the compass.

On January 4, 1903, we formed our last outward camp. Here I made a series of magnetic observations for inclination, declination, and total force; and while I was observing, the men dug a hole in the snow 7 feet deep and 4 feet in diameter without coming to ice; nothing but layers of snow, varying in thickness

from 6 inches to 1 foot. At the bottom of the hole, a three-foot ice-axe was easily pushed down to its head. The lower layers of snow were very little harder than the upper ones.

The next morning we left our camp, and, carrying our instruments with us, we marched to the south-west for another five miles over an undulating surface of smooth snow, about which there was very little sign of wind. During this march we attained our highest point, 9,244 feet by theodolite angles, 8,727 feet by aneroids, the mean height by the two methods being 8,985 feet.

Both at our last camp and at our farthest west position, after levelling the theodolite I turned it round to the cardinal and intercardinal points of the compass successively. At the camp the horizon was very slightly elevated between south and east; at the other position exactly the reverse was the case.

In a west-south-west direction from us we could see two, apparently detached, ice-capped mountains. For the rest, there was nothing but an undulating white surface; we were, in fact, on the summit of the ice-cap in that portion of Victoria Land, at a distance of 101 statute miles from the coast-line, and 134 miles from the *Discovery's* winter-quarters. We should have much liked to continue to the westward, and could have done so for three or four days more; but the memory of Macfarlane's face haunted me, and I did not care for the responsibility of leaving 'B' team alone any longer. How far the ice-cap extended it was impossible to say; we had to rest content with being the first men to have actually found it, and with having paved the way for others who, with the

knowledge now at their disposal, would be able to very considerably add to it.

On January 6, after Skelton had photographed our camp, we commenced the return journey. The temperature during the night had been as low as  $-15^{\circ}$  F., which made the snow crisp, so that the sledge-runners slipped along easily over the snow. We were aided, too, by a favourable wind which enabled us to set sail. As we approached the crevassed slopes, we had to lower our sails and put brakes on the sledge-runners, and even then we had to hang back on the sledges to prevent them taking charge.

Soon we sighted Allan's camp, to windward of which the men had built a large snow wall. We could see black dots moving about near the camp, and two of them came toward us. Skelton drew my attention to them, remarking that he thought they were Allan and Walker. We were crossing some narrow cracks at the time, easily to be seen and stepped across, and I had just called back to Scott, whose birthday it was, not to celebrate the occasion by falling down a crevasse, when, looking at the approaching men instead of at my feet, I felt as though I had taken a dive. A violent blow on my right thigh quickly followed, and then all the breath was shaken out of my unfortunate body, and I began to wonder what had happened.

It very soon dawned upon me that I had celebrated Scott's birthday for him, and just for a moment I thought that my harness had parted, and that the little one at home would never know her father.

Where I hung the crack was 4 feet wide, broadening to right and left of me. Half my body had passed the angle which sloped in behind me and widened out into

what appeared to be a huge fathomless cavern. Skelton's reassuring voice soon told me that my harness had held, and then I felt a coil of Alpine rope on my head, the noose at the end of which I slipped over my shoulders. Those above me clapped on to the line, and apparently found me rather heavy, for after hauling me up a couple of feet they would let me slip 6 inches, so that I was glad to find myself lying gasping on the top of the ice, while the men gave three cheers when they found that no bones were broken. On measuring the harness, I found that I had fallen 27 feet, and had struck a pinnacle of ice, about 17 feet from the surface, on my way down. This pinnacle very probably prevented my further exploration of the glacier's interior.

We soon arrived at Allan's camp, and found all well with the exception of Macfarlane. He was still very weak, and could not walk more than a few steps at a time without feeling giddy and faint.

On sighting us, some of Allan's party immediately prepared dinner, and the six of us managed to pack into the one tent and made a hearty meal. It was really very pleasant to have nothing to do at the end of a long march—no tent to pitch or food to cook—and we thoroughly appreciated 'B' team's kind attentions. They, of course, were all eagerness to hear how we had fared, and were delighted when we told them that we had succeeded in reaching the summit of the ice-cap.

Next morning, after Skelton had photographed the camp by special request of 'B' team who gave it three hearty cheers, we proceeded on our way down the glacier. Macfarlane had to ride on one of the sledges dragged by 'B' team.

We picked up the depot of a week's provisions, but left the sledge behind, or, rather, part of it, for we took some of it with us to repair the other sledges in case they broke down before we arrived at the ship.

We kept in close to the land, and camped one evening near a magnificent-looking perpendicular cliff which showed most markedly the different formations of rock. After breakfast on the following day, Skelton and I went up to it to get some geological specimens. We found a deep kind of ditch at the side of the cliffs, at the bottom of which was much rock *débris*. We descended it 100 feet by aneroid, and obtained specimens of sandstone. Skelton then wished to take a photograph of the cliff. So I climbed to the top of the ditch, and called out to the camp, 'Bring the camera!' Immediately I saw all the men emerge from the tents and hurry towards me. Some of them were half dressed, some had crampons on, and some were slipping about without any; two men had coils of Alpine rope, and one resourceful individual hugged our one medical comfort—the bottle of brandy. This we always carried on a sledge journey, more for ornament than use.

As they approached I called out again, 'I only want the camera!' There was a grunt which sounded very much as though they were disappointed, although, of course, it might have been one of satisfaction. I heard afterwards that, seeing me alone and not distinguishing what I said, they thought that an accident had happened to Skelton, and immediately jumped to the conclusion that the brandy was required.

We continued on our way down the glacier, travelling, of course, much more rapidly than when we

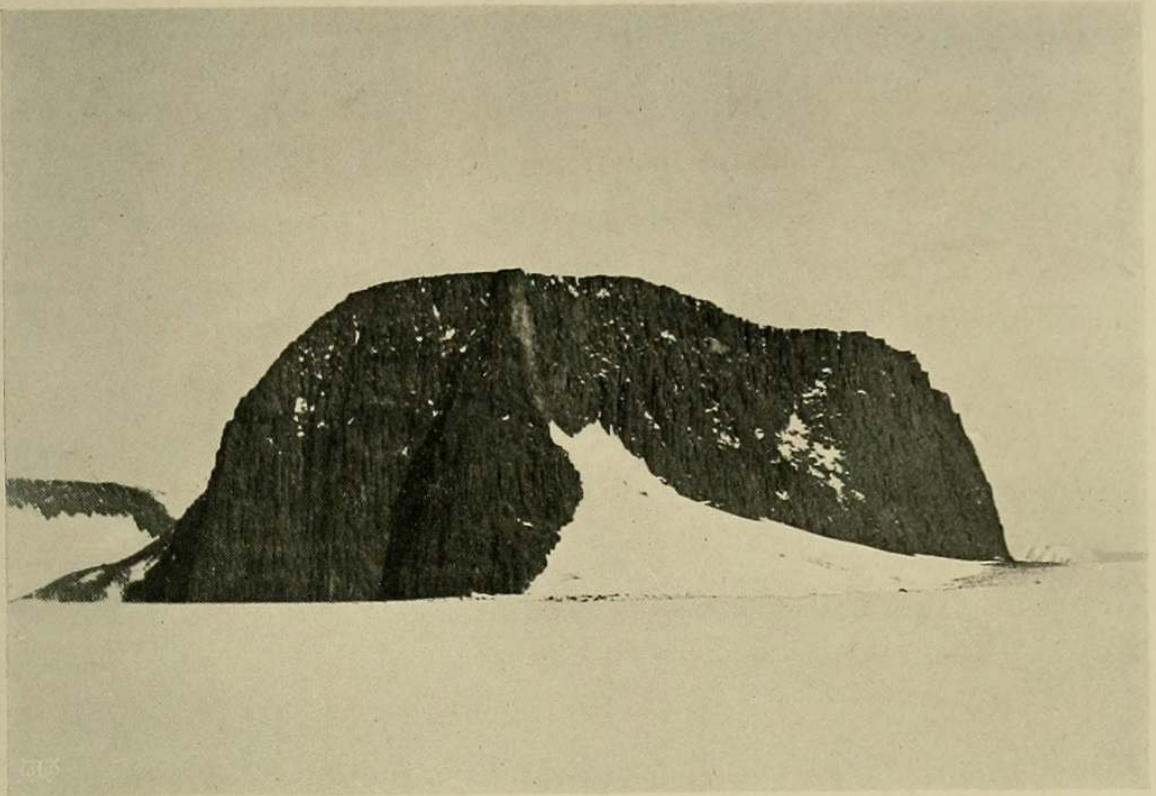
ascended it, without any incident of interest happening until we arrived at the base of the Royal Society Range, unless we take into account an involuntary slide down an ice-fall, which rather jarred one or two of the members of our party who sat down hurriedly.

These falls in the glacier gave one the impression that masses of rock lay beneath them and caused these disturbances in the glacier's flow. Indeed, the configuration of many of the surrounding cliffs showed that the ice had at one time been at a much higher level, and our geologist, Mr. Ferrar, who subsequently examined the glacier which bears his name, believes that the ice in this valley was in past ages some 3,000 or 4,000 feet higher than it is at the present day. Water had formed round the large boulders and in the moraines by this time (January 9), and was very welcome to us, as it helped us to economize our fuel.

On our arrival at the base of the Royal Society Range, we found a torrent of water pouring down by the side of the cliffs from the southern arm of the glacier. Its ice-bed was strewn with rock débris which was being carried down by the water. This stream measured 7 feet in width by 9 inches in depth, and was flowing at the rate of  $3\frac{1}{2}$  knots per hour.

We camped alongside it, and the men laved their feet and had a good wash before they turned in, although its temperature was  $+31.5^{\circ}$  F. It was very pleasant listening to the murmur of the beck as it rushed past our tents, and we went to sleep thinking of pleasant summer days at home, although we made our beds on the hard glacier ice.

As we continued on our way the next day, we skirted large ponds of water which had formed on level



NUNATAK ON FERRAR GLACIER.



FINGER MOUNTAIN, FERRAR GLACIER.





places on the glacier, one of which was quite half a mile in length and a quarter of a mile in breadth.

It was near this pond that I made my last observation with Barrow's dip circle. During our journey we had, by a fortunate coincidence, travelled on a circle of equal 'dips,' thus greatly aiding Commander Chetwynd, R.N., who undertook the 'working up' of the observations on our arrival in England, in fixing the present locality of the Magnetic Pole.

While I made this observation in one of our tents, Skelton, as usual, noting the readings for me, a party was despatched to pick up the week's provisions that we had left near the foot of the cliffs on our way up the glacier, and we then proceeded.

The sledges, which had served us so well under such severe conditions, now showed signs of the hard usage that they had undergone, and we had to strip the German silver entirely off one of them and repair the others. We were glad that we had not to drag them over any more of the rough, cutting glacier-ice, for it would soon have worn away the wooden runners when they were unprotected by metal.

Before commencing the ascent of the pass down which we had glissaded with such rapidity on the outward route, we examined the sticks that we had planted in the glacier twenty-three days before, and found, by means of bearings, that their average movement down the glacier had been 2 feet 9 inches during that period of time—a very slow rate of progression indeed when compared with the Greenland glaciers, or even with those of Switzerland.

The ascent of the pass by which we had reached the Ferrar Glacier was a very different affair to descending

it, and tried our physical powers to the utmost. Looking up the pass from its base, it seemed extraordinary how we could have run our sledges down it, for it appeared most precipitous. Slowly we dragged the sledges one by one to within 800 feet of the ridge, and then had to fall back on our blocks and Alpine rope once more, often having to cut a platform in the slope before we were able to stand and pull on the rope, even with our crampons on. Everything comes to an end, however, although it seemed to us as though that slope would never do so, and after about twelve hours of the hardest work we camped for the night on the summit of Descent Pass.

When we made a start next day, Macfarlane, who felt much better, followed after the sledges on his ski. We had to run the sledges down a slope, and after we had done so, on looking behind, I saw Macfarlane lying on the snow, so sent two men back to him. They found him to be in an almost unconscious condition, and, forming a sort of sledge of his ski, they dragged him up to the sledges, on which he continued to ride for the remainder of the journey. He had fainted twice, poor chap! the exertion having proved too much for him.

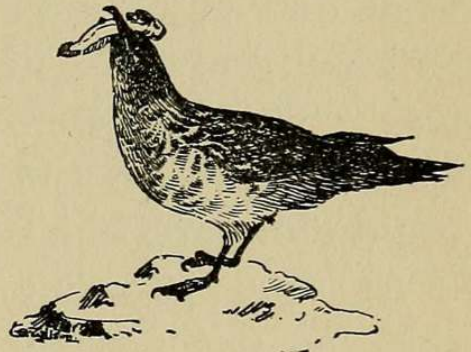
We were again to the eastward of the Royal Society Range, and were not long in descending to the coast.

It was curious to notice the difference in the conditions of the snow over which we were dragging. At times the sledges went along with the slightest effort on our part, at others it was a hard drag to get a move on them at all. This was caused, apparently, by the sun's effect on the snow, for when the sky was

overcast we got along much better than when it was quite clear.

We had a fine run down a slope for 400 feet. I went first, on ski, to see if there were any dangers, and the others followed on my tracks with the sledges. Skelton and Scott dipped down into an ugly-looking crack, but, as they were hanging on to the straps that fastened our gear to the sledges, they came to no harm. Thick fog enveloped us as we neared the coast, rising as high as 1,500 feet, so that we were unable to make use of the sticks laid out by Ferrar on our outward journey.

A final run of a quarter of a mile down the slope, Skelton and I on our ski and the men on the sledges, brought us to the moraine heaps at the termination of the ice-flow. Here we pitched our tents, close at the edge of the sea-ice.



SKUA GULL.

Eight Weddell seals were lying near our camp, and two of them were quickly killed and cut up, making a regal spread for such hungry men as we were. The livers, hearts, sweetbreads, kidneys, and undercuts were equally divided amongst the tents, and were soon frying over our lamps, while we sat round, knives in our hands, ready to dip in and eat at the word 'Go!' Not a diner in London, Paris, or New York enjoyed his meal that night as we did ours. The scavengers of the South Polar regions—the skuas—collected in great numbers immediately the seals were killed, and during our dinner we could hear them quarrelling over the carcasses. Some of the men tried to snare them, but they were too wily.

Near us was a large pool of almost fresh water that communicated with the salt water by some invisible channel, and every now and again a seal would appear in the pool and roll around in evident delight at having a good fresh-water bath, which, to judge by the appearance of the water, had a more cleansing effect than the sea-water.

With the land about our winter-quarters in sight, we made an early start the next day, passing by numbers of seals lying on the sea-ice, and many emperor penguins, all of them either on or near the thicker old ice, and always in couples. They looked very disreputable old birds, as they were moulting and sadly in need of new coats. We had seen their tracks 600 feet up the slope that we last descended. Perhaps they desired a more extended view than they could obtain on the level.

At 7.30 p.m. on January 19 we arrived at the ship, no one noticing us until we were close to her. Then the men on board streamed out to welcome us to our Southern home, and soon we were enjoying the luxury of hot baths and clean clothing once more.

Everything had gone on smoothly on board during our absence of fifty-two days from the ship. All the members of the scientific staff had made short journeys in the neighbourhood. Two of them, Koettlitz and Ferrar, were then away on a trip to Minna Bluff, with the object of investigating the glacial conditions in that locality. Barne and five men were on a six weeks' sledge journey to the south-west across the barrier, and Mr. Dailey had gone with a party of men for the purpose of leaving a depot of provisions at Minna Bluff for us, in case we should come back that way.

Christmas Day had been kept up in the good old style by Royds. The warrant officers dined in the wardroom, after which a magic-lantern display and a concert were given for the benefit of all hands.

Royds had managed, too, to get the ship pretty nearly ready for sea, in case the ice broke away, and the boats had been released from the ice by means of saws and guncotton, the latter having been the principal agent, to judge by the appearance of one or two of the boats. All on board were eager to hear about our experiences, and all wished, when they had heard what we had to tell, that they, too, had been able to see the wonderful valleys of ice up which we had travelled to the summit of a land at once so forbidding and so fascinating, and warmly congratulated us on being the first human beings to storm and carry the heights of South Victoria Land.

## CHAPTER XI

### THE VISIT OF THE *MORNING*

The arrival of the *Morning*—We visit the relief ship, and receive a warm welcome—The officers of the *Morning*—Home news—A new island—Heavy pack-ice in the offing—The return of the sledge-parties—We welcome Captain Scott—Visitors from the *Morning*—Instructions received by Captain Colbeck—The Royal Society's and Royal Geographical Society's letters to Captain Scott—The transshipment of stores—Farewell to the *Morning*.

WE had been back at the ship only four days, when, half an hour before midnight on January 23, Kennar, the quartermaster on watch, reported that a ship was in sight off Dellbridge Islands. The ship's company were greatly excited, and were continually going ashore to have a look at her.

Of course we concluded that she was the expected *Morning*, and were on the look-out for some of her people, whom we thought would be sure to pay us an early visit. As they did not come to us, however, we made up a party to go to them, and next morning Skelton, Bernacchi, Hodgson, nine men, and myself, dragging two sledges, set out for her. She was nine miles from the *Discovery*, at the edge of the fast ice. As we approached her we saw someone coming towards us, and soon met Captain Colbeck, her commander. Dr. Davidson and Mr. Morrison, her surgeon and chief

engineer, had started away from the ship with him, but the ice was so thin that they had both gone through it and received a good ducking.

When we were close to the *Morning*, her crew gave us a hearty cheer, which we returned by one that certainly told them better than any words could do that our lungs had not been affected by the cold.

We were soon on board, and as we passed along the deck the rough but warm-hearted Yorkshiremen who formed the majority of the *Morning's* crew grasped our hands and told us how glad they were to find us safe and sound. It was good to realize that there were other people in the world—people, too, who had gone through a good deal to bring us supplies and news from England. A glorious spread was quickly laid before us—fresh mutton and beef and vegetables. The potatoes seemed to melt in our mouths, although they would not have been thought much of in civilized parts of the world. After dinner we heard the news, but it seemed to be very meagre. The fact of the matter was that the *Morning's* people, who had been in touch with what happened day by day, had forgotten that everything that had occurred during the past year was news to us, so that it took quite a lot of cross-examination to glean anything from them.

The *Morning* had a ship's company of twenty-nine all told. Captain Colbeck, R.N.R., was in command, and his officers were Mr. England, chief officer; Lieutenant Evans, R.N., second officer; Mr. Doorly, R.N.R., third officer; Sub-Lieutenant Mulock, R.N., fourth officer; Mr. Maitland Somerville and Mr. Pepper, midshipmen; Dr. Davidson, surgeon; and Mr. Morrison, chief

engineer. They were a jolly, warm-hearted lot of fellows, and did their utmost to make us feel that they had brought out a bit of home with them. Doorly was a composer, and Morrison was a poet, and between them they had made up some capital topical songs, which enlivened the time until we turned in at about 3 a.m. the next day.

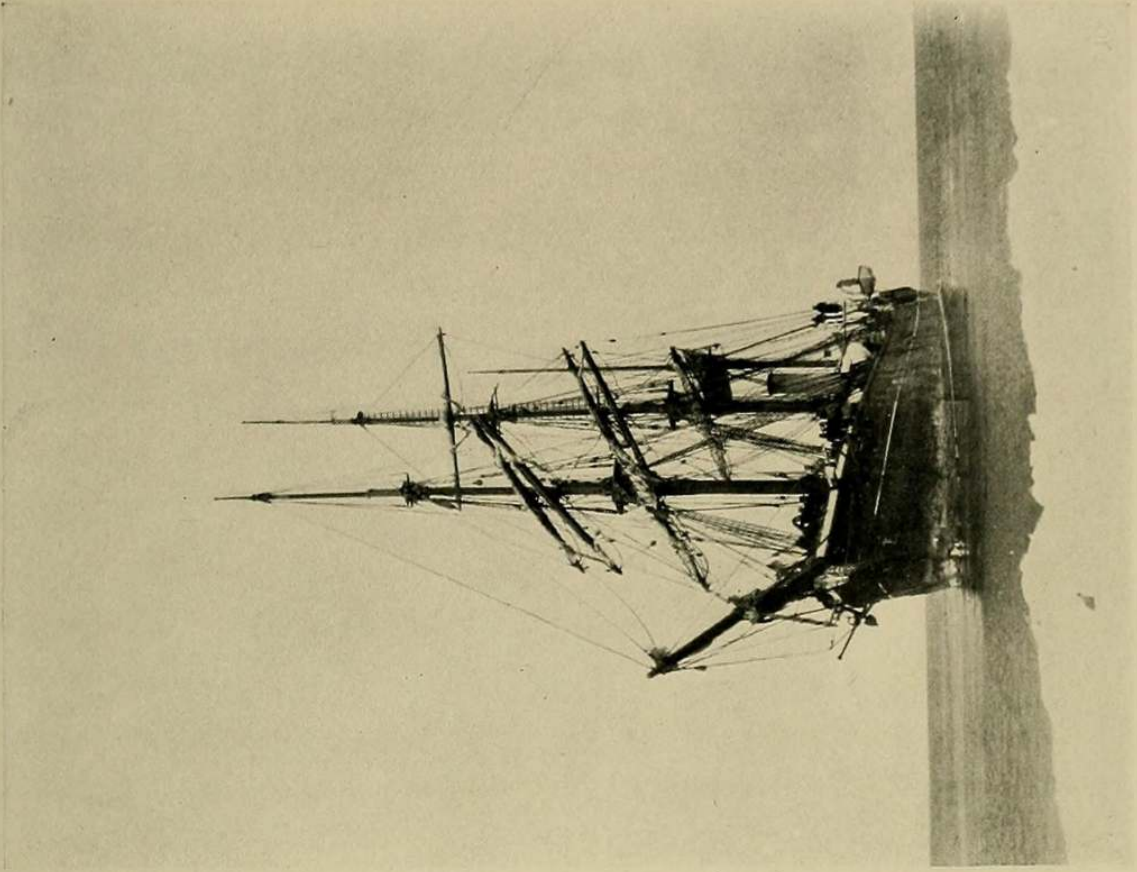
I had intended returning to the *Discovery* after dinner with the letters for those left on board her, but found that the ice for some distance from the *Morning* was far too frail to drag such a precious freight over, so determined to wait until the *Morning* could push up to firmer ice.

After breakfast the *Morning* was pushed into the ice as far as she would go. Her engines were not all that could be desired, and her way was soon stopped, even by the rotten ice through which Captain Colbeck tried to force her.

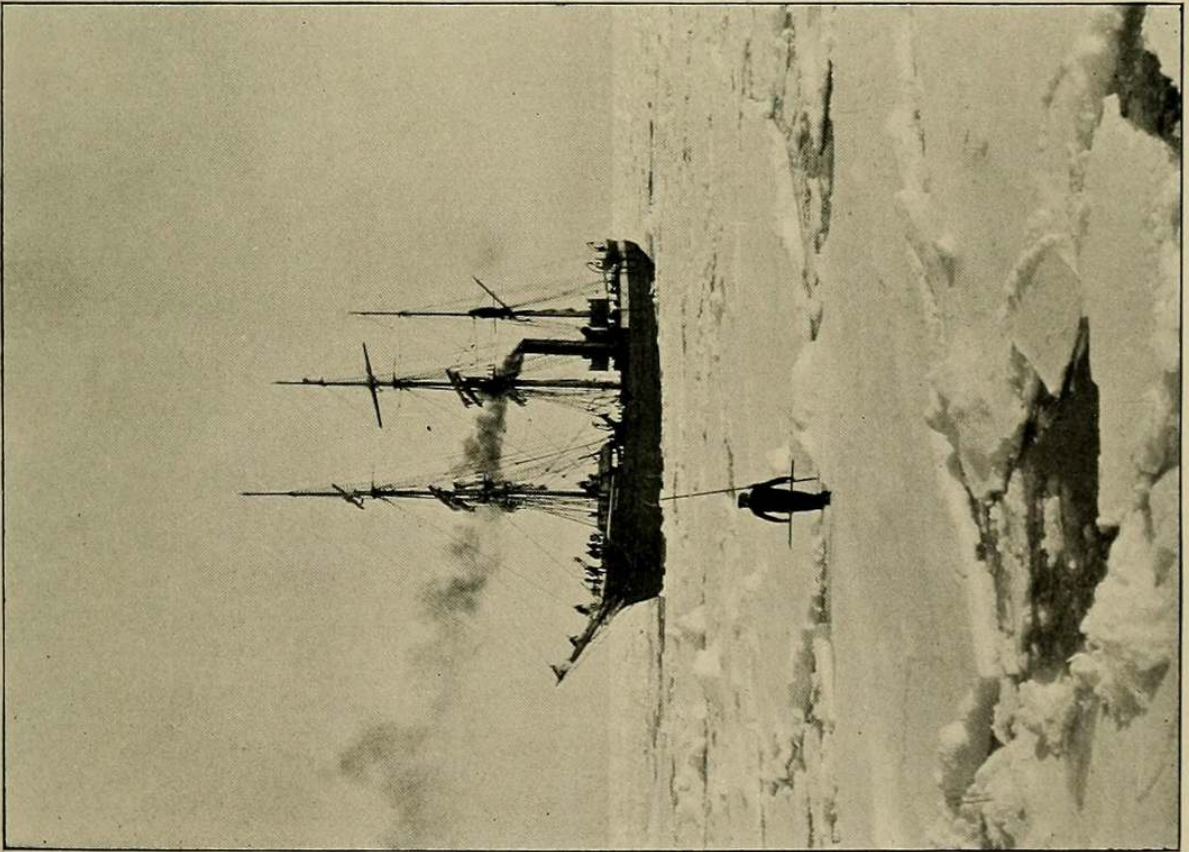
The ice, to my mind, was far too rotten to venture on with a loaded sledge, or even to walk over, so I refused to allow the mail to be sent to the *Discovery*, although Skelton was very anxious to take it, as, indeed, I was for it to go. I told him, however, that he might try the ice by going for half a mile towards our quarters on ski; and this he and two others tried to do. They found that their ski actually sank through the ice in places, and gave up the idea of reaching the *Discovery* on that day.

In the meantime the *Morning* continued to charge the ice whenever Colbeck thought that there was a chance of doing any good by it without wasting too much coal, and by the next day a party, under Skelton, was able to leave with the letters for those on board





ARRIVAL OF THE *MORNING*.



IN THE PACK ICE.



the *Discovery*, who were so eagerly awaiting their arrival. They also took with them a carcase of mutton.

I remained on board the *Morning*, keeping three of our men there, too, until three days later, so as to have a long yarn with Colbeck, and to watch the fast ice at its sea-edge, in order that I might get some idea of our prospects of getting free that year. Certainly, from the way in which it was rapidly melting away near the *Morning*, our chances of being released appeared to be very good.

The five days that I spent on board the *Morning* were very pleasant, and stand out in my memory like an oasis in a desert land; for however good the fellows may be with whom one is cooped up for months at a stretch, a certain weariness of the spirit supervenes, and one longs for fresh companionship, for an exchange of fresh ideas, and for the sight of fresh faces. This is by no means peculiar to the Polar regions, for I have met men who have been isolated with only a few of their kind in most of the uninhabited parts of the globe, and they have all told me a similar story.

Colbeck very kindly gave up one of his cabins to me, and there I read and reread my letters, which were all too short to satisfy my yearning for news of those at home.

Amongst my correspondence I found photographs of my wife and of the little one whom I had never seen; and it suddenly dawned upon me, as it had never done before, that I was a father.

The *Morning* had come down on much the same course as ourselves, and had left Lyttelton on December 6, but was much delayed by strong head-

winds and bad weather. They had been five days in the pack-ice, discovered a small island, named it Scott Island after our Commander, and had experienced a hurricane when through the main pack, which, but for Colbeck's fine seamanship, would have terminated the voyage of the *Morning*.

They had been unable to land at either Cape Adare or Coulman Island because of heavy ice, but had landed on Franklin Island, and discovered our record on Cape Crozier on January 18. Heavy pack lay between Beaufort Island and Cape Bird, which prevented them from arriving in McMurdo Sound at an earlier date.

This news of heavy pack being not far from the coast was disquieting, for we trusted to the ocean swell to break up our prison bounds, and heavy pack-ice is a decided damper on the ocean-swell; still, we had every hope that it would drift away to the northward.

When we returned to the *Discovery*, we found Koettlitz and Ferrar on board. They had not been able to see much, as the weather had been thick most of the time; but they had enjoyed their trip and looked very fit, notwithstanding the fact that Koettlitz had been trying a patent food, to the exclusion of more solid forms of nutriment.

Barne and his party returned to the ship at the end of the month, and they, too, looked as hard as nails and much weathered. They had been about 140 miles over the barrier, to the south-west, and, like Koettlitz, had experienced thick weather for a great part of the time. They had seen what Barne supposed to be islands, but were unable to approach them closely.

Unfortunately, Barne had no trustworthy watch with him, so was unable to make observations for 'position,' but he obtained angles with a prismatic compass. He had seen nothing of the Captain's party.

On February 2 three of the men, who had been to the top of Observation Hill, reported that they had seen Captain Scott's sledge-party, and were rewarded with a glass of whisky each.

Next morning I had the ship dressed and the large silk Jack hoisted on Hut Point. Royds, too, had given the ship a coat of paint, and cleaned up generally, in expectation of a visit from some of the *Morning's* company. So that the *Discovery* looked real smart.

After breakfast Skelton and Bernacchi set out to meet the incoming party; and at four o'clock in the afternoon we could see them rounding Cape Armitage, when I went out to greet them. They were dragging two lightly-laden sledges, the Captain and Wilson in harness, pulling, and Shackleton coming along on ski behind. There were no dogs, and the three of them looked very weather-beaten and weak, Shackleton especially appearing to be quite ill. After greeting them all and saying how glad we all were to see them once more, and after hearing from Captain Scott that they had been farther South than any living man—having reached  $82^{\circ} 17'$  S. latitude—I hurried back to the ship.

The ship's company had lined the rail and mounted up the main rigging, and I called out to them that Captain Scott and his two comrades had been as far as  $82^{\circ} 17'$  S., for they were all eager to know the party's record. And then, as they came close to the ship, we

gave them three cheers of welcome and congratulation, which must have compensated them for many a hardship endured on their long journey of ninety-four days' duration.

I had ordered hot water, aired underclothing, and a specially good dinner, so that they were not long before they were comfortable both within and without.

Our decorations had been seen on the *Morning*, and a party of her officers and men, and some of our people who had been staying there, accompanied Captain Colbeck to add their congratulations to the Southern party on their safe return. Needless to say, we were a very merry crowd on board the *Discovery* that night, for all of us were again gathered together after a successful sledging season, and had, besides, received our letters from home. The table, too, groaned under the good things brought to us by the *Morning*, and after dinner was over song succeeded song until, happy and tired, we turned into our sleeping-bags, glad in the thought that, of all those who had set out from the ship with the sledges, not one was missing.

The following instructions, given to Captain Colbeck by the President and Council of the Royal Geographical Society, and the letter sent by the Presidents of the two Societies to Captain Scott, may prove interesting to the reader :

#### INSTRUCTIONS TO THE COMMANDER.

1. The President and Council of the Royal Geographical Society have fitted out the wooden ship *Morning* to take out coals and provisions and such assistance as she may require to the *Discovery*, now wintering in the Antarctic regions, and have

entrusted you with the command. As soon as you are able to communicate with the *Discovery*, you are to place yourself under the orders of the officer in command of the expedition.

2. You have superintended the refitting and provisioning of the *Morning* since last February, and you have been consulted and your wishes have been attended to on all that relates to the complement of the ship's company and to the appointments of officers and men. You will therefore start on your voyage well equipped in all respects for the performance of the important service which has been entrusted to you.

3. You are to leave England not later than the second week in July, and, after filling up with coal at Madeira, to proceed to Lyttelton, New Zealand. At Lyttelton you are to refit, make good defects, and fill up with coals and provisions; taking on board special supplies of flour and biscuit, golden syrup, and preserved meat. The President and Council attach great importance to the provision of as large a supply as possible of fresh meat and butter for the *Discovery's* people, and a special ice-house has been built on the upper deck. You are to see that it is well stocked, and that care is taken as regards its management.

4. You are also to give close attention to the dietary, health, and comfort of your own officers and crew.

5. You are to proceed from Lyttelton to the ice in December; and your previous experience of the Antarctic pack will enable you to decide upon the best time for entering the ice, and on the meridian which offers the best hope of a speedy passage. On reaching open water to the south, you are to proceed at once to Cape Adare.

6. Copies of a letter from Captain Scott to the President, dated December 17, 1901, with an enclosed note by Mr. Bernacchi, and of a despatch from the Presidents to Captain Scott, which will be sent out in the *Morning*, are herewith enclosed for your information and guidance.

7. You will see, from Captain Scott's letter, that it is his intention to leave records at Cape Adare, Possession Island, Coulman Island, Wood Bay, Franklin Island, and Cape Crozier.

You will therefore search all these places, or such as you are able to reach, for records, your searches being guided by the information respecting the exact localities where the records are to be deposited, contained in Mr. Bernacchi's note.

8. You are also to examine the coast from Cape Adare to Cape Crozier with great care, to find the *Discovery* in the event of her having wintered anywhere between these points.

9. In the event of finding the *Discovery* anywhere on the east coast of Victoria Land, you should use your best endeavours to communicate, to assist in extricating her from her winter-quarters, and to transfer the coals and provisions. You will then proceed as directed by Captain Scott.

10. If you are satisfied that the *Discovery* has not wintered on the east coast of Victoria Land, you are to proceed eastward along the Ice Barrier to the place where you landed in February, 1900. Here it is the intention of Captain Scott to endeavour to leave a record on the ice.

11. The absence of the *Discovery* from any part of the east coast of Victoria Land will no doubt lead you to the conclusion that she has succeeded in penetrating into the unknown region to the eastward of the 164th W. meridian.

12. In that case you are not, under any circumstances, to follow her. But, in compliance with Captain Scott's wishes, you are to endeavour to form a depot consisting of two months' provisions at Cape Crozier, a large depot of coals and provisions in Wood Bay, and a depot of two months' provisions at Cape Adare. You are not to risk detention in the ice, but you are to make the best of your way to Lyttelton while it is possible, and there await further instructions. You should reach Lyttelton in March or April, 1903.

13. The records left by Captain Scott, which you may succeed in finding, may contain instructions with regard to your procedure which are not in agreement with those now given to you. In that case you are to obey Captain Scott's instructions in preference.

14. You will be careful to leave at the places at which you touch records of your proceedings, together with copies of these



instructions and of the letter to Captain Scott, for which purpose several spare copies will be supplied to you.

15. The *Morning* is a yacht in the list of the Royal Corinthian Yacht Club, and is registered under the Merchant Shipping Act, 1894, the Royal Geographical Society being owners. You will see that all on board sign the ship's articles as required by the Act.

16. You are to take every opportunity of acquainting me with your proceedings and your requirements.

17. You have already acquired experience in the navigation of the Antarctic seas, and the President and Council have every confidence in your zeal and ability as a seaman, and that you will carry out these instructions with care and to their satisfaction. The duty entrusted to you is one of great difficulty and of great importance. You may rely upon the support of the President and Council, and you may assure your officers and crew that the owners of the *Morning* will appreciate their labours, and will watch over their interests while absent on their arduous and difficult service.

(Signed) CLEMENTS R. MARKHAM,  
*President, R.G.S.*

#### LETTER TO THE OFFICER COMMANDING THE NATIONAL ANTARCTIC EXPEDITION.

1. Our last letter to you was dated October 29, 1901, and we have since received from you your letters of proceedings No. 3 (November 28, 1901), No. 4 (December 22, 1901), and No. 5 (December 24, 1901). We have also received and considered your letter on the subject of the relief ship, and of the instructions her commander should be given, dated December 17, 1901. Your letters to Mr. Longhurst, chiefly relating to the wages and allotments of the men, have all been received and duly attended to; and Mr. Waymouth has sent in an account of the sale of stores left by you at Lyttelton.

2. The magnetic observations and deep-sea sounding reports, and the specific gravity observations, have been taken charge of by the Hydrographer, and the meteorological observations by the

Meteorological Office. The rain-gauge observations were first submitted to Dr. Black of Edinburgh, in accordance with the wish expressed by Lieutenant Royds, and the observations specially taken at the suggestion of Professor Letts have been forwarded to that gentleman at Belfast. The biological and botanical collections arrived in excellent order, and have been entrusted to the Director of the Natural History Department of the British Museum, together with Dr. Wilson's sketches. The geological specimens were submitted to Mr. Teal, the Director of the Geological Survey.

3. The Trustees of the British Museum have offered to receive all the collections made by the expedition, to work up the specimens, and to publish the results in a suitable manner, with the funds entrusted to them for such purposes by the Government. The work will be edited by the Director of the Natural History branch of the British Museum, the collectors receiving full credit, and being probably employed as sub-editors. This proposal of the Trustees appeared to be advantageous, and has been accepted by us.

4. From the latest letters received from you we learn, with great pleasure and satisfaction, that you consider the expedition to have been completely equipped, and that all on board the *Discovery* are animated with that zeal for the service on which they are employed, and that loyalty to yourself as their Commander, which can scarcely fail to ensure successful results. We have endeavoured to perform our part by attention to the interest of the members of the expedition, and by our efforts to comply with the wishes, and to forward the views contained in your letter of December 17, with reference to the despatch of a relief ship.

5. You are already aware that a Norwegian wooden ship has been purchased. She has now been refitted at considerable expense, and will commence her voyage to New Zealand early in July, under the command of Mr. William Colbeck, R.N.R., a gentleman with whom you are already acquainted, and who has knowledge of navigation in Antarctic waters. The *Morning* is capable of carrying 300 tons of coal, apart from a deck load,

150 or 200 of which would be for the *Discovery*. Besides coals, she can carry about 100 tons of provisions, and she also takes out some warm clothing for the *Discovery*, especially komagers. Mindful of the wish expressed in your letter of December 17, an insulated freezing-room has been built on the upper deck of the *Morning*, calculated to contain 100 carcasses of sheep, or 600 pounds of fresh meat. It is intended to obtain a large proportion of the provisions and coals at Lyttelton, and care has been taken to send out flour, golden syrup, preserved meat, and butter, the kinds of supplies mentioned by you, as per schedule at the end of this letter. The relations of all on board the *Discovery* have been informed respecting the despatch of letters and parcels by the *Morning*. We enclose a copy of the instructions to Captain Colbeck, with detailed list of her officers and crew.

6. Judging from the instructions, and from your intentions so far as they have been made known to us, the most probable event connected with the expedition is that the *Discovery* will have wintered in Wood Bay, or at some other point on the east coast of Victoria Land. Captain Colbeck is instructed to enter the pack in December, or in the first week of January, 1903, and, as soon as he reaches open water, to examine the positions enumerated in Mr. Bernacchi's note (which forms an enclosure to your letter of December 17, 1901), in search of records. As soon as he finds the *Discovery*, he is to communicate, and to place himself under your orders.

7. You will then be in command of the two ships, and you are to take what you require from the *Morning*, and extricate yourself from your winter-quarters with as little loss of time as possible. You are then to do as much exploring and scientific work as the time will admit with the two ships during the navigable season of 1903. The direction you will take, and the methods you may adopt in performing this service, are left entirely to your own discretion. You will return to Lyttelton in March or April, 1903.

8. An alternative event is that you have succeeded in navigating the *Discovery* far beyond the most eastern point reached by Sir James Ross along the Ice Barrier. In that case it is probable

that you would make your way eastward, coming out of the ice somewhere in the Ross Quadrant. You advise that, in this event, the *Morning* should not be instructed to follow you. Only in the event of disaster is it likely that your retreating parties would return to Victoria Land. If, therefore, the *Discovery* is not found on the east coast of Victoria Land, Captain Colbeck is instructed, in accordance with the desire expressed in your letter of December 17, to establish depots containing two months' provisions at Cape Adare, and the same quantity at Cape Crozier, and to leave a large supply of coals and provisions in Wood Bay. If you find it impossible to return to Lyttelton at the time specified above, a ship will be sent to take you back in the next season.

9. There are other possible courses that events may have taken which we, in England, can neither foresee nor provide for. Much must therefore be left to Captain Colbeck's discretion.

10. We are aware that you were, and probably still will be, very anxious to continue your exploring and scientific work after your return to Lyttelton, during a third navigable season. This would certainly be very desirable if the funds are sufficient.

11. As at present informed, we are of opinion that a third season is not feasible from a financial point of view. But matters may have a different aspect in April, 1903, and we will be in communication with you on these points when you return to Lyttelton.

12. But, as now advised, we think that the work of the expedition cannot be prolonged to a third year. As soon, therefore, as the members of the expedition have been sufficiently rested and refreshed at Lyttelton, you are to proceed to the Falkland Islands, taking a series of magnetic and other observations, and deep-sea soundings across the Pacific, in as high southern latitudes as you can traverse with safety, and thence home.

13. In conclusion, we desire to express our confidence that you and all under your command have zealously and energetically done your best to secure all the objects of the expedition. His

Majesty the King has expressed anxiety to have any news communicated to him that may, from time to time, be received regarding the expedition. And from His Majesty downwards all classes in this country have shown the interest they take in the welfare of their Antarctic explorers. We all look forward anxiously, but hopefully, for news of your safety.

(Signed) WILLIAM HUGGINS,

*President R.S.*

CLEMENTS R. MARKHAM,

*President R.G.S.*

As will be seen, Captain Colbeck had carried out his instructions to the letter. It was gratifying to us to hear that the Societies were so solicitous for our welfare, and that the scientific collections and observations were to be placed in such good hands. We heard, too, that if we were compelled to spend still another winter in the ice, there was little doubt that funds would be forthcoming to meet the increased expenditure, which was also pleasing news.

The toilsome business of conveying stores from the *Morning* to the *Discovery* now commenced, and day by day Royds, Barne, Evans, and Doorly marched backwards and forwards between the two ships in charge of parties of men dragging sledges laden with carcasses of frozen mutton, and all the various provisions and good things brought for us by the relief ship. The stores in the hut on shore were rapidly shipped, too, in case the ice should suddenly break up.

Captain Scott stayed for a few days on the *Morning*, and experimented on the ice with guncotton, but with little effect. The explosions made a hole through the ice and cracked it around for a few yards, but did not break it away to any extent, so he ceased

from endeavouring to shift our prison walls by that means.

Day followed day only too quickly, and although small portions of the ice-field broke away from time to time, it became evident that the *Morning* could not, with safety to herself, stay in the Far South much longer.

Captain Scott fixed March 1 as her date of departure, for young ice was rapidly forming, and with her poor steam-power it was highly probable that she would be unable to push to the northward if she remained in McMurdo Sound beyond that date.

Some of the men did not desire to spend another winter in the ice if they could return to New Zealand in the *Morning*, so Captain Scott made arrangements for them to join her. Shackleton, much against his will, was to be invalided home, for, although he had very quickly recovered, Captain Scott did not care to incur the responsibility of keeping him in that climate after his serious illness. Macfarlane, too, was invalided, greatly to his regret.

On March 1 our home mail was made up. All the wardroom party with the exception of Wilson, who was nursing a stiff knee-joint, and most of the men went across to the *Morning*, which was lying at the ice-edge about five miles from our quarters. We had a farewell dinner on board her, and a sing-song afterwards, and slept on board that night.

The next day, at two o'clock in the afternoon, we said good-bye to the *Morning's* company and to our comrades who were preceding us, of whom there were ten. We then scrambled over the bows and congregated together on the ice, where, to those who were bound for more

genial climes, we must have appeared a very solitary, castaway little group. Slowly the *Morning* gathered sternway, and then, led by Colbeck on the bridge, our visitors sent cheer upon cheer quivering in the air as a final adieu to us. As we had been so rejoiced at their advent, so we now watched their retreat with sorrow. We answered them cheer for cheer, until, like some faint echo, we heard a last word of 'Good-luck' sent to us by our comrades who had shared our fortunes, good and bad, during the past year in the *Discovery*.

And then we turned away towards our good old ship again, wondering if she, too, would soon be bound for the North, and each of us in his heart wishing, also, 'God-speed' to the *Morning*, for she carried with her to many a one at home a year's pent-up expressions of love and hope and goodwill.

## CHAPTER XII

### THE SECOND WINTER

No more attempts to break away the ice—We prepare to spend another winter in the South—Outdoor sports—Sub-Lieutenant Mulock, R.N.—The Southern sledge journey—Heavy loads and worn-out dogs—The dogs die—Rotten fish—Dog-driving—Dog-killing—Plucky animals—The perseverance of Scott and his companions—The 'Farthest South'—Lofty mountains—Shackleton's illness—King 'Nigger'—Distribution of food—Scurvy—Full and plenty—A floating barrier—Ponies *v.* dogs—A road to the Pole—The second winter—Projected journeys for the coming sledge season—Puppies—A terrible torture.

THE regular routine of our ship-life continued as before. Captain Scott considered that it would be useless waste of material to make any serious attempt to free the *Discovery* by means of the explosives that we had on board ; so for some time we hoped that the forces of Nature would release us, but these hopes, it became only too evident, were not to be fulfilled.

Each day someone would climb the hills which were close to the ship, and gaze long and earnestly at the edge of the fast ice to the northward of us ; and sometimes, deceived by their own desires, one or more of our community would declare that the ice had broken away for half a mile or more ; indeed, if all the half-miles and miles of ice that were reported to have broken away had in reality done so, the open water



would by the middle of April have extended far to the southward of us.

But five miles of unbroken ice remained between us and freedom, so we resigned ourselves to the inevitable, and prepared to make ourselves comfortable for another winter.

As long as there was daylight, nearly all hands would have a daily game at hockey on the level ice near the ship, varied by occasional games at football, but otherwise there were no outdoor sports indulged in. In the wardroom we had, in place of Shackleton, Sub-Lieutenant Mulock, R.N., who had volunteered to join the *Discovery*. Curiously enough, he, like Shackleton, was an Irishman; and although we missed the bright, cheery presence of our old comrade, we none the less appreciated that of our new shipmate. He was the youngest member of the ship's company, and celebrated his coming of age shortly after he joined us.

His professional services were very welcome to the expedition, for although Captain Scott and the other Royal Navy officers had, of course, undergone the usual course of instruction in surveying, they were not Survey officers. Mulock, on the other hand, belonged to the Survey branch of the service, and immediately set to work to lick into shape the large amount of material that had been collected by us during our explorations, both by sea and land.

A ninety-four days' sledge journey over the Great Ice Barrier had been accomplished by Scott, Shackle-



HOCKEY—'BETTER  
RUN AND SEE THE  
DOCTOR.'

ton, and Wilson, but their narrative of the journey did not occupy as many minutes, and it was only after some weeks had passed by that we were able to understand what they had really been through.

As I have related before, up to the parting with their supporting party they had every reason to feel satisfied with their progress. Of course, when Barne and his men left them, they had to drag considerably more weight than before, and this extra weight soon told upon the dogs. The surface of the barrier, too, was often very difficult to get along on, for, although it was smooth and level, it had a crust on it which sank under the feet at each step, making it most tedious travelling for both men and dogs. But this would not have mattered so much if there had been no other causes of discomfiture. But there were, and most serious ones. The dogs became weaker on each succeeding day, and, finding that they were unable to drag the loads, Captain Scott kept in towards the land, where he intended to make a depot of some of their provisions.

The dogs dragged gamely on, gradually becoming weaker and thinner and more miserable-looking, until on December 8 the first of these poor victims to man's ambition obtained his happy release by death. A week later a depot was made as close to the land as possible, but it was too late to save the dogs. Indeed, it is very doubtful whether they could have been kept alive if the loads had been lighter from the commencement of the journey, for, on examination, the bundle of fish from which they had been fed was found to be green in the centre. The fish had been stowed in a rather damp place on board the ship, had not

been opened up, and had, of course, been through the tropics ; so, although dogs fed on similar fish throughout two seasons' work in North Polar regions had thrived on it, it was small wonder that our dogs sickened and died when compelled to eat fish in such a rotten condition.

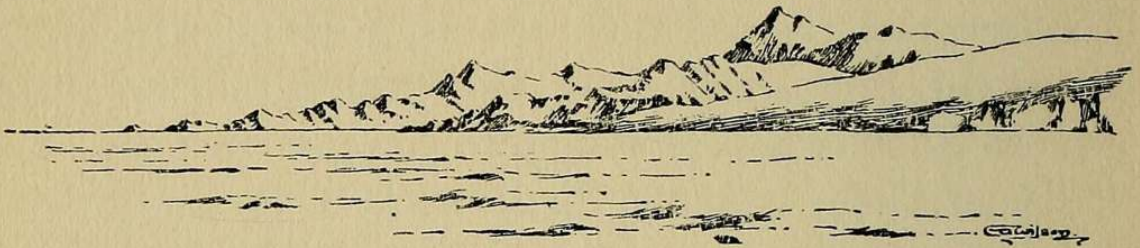
As the dogs became too feeble to be of any use in harness, they were killed. It is, I think, the worst feature of dog-driving, for the poor dumb creatures seem to know what is going to happen to them, and as one of them is led a little away from the others, to be slaughtered, he gives piteous glances at his executioner, who perhaps has been in the habit of fondling and petting his canine companion for months past. These sledge-dogs appear to have a keen sense of duty, for I have seen them pull until they dropped dead in their tracks, worn out by the terrible strain put upon them in their half-starved condition.

Captain Scott and his companions still pushed on, despite the condition of their dogs. They marched parallel to a coast which, stretching away to the southward as far as they could see, was marked by a chain of lofty mountains, uninterrupted except by some great glaciers which flowed down to the barrier between them.

At the end of the year Captain Scott decided that they must return. They had reached latitude  $82^{\circ} 17' S.$ , and could still see great mountain-peaks ahead of them, one of which was 15,000 feet high. This and another lofty peak, estimated by Captain Scott to be in  $83^{\circ} S.$  latitude, he named after Sir Clements Markham and Mr. Llewelyn Longstaff, the two men who, above all others, had enabled the

expedition to leave British shores. They commenced their return journey on the first day of 1903, with only ten dogs living, and those hardly able to drag the sledges along.

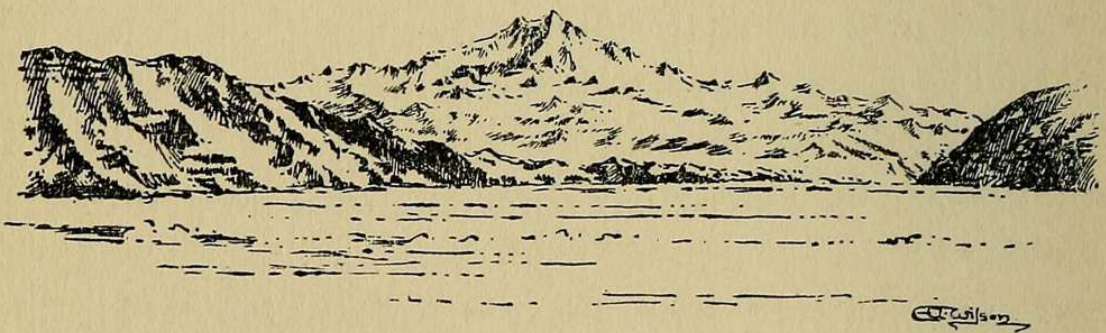
And now another misfortune overtook the party. Shackleton became very ill, and quite unable to help



MOUNT LONGSTAFF,  $83^{\circ}$  S. LAT., FROM  $82^{\circ} 17'$  S. LAT.  
(‘FARTHEST SOUTH’).

in pulling the sledges. He pluckily kept on his feet and followed on after the team, notwithstanding the pain he was caused by his efforts to do so.

On January 15 they were again in the vicinity of depot ‘B,’ and were somewhat alarmed for a little



MOUNT MARKHAM, 15,100 FEET, IN  $83^{\circ}$  S. LAT.

while by not being able to find the stock of provisions that they were depending on, owing to a persistent fog. At last they saw a small black speck on the ice, and on making for it were rejoiced at recognising their depot.

Two days afterwards the last two dogs were killed. Their names—they deserve recording—were Nigger and Jim. Nigger was the king-dog, and, when in health, ruled the pack with a rod of iron. A dog of few words and an enormous jaw, he never gave a second warning to a mutinous subject, but with a spring and a snap of extraordinary quickness he administered summary justice. On one or two occasions the cruel fangs sank deeper and deeper into the flesh of Nigger's opponent, and in a few minutes all was over; the death-penalty had been inflicted.

And now Scott and Wilson had to drag the sledges themselves, and calculated that when they had loaded up with the provisions at depot 'B' they were dragging about 270 pounds each.

They had to husband their food, too, for it was a long way to their first depot near Minna Bluff; so for many days they could not enjoy a full meal.

They told us that, when the food was portioned out in the tent, each would glance at the other's share hungrily, imagining that the other two had a fraction more than their share. Shackleton hit on a scheme for apportioning the food that would make them feel more contented. It was that one should turn his back when the food was divided into three portions, and then declare who was to have the different shares. They each in turn, too, scraped out the boiler in which the pemmican had been cooked, so that not the smallest particle was wasted.

Symptoms of scurvy added to their discomfort, but still they plodded on over the dreary waste of snow, their faces cracked and blistered by the fierce glare from the sun, and, in the case of Scott and Wilson, their

minds filled with anxiety about their comrade Shackleton, who painfully marched after them.

On January 28 they arrived at depot 'A,' and their relief may be imagined. Here they found food in plenty, and, pitching their tents, they tucked into the good things until they could positively eat no more, this happy condition continuing at each meal until they arrived at the ship.

Fortunately for them, the prevailing wind was in their favour during their return journey, so they were often able to set sail, the wind frequently blowing with such force that one of them had to hang back on the sledges to prevent their running over the man in front.

They tried to get on to the land which forms the western boundary of the barrier, but were unable to do so owing to a deep trench which exists near it, and to the exceedingly rough character of the ice as they neared the land.

Captain Scott was of the opinion that the barrier was a floating mass of ice, and that the chasms near the coast were caused by the enormous glaciers which flow down from the inland ice through the large openings seen by them during their journey.

Despite their hardships, Wilson had made a numerous series of sketches of the land near which they had been travelling, Captain Scott had made a continuous chain of bearings and observations for position, and Shackleton had daily recorded the meteorological observations. By means of a boiling-point thermometer and by aneroid barometers they determined that the great barrier was practically level.

The journey that they had accomplished was,

indeed, one of which they might well feel proud, and had enormously increased our knowledge of one of the most wonderful of Nature's works.

The next exploring-party that visits the Great Barrier, profiting by Captain Scott's experience, will perhaps be able to tell us how far it extends to the south, whether it is brought to a termination by the land, or whether it is a mighty frozen strait lying between South Victoria Land and King Edward VII.'s Land, and stretching across from the Ross Sea, southward of New Zealand, to the Weddell Sea, near Coats' Land, recently discovered by Mr. W. S. Bruce, south-eastward of Cape Horn.

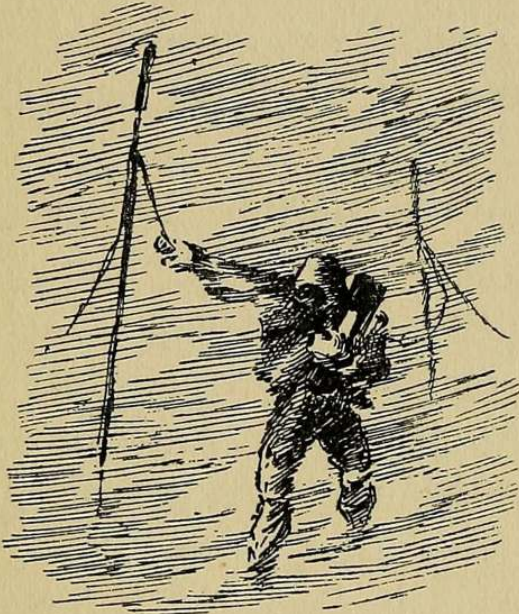
For those explorers whose aim it may be to reach the South Geographical Pole, I believe the barrier offers the best route, for, if the great sheet of ice extends so far, there should be no unsurmountable difficulty in attaining their end, providing they have the means of dragging their sledges over the required distance.

Over such a surface as that of the barrier I believe that Siberian ponies would do better than dogs, from what I have experienced with both animals in the North. The Siberian pony can stand the severe cold, and can drag a heavier load in proportion to the amount of food he requires than the dogs. Moreover, the pony is far more palatable, in case of need, than the dog.

The second winter passed away in much the same way as the first had done. We were, so to speak, more settled down, and took things more as a matter of course. Neither concerts nor theatricals were indulged in; why not, I cannot quite say. Perhaps we did not feel equal to them. We celebrated the

sun's disappearance by festivities both on the mess-deck and in the wardroom, a dance in the latter being a great success.

All the observations were, of course, carried on as usual, and the *South Polar Times*, under the able editorship of Bernacchi, continued to be a great success. Bridge was a source of amusement after dinner in the evenings—if there is any evening during a Polar night—during the first part of the winter ; but the inclina-



ON THE WAY TO THE SCREEN IN  
A BLIZZARD, WITH THE PATENT  
SAFETY CANDLE LAMP.

tion for even that kind of amusement gradually died away, and the only kind of game that some of us were faithful to was chess.

Even the daily exercise became so monotonous that I, for one, neglected it far more than I ought to have done, but cannot say that I felt any bad effects through doing so—although there is no doubt that one felt better after a sharp walk over the ice, especially if the weather

was fine and there was no wind.

The Captain told me that he intended to make a journey to the westward during the next sledging season. He wished to make a more detailed examination of the Ferrar Glacier and to gain a more extended knowledge of the inland ice than I had been able to do. Knowing the way which I had found, he would be able, of course, to go much farther. He intended, also, to send Barne in charge of a party to examine one of the



glaciers which he had seen on his southward journey, and Royds with a party of men in another direction. Wilson was to visit Cape Crozier and endeavour to obtain some specimens of the emperor penguin's egg, as well as study that bird's habits at the breeding season. The Captain told me that he wished me to remain in charge of the ship, in order to form a camp on the ice some miles north of our quarters, and with all the available men to make an attempt to free the ship by means of blasting and sawing.

This was, I must confess, a sore disappointment to me, for I had set my heart on sledging over the barrier to the south. However, I resigned myself to the inevitable, and felt somewhat consoled by Captain Scott's kind permission to make a short journey to the south-west portion of McMurdo Sound, and complete that portion of the map as soon as I had seen the camp established.

As the winter drew towards its close, preparations were once more in full swing for sledging.

The remains of the windmill were utilized for making crampons that one could walk on without straining the feet, for those that I had designed at home were not made with a view to continuous marching, there being no idea that we should meet with ice on our journeys such as we had encountered during our ascent of the Ferrar Glacier. Skelton designed the new crampons, so that there was a firm support for the whole of the foot, and they subsequently proved very successful. The sledges and the fur sleeping-bags had to be thoroughly overhauled and repaired, for both were considerably the worse for wear after the previous year's sledging.

Although all the dogs obtained from Siberia had perished on the barrier, there remained some pups born at our quarters.

These in their turn produced families towards the end of the winter, so that we had quite a number of fluffy little puppies running about the ship's deck and on the ice near the ship.

One unfortunate dog, in endeavouring to get some meat out of an iron pan, had its tongue stuck to the vessel, as the temperature was very low at the time. This happened when everyone was turned in, so that she was not discovered for some hours, and by that time the poor beast had actually bitten her tongue off in order to free herself. It quickly healed, but she suffered such discomfort for lack of her tongue that it was thought best to destroy her.

She had been a great favourite with one of our company, who was greatly indignant when he heard that our biologist wished to use the dog's carcass as bait in his trap, and would not hear of his dumb friend's body being put to such use, even in the cause of science, but secretly buried it in a place known only to himself.

Captain Scott intended that the sledging should commence even earlier than the year before. Before, however, I relate what happened on these various sledge journeys, it might perhaps be as well to pause while I endeavour to compare the North and South Polar regions, or rather, those portions of them seen by me.

## CHAPTER XIII

### NORTH AND SOUTH POLAR REGIONS

North *v.* South—Franz-Josef Land—Distribution of land and water—Navigation in Polar seas—Climate—Rain during a Polar winter—Northern animals—Hunting the Polar bear—Bird-life—Marine life—The whale and seal fisheries—Northern flora—Aurora Borealis *v.* Australis—Fossils—The millennium.

THAT portion of the North Polar area in which I spent the three years between August, 1894, and July, 1897, was not nearly so well known as that which had been made so familiar to Britons by the numerous expeditions sent out to search for Franklin and his companions, and by the expedition commanded by Sir George Nares.

Nansen and Peary had quite recently enthralled our imaginations by their wonderful journeys across the heights of Greenland. But Franz-Josef Land, the only land in the Far North of which I have any experience, was then a *terra incognita* to most people. Nansen had not then made his dramatic reappearance on its shores, and Lieutenant Cagni, of the Duke of Abruzzi's Expedition, had not made his record journey to a farther North latitude than any previous human being, with Franz-Josef Land as his base. True, there was the wonderful story of its discovery by Payer and

Weyprecht, but few seemed to have heard of it; and neither Dr. Neale nor Leigh-Smith had published a popular narrative of the latter's voyages in the *Eira*, and of his plucky escape, with all his ship's company, in boats, after their vessel was lost off the shores of Franz-Josef Land.

Since our sojourn there it has become a point of departure for many Pole-seeking expeditions, mainly emanating from the United States.

The first great difference between the North and South can be plainly seen by anyone who compares a North with a South Polar chart; for at a glance it will be noticed that a great mass of land is situated in the South, surrounded by sea, and that in the North the exact opposite is the case—masses of land surrounding a Polar sea.

This has a great effect on the ice conditions in either region. In the North the frozen sea is hemmed in so that the ice cannot get away freely, and is pressed together until it often becomes immensely thick and rough. In the South the ocean swell is continually breaking up the ice that has formed along the coast, and the ice has for the most part ample space in which to drift away without the floes becoming crushed up against and over one another.

This, of course, makes the navigation of the Southern sea-ice a much more simple affair than that of the North.

There are very thick, flat fields of ice formed in the bays and inlets along the coast of the Southern lands, and these, as they break up and drift away to the northward, pack together and present a formidable obstruction to the navigator at times. It is inadvisable to

charge them, but by dint of patient boring a passage through can generally be found. It is only near the capes and offshore islands that much crushed-up pack-ice is seen, and this can easily be circumvented. This, of course, refers only to those waters in which the *Discovery* was navigated.

In the North, on the contrary, the ice has to filter down between the lands surrounding the Polar basin, and becomes crushed up, hummocked, and, as floe after floe is piled up one over the other, it often attains an almost incredible thickness. Great spurs frequently protrude from the lower portions of these huge pieces of ice, and woe betide the ship against whose sides one of them collides with any violence if she is unable, from her position and structure, to give to the blow. Her sides may be the thickest ever built: the spur will tear and pierce them as though they were made of cardboard.

It was such a pack of floes that held up the *Windward* for two weeks off the shores of Franz-Josef Land, and more recently compelled the Ziegler Expedition's relief ship to return without accomplishing her object.

Nature has fashioned the land in the South on a much more magnificent scale than in the North Polar regions. The former consists of high mountain ranges backed by an ice-capped plateau, and bordered by great sheets of ice of enormous extent; the latter, with one or two exceptions, is comparatively insignificant both in regard to the height of the land and to its glaciation.

The different distribution of land and water in the two areas has, of course, a considerable influence on

both the physical and meteorological conditions of these two widely separated regions ; but, situated as we were on the coast during both of the expeditions that I accompanied, not much difference was discernible between them. At the head-quarters of each expedition we were subjected to frequent fierce gales of wind, during which, as a rule, the temperature, if low, would rapidly rise.

The Northern summer was preferable to that in the South, the average temperature being higher and the weather finer all round. I should not care to make a month's boat journey along the shores of South Victoria Land such as we made along the southern coast of Franz-Josef Land.

Thunder was unknown at either place, and lightning was never seen by us in the North. Some of our people felt convinced that they saw sheet-lightning at our winter-quarters in McMurdo Sound, but I have my doubts.

Of all disagreeable weather in Polar countries, rain is the worst, I think. Although the position of our abode in the North was 130 miles nearer the Pole than that of our winter-quarters in the South, it was at the former place that we had rain, while at the latter we never had any. Imagine the temperature to be many degrees below zero, and a sudden quick rise then to take place, followed by a shower of rain and afterwards a fall in the temperature—this in the middle of winter, too. Everything not under cover is, of course, coated with ice ; the anemometer takes a well-earned rest, and the meteorological screen has to be thawed in the hut before its door can be opened. I should think that a Polar bear even feels distinctly

aggrieved at a sharp shower of rain, accustomed though he is to salt-water bathing.

The lowest recorded winter temperature is that observed at Verkhoyansk in Siberia:  $-89^{\circ}$  F. The lowest recorded temperature in the South Polar regions is  $-68^{\circ}$  F.—not in the interior of a continent, however, like the Siberian record, but at no great distance from our winter-quarters. As low a temperature as  $-30^{\circ}$  F. was experienced by Captain Scott in the summer of 1902—that is, at the end of the year, which would be, of course, winter in England. This was on the inland ice-cap, so it is not at all beyond the bounds of probability that the Siberian record is exceeded on the ice-cap of South Victoria Land during the Southern winter.

I don't think, though, that such a temperature will ever be recorded in that locality, or that, if some adventurer should by any chance make the observation, he would ever make it known to the world.

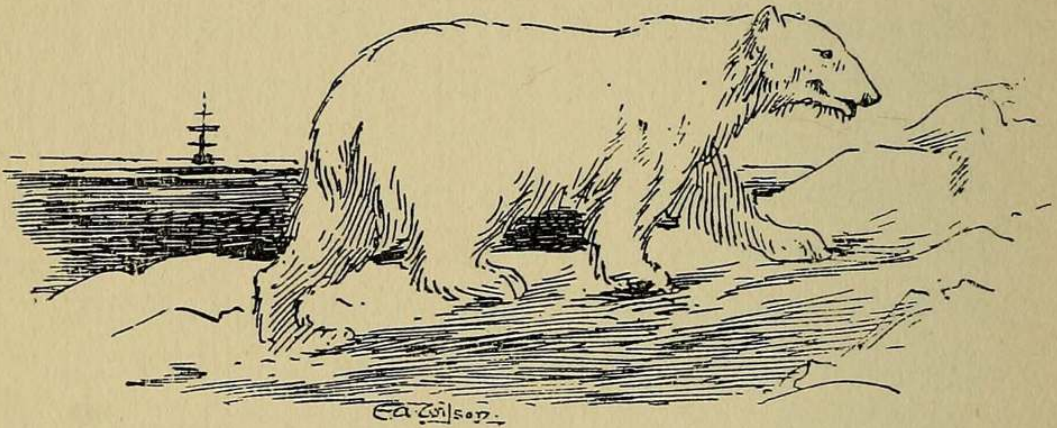
One of the features of North Polar exploration that not only makes the life less monotonous, but invests it with a considerable amount of pleasurable excitement, is the animal life which flourishes in many parts of the Far Northern lands. This is in direct contradistinction to the South, which is devoid of animal life on land.

The musk-ox and the reindeer of the North form capital food and good sport. The former was the salvation of Peary on one of his historic journeys over the Greenland ice-cap; and numbers of the latter were shot by sledge-parties searching for traces of the Franklin Expedition. The fox and the hare, the lemming and the bear, too, abound.

Where we were situated in Franz-Josef Land we

never saw reindeer, musk-oxen, lemmings, or hares. There were a few foxes, far too wary to be shot, the only specimen obtained being a vicious young vixen that I caught during her mother's absence. That King of the North, the Polar bear, however, was found in great numbers, and afforded us capital sport and an abundance of fresh meat at all times of the year.

One or two of our dogs that showed an aptitude for bear-hunting were allowed to be free, and as soon as they saw a bear their barks would have awakened the Seven Sleepers. Indeed, they became such hunters



NORTH POLAR BEAR.

that they would often scare and chase the bear away, so they were chained up near the hut, where they could give timely warning without frightening our game. Our leader, who was a very keen sportsman, had made a standing order that he was always to be informed when a bear was sighted, so that he might have the chance of shooting it, and none of us were allowed to carry a rifle without his permission. Still, he would generally tell one of us to accompany him, and as I was specially favoured in this way, I managed to account for a few bears to my own gun, and helped



to bring down quite a considerable number out of the hundred odd that were relieved of their skins during our three years' stay in their domain.

Three of these bears I particularly remember. The first was one that strolled up to the windward before we had shifted our quarters to the hut ashore, and had been scared away by our pack of dogs. The sun had dipped below our horizon for good that year, and our leader was in his bath, so he shouted out to me to take another of our comrades and follow after the bear. This I did, accompanied by several of the dogs, who soon raced ahead of us.

It was pitch-dark, but we followed on Bruin's tracks, guided by the sounds of barking, and came up with him at the foot of a grounded berg, surrounded by the dogs at a respectful distance from him.

As soon as he saw us he ascended the berg, and at the same moment both my companion and I slipped down a tide-crack to our middles. Bruin reared himself on his hind-legs, and turned his head round to give a final hiss at his tormentors before descending the far side of the berg; and as he slowly turned it away again, I, while still lying in the crack, shot him behind the ear, and his huge bulk came sprawling down toward us.

The Lee-Metford had shot true and sent the Tweedie bullet to its mark, smashing the bear's spine, and paralyzing all but his snapping jaws and wicked little eyes, which glared furiously at the dogs as, even now, he endeavoured to seize the legs that were dancing about his head. Another bullet quieted him entirely, and now he stands, over 9 feet high, in my father's house, in a similar pose to that in which I saw him

snarling defiance from the summit of the berg. He measured 8 feet 2 inches from tip of nose to root of tail, and old John, our harpooner, said that he flensed two casks more of blubber from the interior of his skin than from that of any other bear that had passed through his hands.

The second of the bears that I remember so well was one that I shot from the door of our hut; and the third was a bear hunted by Nansen and myself, and shot by our famous visitor.

This is a digression from the subject of this chapter, so I will leave the relation of the last two bear-stories to another day. These bear-hunts were capital exercise and kept one as fit as a fiddle. Often, in the South, I used to wish that some enterprising individual had imitated the man who introduced rabbits into Australia, by establishing a colony of Polar bears in South Victoria Land.

Bird-life is prolific in both of the Polar regions, the South, I think, taking the palm. In the North the most useful bird to us was the guillemot. Thousands of them had their breeding-place in the cliffs at the back of our hut, and provided us not only with eggs in the summer, but with fresh meat sufficient to last us the year round. Our leader, who was a splendid bird shot, would spend the day at the summit of the talus, and, as the unsuspecting birds flew in to their ledges of rock, would bowl them over in fine style, others of us being fully employed in acting as retrievers and dressers of the birds he had shot.

The doveki and the little auk, too, were good eating, and occasionally we had a great treat in the shape of a goose or an eider-duck. Now and again we saw the

great northern diver and his mate swimming in the ponds of fresh water that formed in the summer. The wily great snowy owl could occasionally be seen on the hillsides, motionless, awaiting his opportunity to pounce upon one of the fascinated little snow-buntings that hovered around him; after the fatal swoop he would wing his flight to some secluded spot where he could enjoy his meal in peace.

I could never get within gunshot of one of these apparently sleepy birds, who were always on the look-out, but one day I managed to knock one over with a Lee-Metford rifle, the solid bullet boring a hole through his breast from a distance of 250 yards, where I crouched behind a boulder.

The great, cowardly burgomaster gull and the beautiful ivory gull hatched out their eggs in Franz-Josef Land; the lovely little Arctic tern flitted about its shores; and the skua and his mate were continually chasing the poor kittiwakes, who, with plaintive cries, in vain endeavoured, with their graceful flight, to evade the robber birds who desired to feed at their expense.

Another bird—I cannot remember its name—laid its eggs on the plateau on which our hut was built, and tried to lead us away from its nest by acting in the most natural manner that its wing was injured, running quickly along the ground until we approached it closely, when, with a flight similar to that of the snipe, it would move still further away from where its precious eggs were lying.

Perhaps the snow-buntings were our favourites, as with their pretty plumage, they flitted about our hut, cheering us with their little song. One had only to lie back on a boulder on a calm, sunny day, close one's

eyes, and in imagination be quickly transported to some pleasant English country place where, with open bedroom window, one lies in that happy state bordering on sleep and wakefulness, listening almost unconsciously to the twittering of the birds as they salute the rising sun.

I have said that the South took the palm in respect of bird-life in the Polar regions, but, after all, I must withdraw that statement, for it was only with the penguins in my mind's eye that I made it, and, really, they hardly appeal to one as birds, but more as a strange kind of inhabitant of the solitary South.

The waters of North and South teem with life, much of it common to both, and both, though more especially the Northern seas, have enriched man by their valuable products.

Alas! man by his indiscriminate destruction has almost ruined those great industries, the sealing and whaling trades. Whereas in the latter part of the eighteenth century over 250 British vessels were employed in the Arctic, now but one or two leave our shores in pursuit of the whale and the seal. Ross thought that he saw the right whale (*Balæna australis*) in South Polar waters, and on the strength of this various whalers have visited the Ross Sea, but without success, and we never saw any during our voyaging in those waters.

No fur seal exists in the Far South; the seals that do frequent those waters I have mentioned elsewhere.

What a difference there is between the North and South Polar lands in the summer-time! In the South a few mosses are to be found in sheltered places, and some lichens are occasionally seen. In

the North, not only are the hillsides facing the south draped with verdure, but the plateaux are gay with flowers—the lovely Arctic poppy in all its varied tints, the buttercup and flowering saxifrages, all are there. Beautiful mosses form a thick carpet for the feet which are weary of treading on nothing but ice and boulders, and graceful grasses bend to the wind as it passes them by.

The very stones and boulders take on a holiday appearance, and with the aid of lichens clothe themselves in coats of many colours—coats that have a lining often more brilliant than their outside surface.

So many observations have been taken of the Aurora Borealis in inhabited lands, and it has been so deeply studied by highly scientific men, that it would be superfluous on my part to even attempt to describe it. In regard to the two localities in which I have spent five years of my life, it appeared to me that the great northern lights as seen by us in Franz-Josef Land far exceeded in frequency and in brilliance the comparatively tame displays that flickered across the heavens over our winter-quarters in South Victoria Land. I cannot say that I ever saw a shadow cast by the light of the latter, as I have by the former, neither did I see, except on one or two rare occasions, even the lowest magnitude stars visible to the naked eye eclipsed by the southern lights, although in the North the Aurora not infrequently eclipsed stars of the third magnitude.

One of our principal amusements in Franz-Josef Land, when we were out for our daily exercise, was to search for fossils, of which there was quite a variety. This pleasant occupation offered an induce-

ment to go out which was lacking on the Southern expedition.

Fossils have been discovered in the Antarctic regions, W. S. Bruce and Dr. C. W. Donald being the first, I believe, to make the discovery, on Seymour Island.

Fossil plants were discovered by Ferrar, our geologist, but none of any description were to be found near our winter-quarters, so we rested content with collecting pretty stones during our walks abroad as mementos for our friends at home.

Very much more could, of course, be written about the differences that exist between these two extremes of the earth, but, as I have said before, it is not my intention to write in any scientific spirit, but merely to endeavour to give the general reader an idea of life in the Polar regions visited by me.

I am glad to have been to South Victoria Land; I am proud to have been associated with the National Antarctic Expedition and to have viewed the grandeur of the Far South; but my heart goes out, as I pen these lines, to my first love, the North, where the white bear wanders in freedom over frozen land and sea, and the noble-looking walrus rears his gigantic head armed with mighty tusks, and gazes around in defiance of all who may approach him. The millennium will, no doubt, be delightful, but some of us are hardly fitted for it just now, and, speaking personally, I prefer a land where the beasts fight shy of man, and resent being stroked.

## CHAPTER XIV

### PREPARATIONS FOR SPRING SLEDGING

The approach of spring—Sledging commences—Departure of Royds, Wilson, the Captain, and Barne—The death of Wolf—Midnight light—Royds and party return—Their experiences—Emperor penguins—An impromptu concert—Barne and party return—Their experiences—Low temperatures—The thawing of a foot—A steak and kidney pie—The Captain's return—Experiences of his party—An eclipse eclipsed—Harpooning seals—A fish story—The slaughter of the innocents—Departure of the main sledge-parties—I receive the Captain's instructions.

THE second winter was over, and the sun was heralding his approach by throwing out brilliant shafts of light which lit up the sky most gloriously. The beautiful mother-o'-pearl clouds were daily to be seen decorating the firmament, and it was once more a delight to walk abroad. The first week in September was distinctly cold, the temperature being generally below  $-20^{\circ}$  F., which was rendered all the more unpleasant by an almost continuous wind.

All was ready for the sledge journeys by the end of the week, and on September 7 the first party left the ship. The party consisted of Royds, Wilson, and four men—Cross, Williamson, Whitfield, and Blisset—dragging two sledges laden with provisions for four weeks.

Two days later the Captain departed to lay out a

depot for use on his main journey to the inland ice. He had with him Skelton, Mr. Dailey, Lashby, Evans, and Handsley. They went away at a good speed aided by a moderate wind in their favour, dragging two sledges laden with three weeks' provisions and a week's food for the depot.

Several of our pups, some of them well grown, ran off with the sledge-party for some distance, and one of them, named Wolf, a son of Vainka, did not return.

Barne was to have gone away on the 11th to lay out a depot for his main journey to the south-west over the barrier, but was detained till the following day by a blizzard which brought thick, squally weather in its train. Barne's party consisted of Mulock, Joyce, Crean, Smythe, and Quartly. They also dragged two sledges, which were loaded up with two weeks' provisions and a week's depot food for twelve men.

As soon as the sledge-parties had gone, I commenced making a large tent for use when we began work with the saws, an awning coming in very useful for the purpose.

A week after Scott's departure the dead body of poor Wolf was found on the ice a mile and a half from the ship. The other pups had killed him, so they evidently commence their murderous work at an early age. He was a beautifully formed dog with a finely-marked coat, and I was very sorry to lose him.

By this time we could see a faint light on the southern horizon at midnight, and the black-bulb thermometer was registering above freezing-point.

Royds was due back at the ship on September 21, but on the 17th, at half-past four in the afternoon, it was reported to me that he was rounding Cape



Armitage. Each week we had on one day a cold dinner, to give them a chance in the galley, and this happened to be the day. But I ordered a hot dinner for the returning sledge-party, as well as hot water, and by the time that they arrived on board tea and toast were ready for them.

They were all very fit, but had experienced low temperatures. On one day the thermometer never showed above  $-50^{\circ}$  F., their minimum temperature being  $-61.2^{\circ}$  F. Fortunately, they had had little or no wind, a very different condition to that which had prevailed at the ship; indeed, the most unpleasant bit of travelling that they experienced was between Cape Armitage and the *Discovery*.

They had visited the emperor penguin rookery near Cape Crozier and seen a colony of about a thousand birds there, some two hundred of them having young ones. Their eggs had evidently been hatched out some time previously, probably during June or July, to judge by the size of the chicks.

The place at which Royds had found an easy descent to the bay when he last visited Cape Crozier was entirely altered. The ice there had broken away, exposing some massive basaltic columnar rock. There had, too, been a fall of ice from the cliffs of the barrier, a huge mass having, apparently, come away since the penguins' arrival there and after they had laid a number of eggs—a fortunate occurrence from the point of view of the collector; for not only did Wilson find a number of dead chicks and broken eggs among the ice-débris, but he was fortunate enough to secure ten eggs intact and seven cracked eggs left behind by the scared emperors in their hurried flight from

the avalanche of ice that threatened to overwhelm them.

Wilson brought back two live young emperors with him. Cross mothered them, even going to the length of giving up his warm sleeping-jacket at night to keep them warm. They fed readily on chewed seal-meat, and arrived at the ship in a very lively condition. The eggs varied considerably in size and formation, some being longer and more pointed, while others were more rounded. The dead chicks were in various stages of development, and presented a very curious appearance.



YOUNG EMPEROR PEN-  
GUIN CHICK, KEPT  
ALIVE THREE MONTHS  
ON THE SHIP.

The sledges used by this party had no nickel on their runners, and, apparently, were all the better without it in low temperatures and on the hard snow surface that they encountered, for the sledges were pulled along with ease throughout the journey.

We now had some lovely weather, cold but calm, and pure

air most delightful to inhale.

The low temperatures appeared to cause the ice to crack, and during one of my walks I noticed six long cracks, formed since the previous day, radiating from the western point of our little bay.

The fine weather gave us hopes that we should see something of the sun's eclipse—an almost total one—which was due on September 21, and Bernacchi was busy making his preparations for observing it.

The outer covering of snow and the ship's cover were now removed from above the wardroom; but the skylights had become very thickly coated with ice on

the inside during the second winter, which prevented the light from penetrating to our rather dark ward-room. So Royds and I armed ourselves with a Primus lamp and a red-hot poker, and removed it all. The light then showed how dirty the room had become, but Scott and Blisset soon cleaned it out so that it looked bright and sweet once more.

Two days after the return of the Cape Crozier party we held a concert in the wardroom—the first general entertainment since the previous summer. Royds played all the accompaniments, and sang Doorly and Morrison's compositions. Ferrar sang, too, and Bernacchi recited, and nearly all the men obliged the company with a song. A glass of whisky all round to drink 'the King's health and success to the sledging' ended the show, which appeared to be very much appreciated by the men.

At noon on the 20th Ford reported sighting Barne's party about two miles distant. We made preparations for their arrival, and nearly all hands went out to meet them.

They arrived on board in about an hour's time, all looking very fit and well, with the exception of a few superficial frost-bites. They, too, had experienced low temperatures, and had been fortunate in having no wind, but fine clear weather nearly the whole time. They had proceeded outwards for five days, and homewards for three and a half days, Barne reckoning that they had placed their depot as far out as they would be able to travel in a week with the heavier loads on the main journey.

Their minimum temperature had been  $-66.5^{\circ}$  F., and on one occasion they had been compelled to camp

for two hours to thaw Joyce's foot, which became rather badly frozen. This they did by holding the frozen foot next to their warm bodies underneath their underclothing. When one man felt cold the foot was passed on to another, until Joyce made them fully understand that the blood was again circulating freely, and that the sense of feeling had most certainly returned to his tingling toes.

One of our dogs, born the previous year, and a great favourite with Barne, had followed him when he left the ship, and refused to leave him. When Toby returned with the sledge-party, his brothers and sisters were full of excitement, but he seemed very doubtful about the welcome he was to receive, and did not venture within the length of the bigger dogs' chains.

Barne and his companions eagerly looked forward to the seal-steak and kidney pie that we were having for dinner on the day that they arrived ; but when the pie was opened the kidney proclaimed its presence in quite as marked a manner as the famous blackbirds of nursery rhyme, and once more we wished that the 'tin man' was with us to suffer the summary vengeance he so richly deserved.

Most of us had turned in when Hodgson, at a quarter to twelve that night, sang out that the Captain's party was returning. I slipped out of my bunk and into my watch-coat, called Ford, Clarke, and the wardroom servants, telling them to get hot food and water ready for the sledgers, and went on deck to find them alongside the ship, all well. They were soon below and sound asleep in their bunks, and on the following day we heard the story of their experiences.

They had marched straight across McMurdo Sound to the fjord up which I had been in the spring of the previous year. This year the ice was firm and smooth, and the sledges slipped along with hardly an effort on the part of those dragging them. At the head of the fjord they found an easy and gradual ascent on to the glacier, which would have saved us days of toil and trouble had we but found it a year before.

At the termination of the glacier were pits filled with boulders, a deep trench, and several watercourses. They had ascended Ferrar Glacier to a point a little higher than the pass down which we had run our sledges on my journey, and there, in a medial moraine, had left three weeks' provisions for six men.

The weather, with the exception of one day, when they camped, had been calm and fine, though cold, their lowest temperature being  $-55^{\circ}$  F. On some days it did not rise above  $-40^{\circ}$  F., and on one or two of the days it never exceeded  $-50^{\circ}$  F.

On the outward journey they had averaged twelve and a quarter miles a day, and on the homeward journey twenty miles a day. The Captain was, very naturally, much elated, and told me that he intended to march his party for all that they were worth on the main journey. The men were in first-rate condition; he would have no difficulty to contend with in finding a road; all of them had the experience which they lacked the year before; and as, of course, there are always bound to be some men who excel the others in powers of endurance, he was able to select those who were most fitted for the work in this and other important respects.

From the experience gained by me on my journey up the Ferrar Glacier, I strongly advocated his reducing his party to a minimum for the last stages of his main journey, and this he determined to do. Of course it is a great disappointment to those who have to return, after, perhaps, having gone through the hardest part of the work; but on an expedition like ours the commander requires to harden his heart, for it is a case of the survival of the fittest, and any men showing the slightest sign of weakness should be sent back if possible.

If I had done so on my journey to the ice-cap, there is no doubt that, despite the difficulty in finding a road and the effects of scurvy, we should have gone much farther than we did.

We were all on board again, and things settled down to their ordinary routine. On the 21st all was ready for observing the eclipse of the sun, most of us being told off to lend a hand to Bernacchi. Most unfortunately, the sky was overcast, and there was nothing to be seen, much to our disappointment.

The large tent was finished, and I had it set up near the ship for Captain Scott's inspection. It looked very comfortable indeed, and he was good enough to express his pleasure at its appearance. Bernacchi and I were to make a series of magnetic observations with both the absolute and the comparative instruments on the sea-ice before long, and intended using this large tent as our observatory.

All the furs, etc., brought back by the sledge-parties were full of moisture, and had to be dried in readiness for the main journeys, and the sledges put in order and packed with the provisions.

The ice in McMurdo Sound extended much farther north than it had done the previous year at the same time, and no seals were to be seen near the ship, although we could hear their strange crooning sounds underneath her, and see their heads as they occasionally peered out of the holes kept open by Hodgson.

Some of our people, notably Skelton, Dellbridge, and Weller, had become quite experts at harpooning the Weddells when they came up for a breath of fresh air. Weller especially would spend nearly all his spare time in one of Hodgson's shelters, with harpoon poised above the hole, ready to strike immediately a ripple on the surface of the water advertised a seal's advent. On one occasion he came running to the ship with the news that he had harpooned a great fish which he was unable to haul out single-handed. His comrades ran back to the hole with him, hauled on the line, and brought up a big Weddell seal. There was considerable chaff indulged in at Weller's expense, although he still maintained that he had harpooned a fish, and remained looking intently at the hole when the others went back to the ship.

Presently he thought that he saw something in the water, bent down and put his arms into the mixture of blood and slush, and lifted out a fish. He hurried to the ship with it in high glee, and handed it over to Hodgson. Its head was missing; its length to the anterior part of the shoulder-girdle was 3 feet 6 inches; girth, 24 inches behind the pectoral fin. With its head it would probably have been 4 feet in length, and would have weighed about 45 pounds. It was the only large fish caught during our stay in winter-

quarters, and afforded everyone a good meal for breakfast. Hodgson preserved the bones, fins, tail, etc.

We had quite a number of young puppies running about the ship, as I have said before, and as the weather became warmer our First Lieutenant, Royds, wished to smarten the ship up a bit, but found the pups a great nuisance when he began to do so. Captain Scott, too, thought that their disappearance was desirable. I therefore handed Vainka's progeny, four children and five grandchildren, over to the tender mercies of Hodgson and Weller, and they disappeared. There were still nine very small ones left, the progeny of some of the other dogs, and all but two of them were likewise destroyed. Of course, if we had been staying for another year these dogs would have been useful, but, as the Captain said that it would be impossible to take them away in the ship, it was far better to get rid of them while they were quite young.

On October 6 the first of the main sledge journeys commenced. The weather in the early part of the day was not propitious, being overcast and thick with falling snow. In the afternoon it improved, and Barne went away. He had with him as the main party Mulock and five men, and they dragged three sledges, loaded up to about 190 pounds per man.

Dellbridge was in charge of the supporting party, which consisted of five men besides himself, and they dragged two sledges loaded up to 150 pounds per man. They were, however, to pick up some biscuits, about seven miles out, which would even up the weights. The supporting party was to be away from the ship for thirty-five days. The Captain led off three cheers for Barne and his party as they started away, and we



all shouted out good luck and wished them success in ascending the glacier that they were bound for.

The large tent was erected at a distance of one and three-quarter miles from the ship, nearly due west. We soon had an opportunity of testing its stability, for a blizzard with squalls of wind up to force 9 and 10 arose and did not succeed in levelling it.

Before Ferrar's departure with the Captain, I went the round of his ice-thermometers, and to the places where he made daily measurements of the growth of the sea-ice, for I had undertaken to record them during his absence when I was in the ship.

The evening before the Captain left he gave me the following instructions :

'Arrangements for the coming season have been made with a view to devoting all available time up to December 15 to sledging, and after that date to concentrating all energies in relieving the ship.

'I have attached a programme in tabular form which will be a guide to the movements of the sledging-parties and to the number of men that will be available for work on board. The objects of the various sledge journeys may be briefly stated as follows :

'My own journey is to extend our knowledge of the inland ice-cap, and to afford Mr. Ferrar an opportunity of studying the geology of the western land.

'Dr. Wilson goes east to gather further information with regard to the emperor penguin rookery.

'The western supporting party will be divided ; part will return under Mr. Dailey, but part will remain out under Mr. Ferrar, whose absence will extend probably to seven, and possibly to eight, weeks.

'The object of the southern party is to extend our

knowledge of the junction of the barrier with the land, and if possible to explore the gap in the coast-line in latitude  $80^{\circ} 35'$  observed by our party last year. They have been directed to make directly for the gap, after which their movements will be at Mr. Barne's discretion.

'The southern supporting party will return in charge of Mr. Dellbridge.

'The object of the barrier party is to definitely determine that the barrier extends to a great distance in a south-east direction.

'Though the sledging gear will be largely drawn on at times, enough will always remain for the equipment of a small emergency party, though it is possible the cooking apparatus would have to be improvised.

'I shall quite approve of any journeys you may be able to make, but, as they must depend on circumstances and the nature of the work on board, I have not included them in the tables.

'I leave it to your judgment to take such opportunities as may be afforded, observing that it would be desirable to get a more accurate knowledge of the south-west corner of the bay (McMurdo Sound).'

Then followed instructions as to the observations, meteorological, etc., that Captain Scott desired should be continued, and also orders to be very sparing in our use of fuel and illuminants. The instructions continued :

'I wish to commence cutting out as soon after the return of the sledge-parties as circumstances will permit. It is therefore highly desirable that all preparations for the work should be made before their return.

‘The following outline of my ideas with regard to this work will show you what provision is necessary :

‘1. I wish to establish a main camp as near as possible to the work, but in such a position under the shelter of the islands on the glacier as to be safe should the floe suddenly break up.

‘2. The ship’s company to be housed in the tent already made ; the small range placed on boards and fed with coal from the glacier [the *Morning* had left a quantity there] to be used for cooking ; a floor-cloth to be spread, and men to sleep in Jaeger or fur bags.

‘3. Seal-meat obtained in vicinity to be used as food, and the dog team (formed of dogs born in the South), if possible previously trained, to be used in communicating with the ship and obtaining such other supplies as are necessary.

‘4. The gear to be provided for the work will be the saws, tripods, spars, rope, tackles, etc. The saws will require sharpening when the weather permits. As a measure of safety I propose to keep the light whaler close to the scene of operations, provisioned and ready for immediate launching.

‘5. The whole ship’s company will admit of the saws being manned in two spells, and I hope that we shall thus be able to keep the work going for the greater part of the twenty-four hours.

‘6. I think that the condition of the floe in December will be more favourable for explosives than it proved in February last. Should you care to experiment, it is well to remember that guncotton, wet or dry, is perfectly safe to handle, but that the detonators must be treated with great care. In these latter lies

the only danger of explosive operations, and they should never be handled except by a properly trained man (naval rating L.T.O. or S.G.T.), or without the supervision of an officer.'

Then followed a good deal more about the blasting operations, and a note about the cooks brought the instructions to a close. Attached to them was the following :

PROGRAMME OF SLEDGING FOR THE SEASON 1903.

DATES.		PARTY.	NO. OF PARTY.		NO. OF DAYS ABSENT.
From	To		Officers.	Men.	
Oct. 6	Nov. 10	South supporting	—	6	35
Oct. 12	Nov. 16	Dailey's west supporting	—	3	35
Oct. 12	Nov. 30, or week later	Ferrar's supporting	1	2	56
Oct. 6	Dec. 15	Southern	2	4	70
Oct. 12	Dec. 15	Western	2	4	63
Oct. 12	Oct. 28	Terror (Cape Crozier)	1	2	16
Nov. 11, or earlier	Dec. 15	Barrier	2	4	34

TABLE SHOWING NUMBER ABSENT AND ON BOARD.

DATES.		ABSENT.			ON BOARD.		
From	To	Officers.	Men.	Total.	Officers.	Men.	Total.
Oct. 6	Oct. 12	2	10	12	9	16	25
Oct. 12	Oct. 28	6	21	27	5	5	10
Oct. 28	Nov. 10	5	19	24	6	7	13
Nov. 10	Nov. 16	7	17	24	4	9	13
or 11							
Nov. 16	Dec. 7	7	14	21	4	12	16
Dec. 7	Dec. 15	6	12	18	5	14	19
Dec. 15	All hands on board.						

CONSTITUTION OF PARTIES.

*Western Party.*

- |                   |              |
|-------------------|--------------|
| 1. Captain Scott. | 4. Lashby.   |
| 2. Skelton.       | 5. Evans.    |
| 3. Feather.       | 6. Handsley. |

*Ferrar's Party.*

- |           |   |
|-----------|---|
| 1. Ferrar | } Supporting Captain and exploring Glacier. |
| 2. Kennar |   |
| 3. Weller |   |

*Dailey's Party.*

- |               |                       |
|---------------|-----------------------|
| 1. Dailey     | } Supporting Captain. |
| 2. Williamson |                       |
| 3. Plumley    |                       |

*Southern Party.*

- |             |            |
|-------------|------------|
| 1. Barne.   | 4. Smythe. |
| 2. Mulock.  | 5. Joyce.  |
| 3. Quartly. | 6. Crean.  |

*Southern Supporting Party.*

- |                |              |
|----------------|--------------|
| 1. Dellbridge. | 4. Allan.    |
| 2. Wild.       | 5. Croucher. |
| 3. Pilbeam.    | 6. Dell.     |

*Terror (Cape Crozier) Party.*

1. Wilson.
2. Cross.
3. Whitfield.

*Barrier Party.*

- |               |               |
|---------------|---------------|
| 1. Royds.     | 4. Cross.     |
| 2. Bernacchi. | 5. Whitfield. |
| 3. Scott.     | 6. Clarke.    |

On the morning of October 12 the western party departed in one direction, and Wilson's party in the other. Twenty minutes later Skelton returned for the hypsometric thermometers, which had been left behind. Shortly after he had gone we found the

travelling theodolite and tripod, which, in the hurry of their departure, had been overlooked. Royds went after the party with them, and caught them up just as they discovered that the all-important theodolite was missing.

We were now a very small community on board the ship, just able to carry on the ordinary routine of the ship, and to record the various observations of the instruments, etc.

## CHAPTER XV

### SPRING SLEDGING—EXPLOSIONS

Royds is operated on—Return of the western sledge-party—Their sledges at fault—Excellent marching—A fresh start—Where is the earthquake?—The skuas arrive—A seal nursery—Magnetic work—Wilson's return and experiences—Dellbridge walks into the wardroom—Movement of the Great Barrier—The birthday of His Majesty the King—Experiments with explosives—Royds and party depart—Hodgson's surprise—Wilson and Hodgson investigate the slopes of Erebus and Terror—A young dog team—We test the saw—Photographers bombarded—We form a sawing-out camp—The seals' duel.

ROYDS had a small cyst on his cheek which very slowly increased in size, and which we often chaffingly told him he ought to have snipped off. When in Franz-Josef Land Koettlitz had removed a similar cyst from my forehead, and I told Royds how easily it was done. This determined him to have his removed, especially as there were very few of us left in the wardroom.

Koettlitz was nothing loth to perform the operation, and made his preparations before the eyes of his patient. He brought out many knives and explained their various uses, trays of carbolic, in which were placed small pincers and scissors, their uses being also fully entered into. Incidentally, too, he displayed before his victim's admiring eyes many other surgical instruments and appliances, and told us of the

marvellous deeds that could be performed with them. Then he brought out, with all due solemnity, a sterilizer, some lint, gauze, cotton-wool, and bandages, while Royds looked stolidly on.

Bernacchi next rolled up his sleeves, ready to play the part of nurse; and I grasped a phial of patent freezing mixture wherewith to spray the cheek of our First Lieutenant.

He was then told to lie full length on the operating-table—the wardroom table—and the operation commenced. As soon as Koettlitz thought the time had come, he attempted to make an incision in Royds' cheek, but the knife would not cut the frozen skin, so we paused a little and made reassuring remarks to the patient.

Again the knife was pressed against the frozen cheek, and this time we were rewarded by a small flow of blood, and an emphatic 'Yes!' in answer to our queries as to whether it hurt or not. The spray once more came into play, and hit the patient's eye, and the nurse mopped away with a piece of lint, mostly in the wrong place, but practice made perfect. The cyst was removed, the cheek stitched up, and all that remains to tell the tale is a diminutive scar making Royds the proud possessor of the only visible frost-bite that arrived safely on England's shores from South Victoria Land.

At a quarter to eight on the evening of the 21st, nine days after the western party's departure, Royds, who was outside, reported that some of them were close to the ship. I went on deck, and saw Captain Scott with his team and two sledges lightly loaded. He shouted out that his sledges had broken down,



so they had to return, and that Ferrar and his team would be at the ship in an hour or two. The other team with one very lightly-laden sledge arrived at 10 p.m., and a good dinner was speedily ready for them all.

It appeared that, after proceeding over eighty geographical miles and ascending about 4,500 feet up the glacier, three of their sledges were found to have the German silver stripping off the runners, and as the wooden runners were suffering from the sharp glacier-ice, they determined to return. They had left one good sledge and most of their food on the glacier, and hurried back to the ship.

When they arrived at the foot of the glacier, the Captain pushed on, but told Ferrar to take his time about getting in to the ship, as he had two men in his team who were a bit gone in their legs. Ferrar and his team very pluckily determined, however, to keep up if possible, and, as has been related, arrived only two hours after the Captain.

As soon as the sledges could be re-shod, a new departure was to be made, and as most of their weight was eighty miles ahead and the ice in splendid condition for travelling over, while they were in the pink of condition, they expected to go far. Dailey, Williamson, and Plumley were not to go again; Ferrar, Weller, and Kennar were to make the food-depot their base, and explore the surrounding glaciers and rocks from a geological point of view. They had been fortunate in having fine weather, and had made splendid marching, averaging eighteen geographical miles a day; the last day's journey being over thirty geographical miles—a record for sledge-dragging, I believe.

They had found two of the sticks still standing which I had used for measuring the flow of the glacier on my journey up it, and estimated that there had been a downward movement of only from 40 to 60 feet in the nine months since we were there.

Mr. Dailey worked away at the sledges as quickly as possible. He converted our broad twelve-foot sledge (the omnibus) into a narrower one. It had metal runners on it already, and he fixed another pair on to them, so that there was a double thickness of metal under the wood. He also repaired the other sledges and made them serviceable.

On the 26th all was ready for another start, and they went off at a great pace, very soon being out of sight.

We again settled down to our quiet life on board after the brief excitement of the Captain's unexpected return.

Bernacchi told us that on October 21 there was a considerable disturbance shown on the seismographic record, and we speculated as to whether there had been a great earthquake in New Zealand or in far Japan.

On November 2 skuas were seen near the ship for the first time since the winter; and on the 3rd Hodgson saw as many as twenty seals, including one male, on the ice to the eastward of Cape Armitage. Four young ones had recently been born, one of them being dead.

Bernacchi and I had commenced our magnetic work in the large tent, and found that it made a very comfortable observatory indeed. He discovered a considerable difference between the horizontal force

he obtained in the tent and that which he observed in the magnetic hut on shore, and confirmed my observations of the previous year, which showed that the rocks largely affected the inclination.

November 5 was a very disagreeable day, blowing and snowing, so we kept to the ship until, at 6.30 p.m., Ford reported a sledge-party to be in sight, and shortly afterwards Wilson, Cross, and Whitfield arrived on board, all very fit except the last-named, who had strained his leg and was not feeling up to the mark. They had experienced very bad weather on the whole, having had a twelve days' blizzard.

Wilson had made an exhaustive study of the penguins, both emperors and Adélies. About 1,000 of the former were at Cape Crozier when they arrived there on October 19, and all had disappeared by November 1, when they left the place, except two dozen young ones, all that remained alive of the many born there. They counted sixty-two dead little birds, and brought another live one to the ship.

Of the two which Wilson had captured on his previous journey, one was still living, and weighed 2,000 grammes on November 2, his weight on September 20 having been 660 grammes.

The Adélie penguins had not commenced laying their eggs when Wilson left, but would be laying by the time he arrived at the ship, many hundreds of



'PLEASE OPEN THE  
DOOR AT ONCE!  
HE'S THAWED!'

them having collected at the rookery. He could not wait any longer, however—indeed, I had arranged for a relief-party to go out to him on the 7th if he had not turned up.

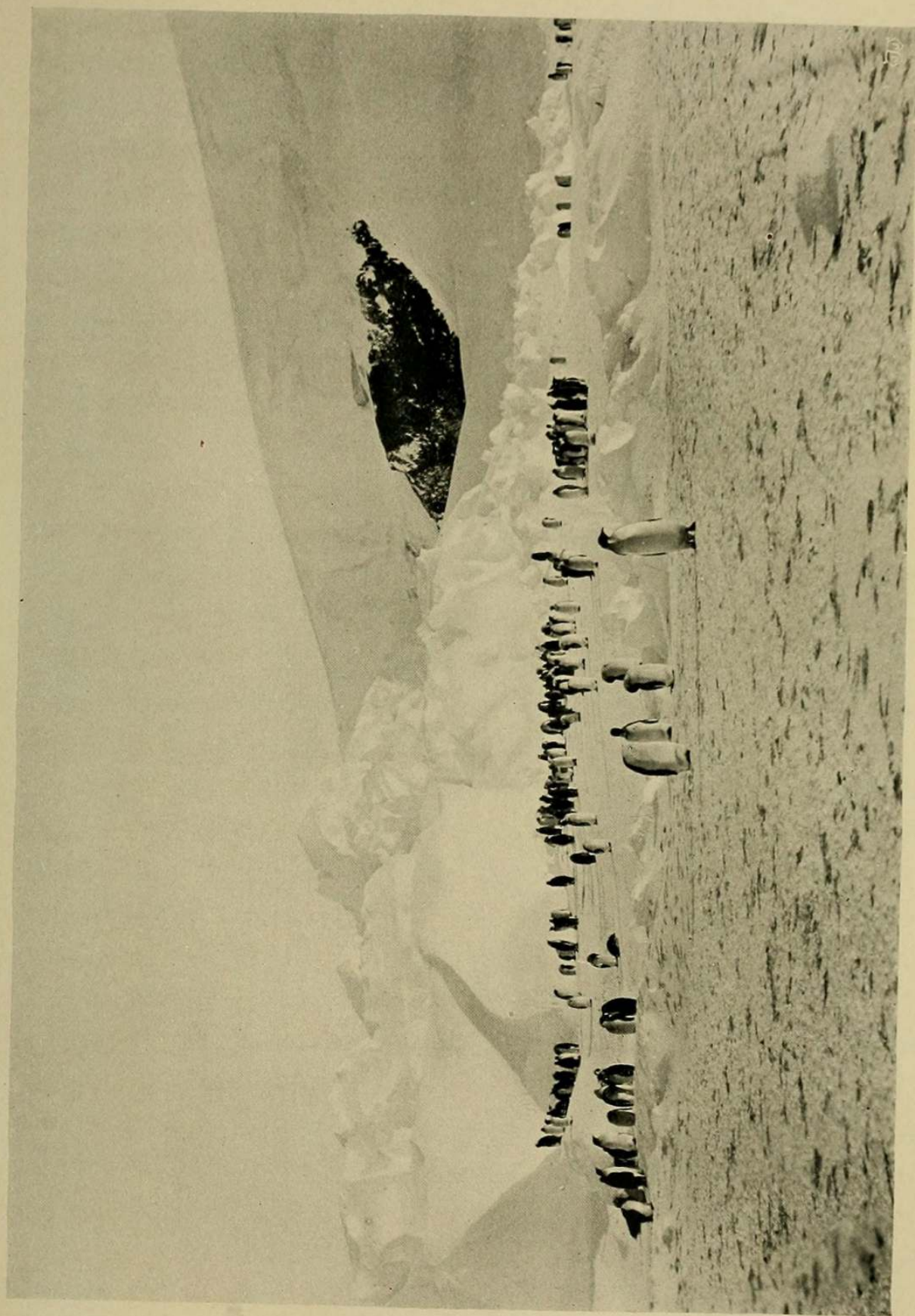
The travelling was so bad on their way to Mount Terror, that they had to make double trips for two days, but it was better on the way back. They found that the surface was worst after falling snow, before the wind had blown it at all.

The day after Wilson's arrival the young penguin that he brought with him died, injured, perhaps, by the overturning of the sledge when close to the ship.

On the 7th it was still blowing and snowing, when Dellbridge appeared in the wardroom and reported the return of his party, all well. Nobody had seen them until they arrived at the ship, because of the thick weather, although I had been looking out on deck ten minutes before. They had accompanied Barne to twenty-five miles beyond depot 'A,' off Minna Bluff, taking twenty-two days over it. They had had poor luck, the weather being very bad and the surface difficult to drag over.

Dellbridge's party had returned from the bluff in five days, and had been camped altogether, out and home, for ten days because of the wretched weather they had been in. Barne and Mulock found that depot 'A' had shifted 608 yards since the previous year, in a period of thirteen and a half months, the movement being a little to the east of north. This was very valuable evidence of the barrier's movement.

Bernacchi and I still continued making magnetic observations in the big tent, generally having our lunch there. On one of the days that we were there the



ROOKERY OF EMPEROR PENGUINS.



weather became thick, with falling snow, and on our attempting to return to the ship, without a compass, we quite lost ourselves for half an hour, and found that we were wandering in circles.

November 9 we kept as a general holiday, it being our royal patron's birthday. The warrant officers joined us in the wardroom after dinner, the main-brace was spliced on the mess-deck, and Clarke made cakes for all hands.

We took the opportunity, too, of wishing good luck and a successful journey over the barrier to Royds and his party, who were to leave us the next morning.

Before Royds left he gave me a lesson in the use of the guncotton charges, a primer being exploded in Hodgson's No. 2 hole. Afterwards he got under way, his party consisting of Bernacchi, Cross, Plumley, Scott, and Clarke. Plumley went in the place of Whitfield, who would have gone on this trip if he had not strained his leg. They were dragging about 176 pounds per man.

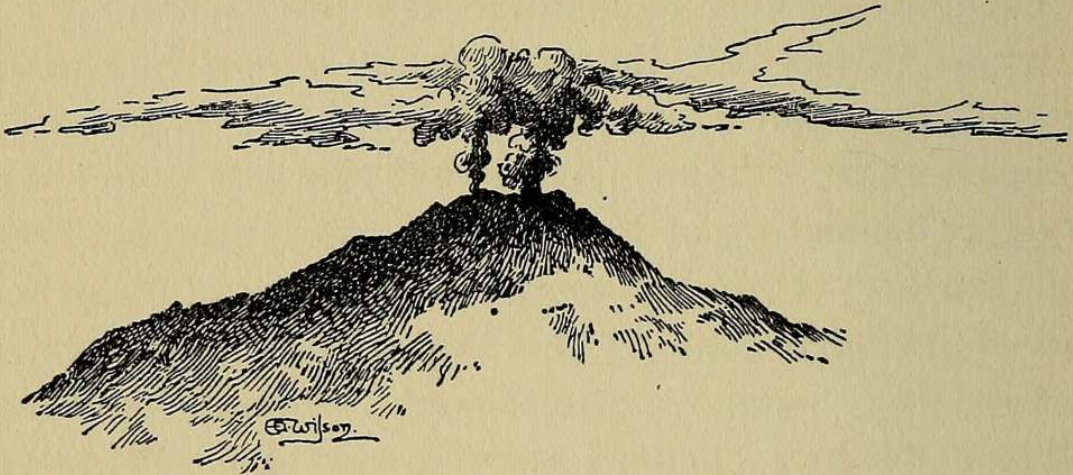
After we had cheered them away, I experimented with the explosives, first with another primer in the same hole as before to enlarge it sufficiently to lower a big charge under the ice. It was not successful in this respect, but shook the ice very much and cracked it in some places; the ship also was considerably shaken.

Hodgson then suggested that we should have a shot at his other hole, No. 1, as he wished it to be enlarged. We managed to lower a  $16\frac{1}{4}$ -pound charge through this hole, and it blew the shelter to pieces and cracked the floe in many directions. I should think that it had a considerable effect on the ice, but the thick layer of snow prevented our seeing it to its full extent.

Hodgson, in common with the rest of us, expected

to see a large gaping hole in the place of the small one that had been there before, and I shall never forget his face as the shower of blackened ice descended and entirely blocked up the hole that he had been at such pains to keep open. However, after a minute or two he laughed as much as the rest of us, and said that 'it was a jolly good explosion.'

On November 16 Wilson, Hodgson, and Croucher went away for a few days' trip to investigate the glacial conditions of the slopes of Mounts Erebus and Terror, to the eastward of our winter-quarters.



SMOKE OF MOUNT EREBUS FROM THE SOUTH-WEST.

Those of us left in the ship were fully employed. Koettlitz had ample room in the wardroom for his bacteriological work; Dellbridge and Whitfield were sharpening the saws; Dailey was fitting one of the big rough sledges to carry the whale-boat; the men were getting the tripods and hauling-lines fixed up; and I was completing my series of magnetic observations. Dell, who was suffering from the effects of blood-poisoning, and could not do any hard manual labour, was given the job of training our young dogs. He made a set of harness for them, and soon had them



in good going order. It was wonderful to see how quickly they picked up their hereditary calling.

When I had finished the magnetic observations that I wished to make on the sea-ice, all of us went out to strike the tent and sledge it back to the ship, Dell and his team of dogs accompanying us to drag in the heavy spars which formed its supports. It took us thirty-eight minutes to drag the tent to the ship, one and three-quarter miles, and we thought that we had done fairly well; but the four dogs, dragging all the spars, and one man to make weight, beat us by a good half-mile, much to Dell's delight.

One of the saws was now ready for use, so I set some of the men to make a hole in the thick ice in Arrival Bay, so that we could lower the saw and test it. When they had got down about 5 feet through very solid ice, I employed a small charge of guncotton to enlarge the hole; but it did not penetrate the ice, so after dinner I used a large charge, which appeared to have the desired effect, for the hole was immediately filled with water.

The following day we erected over the hole the heavy spar tripod that we had made, hauled up the saw, and tried to lower it through the ice. The hole, however, was still too small, so I had the tripod shifted, and inserted another  $16\frac{1}{4}$ -pound charge of guncotton. This blew a large hole completely through the ice, and we were able to test our saw. Koettlitz and Ford wished to obtain photographs of the explosions, and on the occasion of the first one they took up what they supposed to be the most suitable positions. As soon as they had finished manœuvring I connected the circuit, and a moment later our photographers

snatched up their cameras and presented their backs to the showers of ice that fell around and over them, for they were to leeward of the hole. On the next occasion they went to windward.

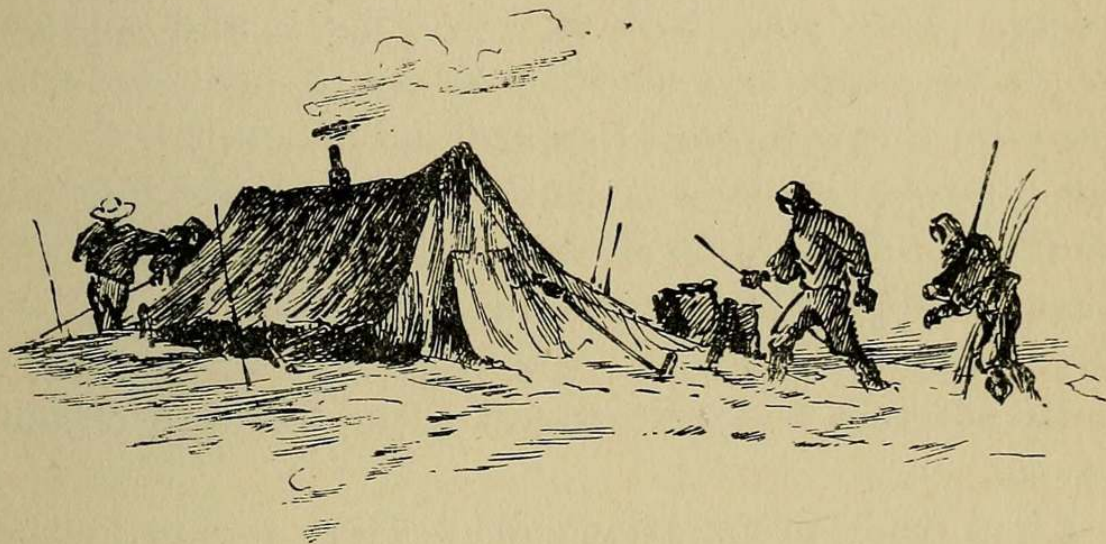
On November 22 we had an early breakfast, as we were going to sledge the tent and gear to Dellbridge Islands. Just as we were about to start Wilson was sighted, and he, Hodgson, and Croucher were soon on board. They said that they had enjoyed their trip very much indeed, and had been among high ridges near the slopes of Erebus and Terror, where they met with many crevasses and were able to study the glacial conditions of the slopes.

After we had greeted them we proceeded on our way. Dell was not well enough to look after his dog-team for any distance from the ship, so Blisset and Williamson drove it. The dogs dragged a sledge laden with all the spars, tripod and tent, three shovels, a pick, and three sleeping-bags. Eight of us dragged two sledges, on which were packed the large tent, a small tent, a week's food for twelve men, and three cookers and lamps. The dogs, notwithstanding their heavy load, easily outdistanced us.

The ice near the island by which we intended to pitch our tent was strewn with *débris* from the rocks on the western side of the island, and this had thinned the ice very considerably just in that locality. There were about a hundred adult seals lying near the island, each one of them having a little one nestling up to her. We pitched our tent on the south-east side of the island, and while we were doing so Dellbridge and Whitfield killed a seal for dinner, which was very soon ready; and afterwards we turned in and slept very comfortably.

The next morning, after building a wall of hard snow to windward of the tent, we returned to the ship, leaving six days' food for twelve men behind us, as well as sleeping-bags and shovels. Some of us went to examine the coal that had been left on the long tongue of glacier ice that lay between Dellbridge Islands and the *Discovery*. We found it to be very little covered with snow, and apparently in good condition.

Before we got to the ship, the wind, which had been



SAWING-OUT CAMP.

gradually rising, was blowing a strong gale, and when we were crossing some ice that was quite denuded of snow, near the land, we were blown over several times. I kept behind the others to see that no one got adrift, and we were all on board in time to enjoy a jolly good dinner that had been prepared for us by Ford.

While we were camped off Dellbridge Islands, I strolled over to the seal rookery to have a look at the young ones, and on going rather close to one of the

mothers and her little one she made a moaning sound, and a big bull seal immediately came up on the ice through a tide-crack, knocking against another bull seal as he did so. The latter snapped at him, drawing blood from his cheek, upon which the new-comer turned on him with a roar, snapping his jaws viciously and loudly. The onset was met by open jaws; then each seal erected himself as high as possible.

After some very pretty play on the part of both—much like skilful boxers—the one gripped the other underneath and worried him, causing the blood to flow freely. The latter took it very quietly, and appeared to go to sleep, but as soon as his opponent turned away he threw himself forward and attempted to seize his flippers. This was frustrated, and more fencing went on. Finally he succeeded in wounding the new-comer's flippers badly, and the fight ended. We had often wondered how it was that the seals were so badly scarred, and this would seem to quite account for it.

I had made preparations for a short sledge journey to the south-west corner of McMurdo Sound, and intended starting on November 26. Wilson and Hodgson were to accompany me, but as the latter had strained his foot, I had to take one of the men—Heald—instead.

On the morning of the 26th, after seeing the hands off with a sledge loaded with thirty charges of wet guncotton, and the dog-sledge with biscuits, cocoa, sugar, and tea, we made a start; but after proceeding for about a mile from the land we got into such very thick drift with a fresh gale blowing and every appearance of bad weather setting in, that we decided to

return to the ship. The party going to the camp were all right, as they had the wind astern of them and a comfortable house awaiting them near the islands.

The blizzard continued blowing the whole of the next day, so that it was not until the 28th that we got away.

## CHAPTER XVI

### AMONG THE GLACIERS

Wilson, Heald, and I leave the ship—A retreating glacier—Melting ice—The ice-foot—Great moraine heaps—A lonely seal—Pinnacles of ice—The summit of the hills—Decadent glaciation—An isolated ice-mass—The old ice explained—A miniature barrier—Our return journey—Torrents of water—Dailey Islands—Once overrun by ice—Skuas' eggs—A good lunch—Arrival at the ship—All back but the Captain's party—Fossil plants—Departure to the sawing-out camp.

AFTER leaving the ship, we soon came to the old ice, and found that it was a very bad surface to drag over. Bad weather was again threatening and a blizzard soon commenced which compelled us to camp for the greater part of the following day.

Much damp snow had fallen during the blizzard, and this so clogged our ski that we could not use them, and, as we could not drag our load on foot, we had to make double journeys. We had travelled over this portion of the old ice during the past year, and it then seemed good enough to drag over; but this year it was a very different affair, for we were continually stumbling into holes up to our knees, and were very glad to get off it on to the sea-ice once more.

We now skirted the old ice until we saw that it was firmer, when we again sledged over it, as it offered the

most direct route to the point of the coast for which we were making. This was the lateral moraine on the south side of the glacier up which we had ascended on our journey to the inland ice the year before, and which led to the pass down which we ran our sledges on to the Ferrar Glacier. We soon crossed over the old ice, and came to the channel which runs between it and the coast.

I had crossed this in September, 1902, and found the ice smooth, thinly coated with hard snow, and easy to sledge over. It was now much melted, strewn with small particles of rock débris, denuded of snow, and not at all smooth; for where the débris had been blown on to the ice, the latter had melted down from a foot to 18 inches below its general level. We had to drag over this on crampons, and, as the wind had increased to force 7 and 8 in fierce squalls abeam of us, one of our number had to attend to the sledge while the other two dragged; but notwithstanding such attention and every care the sledge was blown over several times.

On arrival at the desired point we camped on a moraine deposit, and were soon sleeping the sleep of the thoroughly tired-out. We remained where we were for a day, while Wilson examined the moraine and sketched. It seemed to me that the side of the glacier had retreated considerably, even in the year since I had seen it, and had left appreciably more morainic material than I had noticed before. The heap on which our tent was pitched was about a quarter of a mile in length, and was 80 feet high by aneroid measurement. It consisted of all the different kinds of material of which the land to the west appeared to be formed.

Next day we first travelled over sea-ice of fairly recent date close in to the land, but afterwards kept farther out, where we found the ice more level. We soon came to ice of the penknife and mushroom order, and to a surface where there were clear sheets of ice which smashed to pieces under our feet. These sheets were about 2 inches thick, very clear, and with hollow, thawed-out spaces underneath them.

After seven miles of fairly good going we came to the very old ice, which was exceedingly rough, mingled with *débris* and much pinnacled. Large pools of water, sometimes deep enough to cover our ankles, were frequently met with.

We travelled over this for some time, then made for the land to camp. There, after crossing a tide-crack, we got on to a narrow lane of smooth land-ice. It was bordered by masses of the old ice which had been pressed up against it and thawed into pinnacles. On the land-ice we could hardly feel the weight of the load that we were dragging, so made good progress, going as fast as we could walk under ordinary circumstances.

We camped on the land, which was beautifully warm. When we again got under way we still kept on the smooth ice-foot. The character of the land by which we passed still continued the same—a series of shallow bays in a deposit of morainic *débris* which lay in heaps and slopes at the foot of a talus which was connected with the foot-hills of the western (Royal Society) range of mountains. At one place we passed by a valley which lay between ranges of hills, through which we could indistinctly see the Royal Society Range enveloped in cloud.



A decadent glacier lay near the head of the valley, which was full of mounds of morainic débris. At its mouth there were large extents of blue, smooth ice and ponds of water. The moraine heaps had pits 20 to 30 feet deep in them, and round their rims was a quantity of lime-like stuff.

Now and again we saw the skeletons of Weddell seals on the land, where they had probably gone to die; and on one occasion we passed a male Weddell bitten in many places, and to all appearances very old and ill.

At one time we got amongst a number of moraine heaps scattered here and there in a bay in the land. Interspersed among them were large sheets of ice, much of it thin, and many pools of water—just like a bay of small islands.

The ice-foot became very rough as we proceeded, and the old ice pressed up close to it gradually became bigger, and was thawing out to such an extent that our track was frequently flooded, so that we were marching through water which came over our ankles.

Our further progress was at last stopped by masses of pinnacled ice which were pressed close against the moraine heaps, and which we could now see were part of a glacier that flowed down from the inland ice past Mounts Morning and Discovery.

We therefore camped, with the intention of climbing one of the hills the next day, from which we hoped to gain a more extended view.

The following morning, after breakfast, we climbed to the summit of one of the hills. The weather was fine and clear except on the mountain-tops, which, unfortunately, were wrapt in cloud-masses. Wilson

went on first, and made copious notes and collections of geological specimens, as well as sketches. Heald and I followed with the camera, sextant, and lunch, which latter we soon demolished when we arrived at the summit. The top of the hill was about five miles from our tent, and by aneroid 2,450 feet in height.

After lunch Wilson went on to another hill, while Heald and I took photographs of our surroundings and observed angles.

We could see some distance up the glacier that lay between the Royal Society Range and the hills to the eastward of them. It stopped short in the valley below us, and a branch of it curved round a group of small hills close to us, and also ended abruptly.

We had a grand view of the surrounding country, and could easily trace the course of the various ice-flows. The Koettlitz Glacier came down between the southern extreme of the Royal Society Range and Mount Morning, and was bifurcated by a huge mass of rock that barred its way. The larger arm flowed on between the foot-hills that we had coasted and Mount Discovery and Brown Island, the latter, by the way, being connected by a thin strip of land to the former, and not an island at all.

Not far from where we were camped, this decadent glacier was in a very broken-down condition, gradually presenting a more disreputable appearance as it advanced and terminated to the northward of Dailey Islands. The smaller arm turned to the north, and ended at about a couple of miles from the glacier that lay between the mountains and the hills, and had no doubt been connected with it at some previous time. It was in a more decayed condition than any of the others.

To the north of the range of hills on one of which we were standing was another range, and between them, at a height of 1,400 feet, was a valley three miles in length by one and a half miles broad. In the centre of the valley lay a large frozen pond. At the head of it was a very curious sight—an enormous mass of ice unconnected with any other glacial flow. It stretched across the width of the valley, and had a perpendicular face of from 40 to 60 feet in height, and was in a state of thaw. Several acres of boulders, great and small, were strewn and massed in front of it, and at the mouth of the valley was a deep gorge which continued down the hillside to the moraine heaps below, and contained many water-worn boulders.

In fact, our surroundings showed ample evidence of the decadent nature of Antarctic glaciation in the present age; and the mystery of the old ice, which we had thought so strange when we first saw it, was fully explained. It appeared to me to be like the Great Ice Barrier in miniature. There was the source of supply from the inland ice; on the level were crushed-up masses of ice, formed by pressure from the on-coming ice; and the tide-cracks at the edge of the land, like the deep soundings at the northern edge of the barrier, showed that it must be afloat, although, perhaps, in bygone times, when it was vastly thicker, much of it may have been grounded.

The hills which we were amongst had many strata of black rock visible in them, and were weathered to an extraordinary degree.

On our return journey we followed the general direction of our track, but took a rather more direct line. We had not been long under way before the

metal on our sledge runners commenced to strip, so we turned the sledge end for end, which made matters easier. Since our outward journey we found that a great deal of melting had been taking place, the ice being rougher and rubble being where ice had been before, and we had to wade through pools of water more frequently.

At one place there was a small watercourse from the hills, which flooded the ice for some distance. We passed our old friend the Weddell about half a mile to the northward of where we had seen him before—still living, but very sulky.

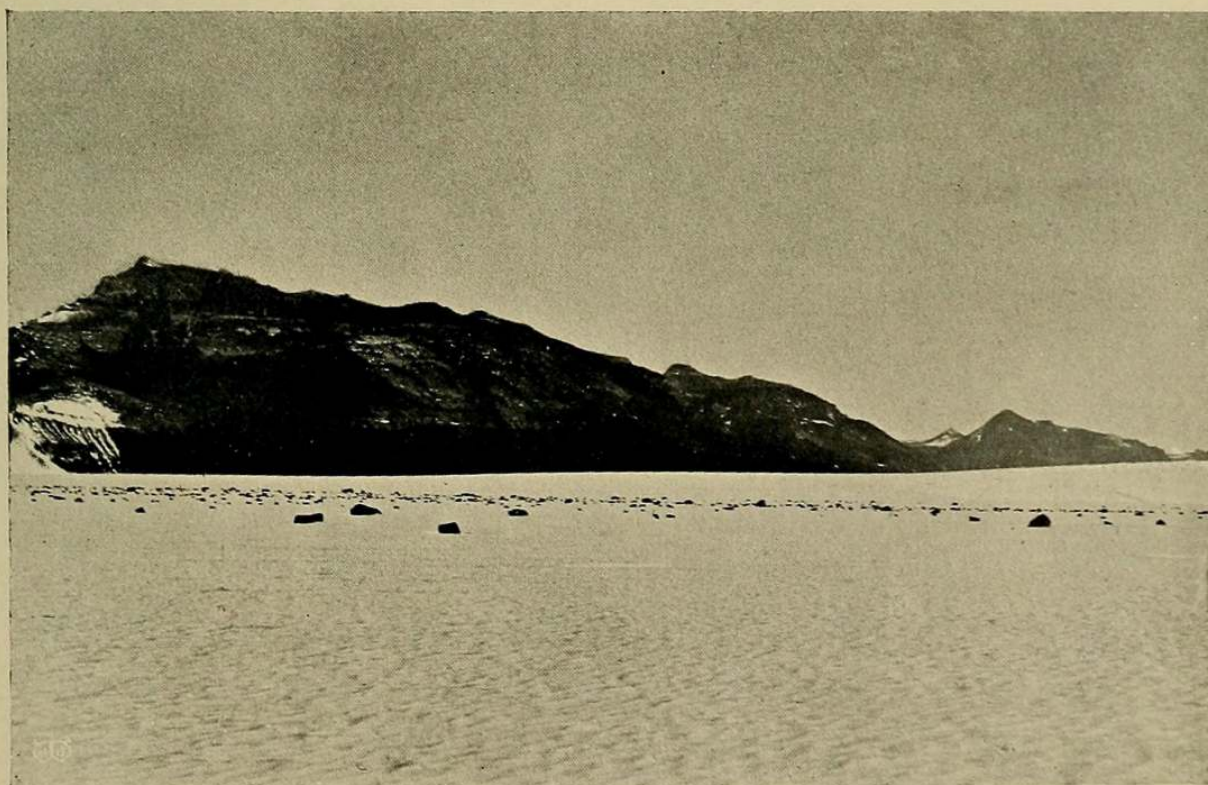
It was our intention to visit Dailey Islands on our way to the ship, but before we struck across the glacier to do so we entered a small bay about three miles deep and four miles wide. On our outward journey, being some distance from the land about the vicinity of the bay, we did not notice it.

A flat space of level bare land lay in front of the hill-slopes, about half a mile in breadth and stretching almost round the bay, and it looked altogether so pleasant in comparison to the other portions of this desolate land, that we decided to stay there for a day.

After breakfast the next morning, Wilson climbed the nearest hill to get a good view for sketching and making notes generally. Our sledge required repairing, and after that necessary piece of work was completed Heald and I paid a visit to an isolated glacier which lay on the hill-slope. It was similar to the other one that we visited, only larger and not so far above sea-level. Its base was 150 feet above the sea, by aneroid measurement, and its face from 50 to 100 feet in height.



MOUNT LISTER AND ISOLATED GLACIER.



WESTERN GLACIER.



Before we went up to it we took a photograph of it from the tent, and obtained one of its face when close to it. Streams of water were pouring down its face, and a small torrent was rushing down the slope close to its lateral wall. These all ran into one main stream which made its way towards the coast. On its way it first sent out small branches, and then, as it approached the glacial ice, it spread out into a great number of smaller streams. The main stream for the most part averaged 10 feet in width and 2 feet in depth; and the average time taken by three pieces of ice to pass over 120 feet was thirty-five seconds. The glacier appeared to stand on a pedestal of mud or clay, specimens of which Wilson collected.

While Wilson was still away, sketching, etc., Heald and I went for a walk among the moraine hillocks, looking for skuas' eggs, but were unable to find any.

Towards the southern end of the bay we found another large stream of running water, which we followed up for a mile between the hills of sand and gravel to a height of 150 feet, where it was coming down in a torrent. Its bed was full of boulders, many showing glacial markings, and small stones that were being swept along by the rush of water. The water was flowing from beneath ice that appeared to extend to the upper hills.

The next day we made for Dailey Islands, and left our sledges when we were about 300 yards from the island nearest to the mainland, which was also the largest. We walked to it over pressed-up ice, across two tide-cracks, and over an ice-foot that was about 50 yards in width.

We then climbed to the summit of the island. It was formed in three terraces, having rounded knolls at either end of them, the centre terrace being the highest. The aneroid showed the highest point of the island to be 400 feet above the ice-level. There were three other islands near by, but these we did not visit. The one that we were on was a mass of volcanic material, but here and there were small boulders and stones of a similar nature to the rocks on the mainland, and there was other evidence of the ice having overrun these islands, in the shape of well-defined ice-scratchings on one of the boulders.

Wilson was soon searching for skuas' eggs, and Heald and I joined him. We found five, while Wilson collected nineteen of them.

We then returned to the sledges, erected our tent, and had lunch. It was a splendid lunch, for Wilson blew eighteen of the eggs, and I scrambled their contents—a most delicious meal. Afterwards we continued our investigations until we felt hungry enough to camp for the night.

On our next march, when we arrived at the edge of the glacier ice, we found that a great pond of thaw-water had formed on the surface of the sea-ice, so we had to skirt it until we came to a dry passage from the one to the other. We soon, however, had to wet our feet and legs, for we had to wade through thaw-water for two and a quarter hours until we came to a hard surface of snow.

We pushed on after dinner instead of camping, as we thought it better to sleep on board the ship if possible. For some time we followed the tracks of some other sledge-party, which we presumed was



Ferrar's, as there were traces of only three persons, and arrived on board at midnight on December 12.

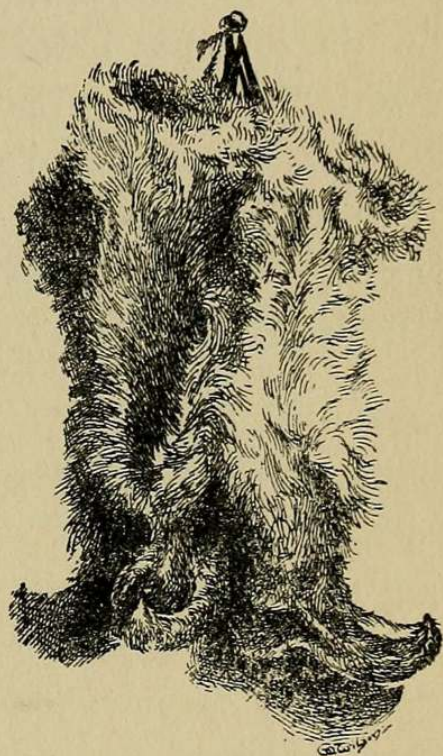
We found all well. Royds' and Ferrar's parties had returned on the 10th, and the day after my return Barne's party came on board. There was a great comparing of notes and experiences, as may be imagined.

Royds' party had been 155 miles to the south-east over a level barrier surface, seeing nothing but the vast plain of ice ahead and all around them. They had struck a course midway between the Captain's outward track the year before and the edge of the barrier, and proved, as we had naturally suspected, that the barrier was intact for at least 200 miles to the south-east from our winter-quarters.

Bernacchi had obtained a good series of magnetic observations, which showed a gradual decrease in the inclination and total force.

Barne had been to the south-west over the barrier, and about ten miles beyond the point that he had reached the year before. He had been able to see up the inlet named after him, and at one side of it he saw boulders which the ice was bringing down on its surface. There was much pressure near the mouth of the inlet, and numerous ridges had formed.

Ferrar had geologized to his heart's content on his glacier, and had made a most important discovery—



PIMMIES.

namely, that of fossil plants, which, as he said, showed that a once humid and congenial climate prevailed in the South Polar regions. These plant remains were found at a height of 8,000 feet above sea-level, close to the base of the plateau basalt.

Progress had been made with the sawing-out camp. The saws and one tripod, the boat, 100 charges of wet guncotton, and a quantity of provisions had been sledged to the camp, so I made arrangements for all hands except Koettlitz, Mulock, Barne (who had a swollen ankle), Ford, and Quartly (suffering from a strain), to proceed to the camp on December 16.

We accordingly left the ship for our new home on the afternoon of that date, and sledged a quantity of stores over there at the same time.

## CHAPTER XVII

### SAWING-OUT OPERATIONS

The sawing-out camp—Blasting—Skelton arrives at the ship—An inquisitive seal—We shift the tent—Hard work and little result—Christmas Day—Curious Adélie's consigned to our cooking-pot—Captain Scott's return—His letter to me—His splendid journey and perils by the way—Captain Scott arrives at the camp—Decides to cease sawing—We return to the ship—The arrival of the *Morning* and the *Terra Nova*—Abandon the *Discovery*: an order!

To begin with, there were twenty-five of us at the camp, and I divided the whole into three watches, so that each watch should have a spell of four hours on the saw followed by eight hours' rest. There was a cook in each watch, who left the saw an hour before the watch was up, to cook for both the turning-out and his own watches. Cross fulfilled the important position of storekeeper.

Two-thirds of our tent was given over to the men, and the other third was occupied by the officers and warrant-officers, a screen across the tent dividing it into two compartments.

On the morning after our arrival at camp a party of us walked out for a mile to the westward to choose a place for the saws. We picked a hole in the ice, and fired a small charge of dry guncotton in the hole to enlarge it, afterwards firing a large charge of wet gun-

cotton, which opened up a big hole. We then lowered another large charge through the hole for 6 fathoms, and, before making the contact, waited until we believed it to have drifted well under the ice. When the explosion took place a large hole was made in the ice, which appeared to lift twice for quite 70 yards, but with no other effect than a few cracks.

We erected one of the tripods over the hole, and then made another hole with a  $16\frac{1}{4}$ -pound charge of guncotton, and placed the other tripod in position over it in readiness for a fair start the next day.

My watch commenced work with the saws at 8 a.m. on the 17th, and were relieved by Royds' watch at noon, Bernacchi's watch relieving him again at 4 p.m., and so on throughout the twenty-four hours. We found the ice where we commenced sawing operations to be 7 feet in thickness, a pretty tough lot to get through, and at our first spell we only made a cut of 46 feet in length.

On the evening of the 18th Wilson, Dellbridge, and Dell, who ran the dog-team between camp and the *Discovery*, arrived at our abode, and, through letters which I received from Koettlitz and Skelton, I heard of the latter's arrival at the ship on the 16th.

It appeared that Handsley had a chronic form of laryngitis, and that Feather was suffering from a painful complaint, caused by his exposure to damp; so Captain Scott sent them back under Skelton, and proceeded with Lashby and Evans, with the intention of going on for another week. Skelton had returned leisurely, and said that the Captain might be in at any time, as he was sure to march as quickly as possible.

I desired, if possible, to make a water-hole large

enough to help us in getting rid of the ice as we cut it out, for the edge of the ice was some miles north of us, and we were unable to free the ice as we sawed it. So we tried the effect of some more explosions. After a number of charges had been fired, however, we came to the conclusion that it was merely waste of material, a few big lumps of ice being thrown up only, and no other damage being done to the floe.

On one occasion, when a  $16\frac{1}{4}$ -pound charge was fired, a big dark object was ejected with the ice. It rose for about 10 feet, and fell on the floe at about a dozen feet from the hole. On approaching it we found that it was a bull seal. He was too dead to take any notice of us. Poor beast! it must have been a great shock.

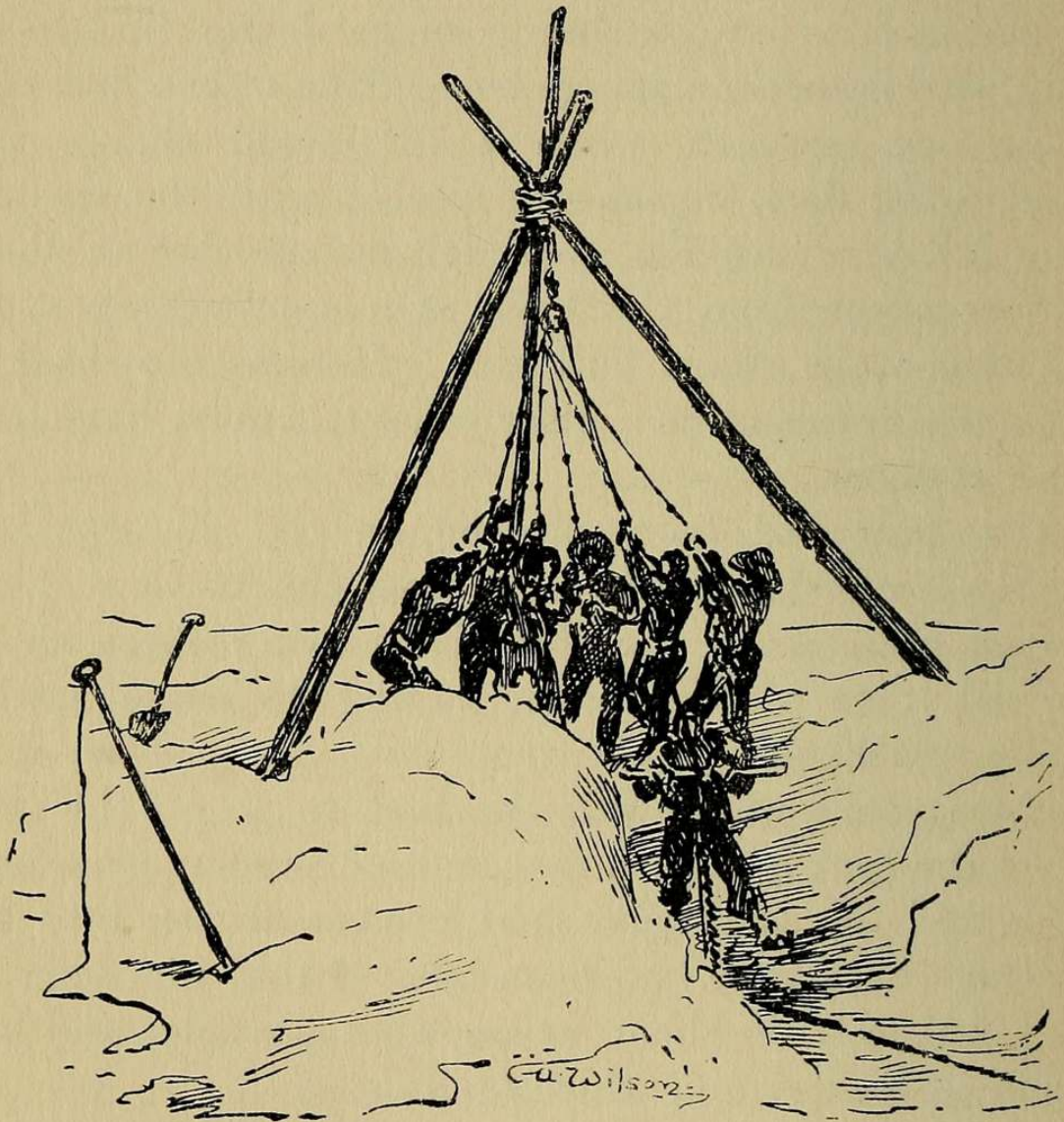
Our tent had been pitched on the one spot for nearly a month, and the heat from the stove and our bodies had had a considerable thawing effect, so we shifted it to a drier place, having to cease sawing while we did so.

Bernacchi's watch was the first to go on the saws after the tent had been moved, and he soon came back and told me that they had become frozen into the cracks where they had been left. I told him that he had better free them as soon as possible, and get them to work again, which he did.

The open water did not appear to approach us any closer, as we hoped it would do, and without its aid we could certainly not expect to do much. I endeavoured to make the men believe that our work was of great use, and that when the water did come the cuts that we had made would cause the ice to disappear rapidly.

Our method of using the saws, which were 18 feet in length and very heavy, was as follows :

A block was lashed at the apex of the tripod, and through it a rope was rove, one end of which was made fast to the saw, and the other was connected



ICE-SAW AT WORK.

with six tails. At the head of the saw were two long, thick handles, at right angles to each other. Two men manned the handles, and six men were on the lines. Pulling all together, the six men would haul the saw up to the limit of the handle men's arms, and

then slack up the tails while the handle men brought their weight to bear on the saw.

It was laborious work, with very little result to show for it. The distance cut was measured each watch, and the men became quite eager to establish a record in their respective watches. I tried to relieve the monotony by starting chanties with my watch, but after a day or two they gave them up. The work, however, made us in first-rate condition, and the amount of food consumed would hardly be credited by anyone who has not experienced hard labour in the Polar regions.

Soon after Skelton's return all the officers except Koettlitz joined our camp. Barne, as soon as some symptoms of scurvy that he had developed disappeared, took charge of Bernacchi's watch.

At midnight on Christmas Eve we hauled the saws close up to the blocks and ceased work for twenty-four hours. Ford had sent us some luxuries by the dog-team—plum-duff, sardines, cake, and potted meat—which we all thoroughly enjoyed.

During the day most of us clambered over the island near which we were camped, and gazed longingly at the open water from its summit. The water seemed to be quite six or seven miles away, which was not encouraging.

Numbers of Adélie penguins visited us, and not a few of them found their way into our cooking-pots, for they were exceedingly good eating.

On the 26th Dell arrived with news of Captain Scott's return with Evans and Lashby, all well. I read the Captain's letter to my watch and Royds', and gave it to the officers to read; and Barne read it

out to his watch. Everyone was most interested in the news, and pleased to hear of the Captain's splendid journey and safe return.

I sent him a letter, congratulating him on his success, and telling him how glad we were to hear that he and his companions were all well.

The following is the letter which he kindly sent to me :

‘ DEAR ARMITAGE,

‘ I and my two men arrived at the ship late on Christmas Eve all fit. I am very much obliged for all the information left and forwarded by you and others, which puts me in possession of the main facts of the situation. From my glimpse of blue water from the glacier, I hoped to find it up to the islands, and am disappointed to find it has not yet reached you. I gather from your reports that when it does so there will be no difficulty in getting rid of the pieces you have already sawn out; that the progress made by the saws, though slow, is sure; and that there is every chance of the work growing easier and the progress more rapid. If this is so, I do not see that we can do more than is being done, and the only course is to keep at it and trust that the elements will shortly give us more substantial assistance.

‘ Concerning myself and party, Skelton will have told you our history up to the time of separation. From that moment I decided to work nine hours per day exclusive of stoppages, and consequently we pushed westward at this rate for eight and a half days, and covered, at my estimate, nearly another 100 miles. We daily encountered a series of slight undulations



of the same nature, but rarely so well marked, as that on which we left the returning party. These undulations never exceeded 50 or 60 feet in height from crest to hollow, but caused a most marked and constantly recurring change of surface, the western face and hollow of such being covered with sastrugi, sometimes as much as 4 or 5 feet in height, whilst the eastern face and crest were more or less smooth and glazed ; consequently at times we were able to advance rapidly, whilst at others the progress was slow and the sledge capsized in the most exasperating manner. However, the long hours told and each day we knew we had made a good mileage.

‘ The bitter wind and cold temperature continued throughout, cutting our cheeks and fingers to pieces. On the return journey the wind at first helped us considerably ; we had one or two scares when the light stopped all travelling for an hour or two, but we made those hours up, and, striking an old camp, found we were gaining slightly on the outward marches. About seventy miles from the glacier the wind turned to the southward, rendering the sail useless ; the surface became covered with soft snow, evidently newly fallen ; the dragging was the heaviest we had yet experienced ; and owing to capsizes our oil was running very short. Having no books, I did not know our position, so decided to go on half-allowance of oil (we find breakfast, cold lunch, and cold cocoa much the same as last year South), and to increase marching hours to ten. A little later we sighted land, but having seen little or nothing of it on the way out, through the thick weather, I could recognise nothing with certainty, and it was constantly appearing and disappearing through

inequalities of surface. I decided to trust to my curve of declination (made after loss of books), and march east on it at the best speed we could muster.

‘ On the 12th and 13th it grew very thick, and a southerly blizzard came on, but on the afternoon of the latter day we were conscious of descending in level.

‘ On the morning of the 14th there was a partial clearance, and we found ourselves in an ice-disturbance with some land about, which, however, owing to the mounds of upheaved ice, we could make little of; the surface became hard and glazed, with crevasses. We put on crampons, and, the slope increasing, the two men went behind and I in front. A quarter of an hour after starting this arrangement one of the men slipped, carried the other off his legs, and in a moment sledge and man shot past me, and I was quickly following in their wake. The pace increased with terrific bumps till we pitched up in a heap about 150 or 200 feet below the first point of slipping. How we escaped broken limbs I don't know; we were all badly shaken and bruised, but as soon as we had collected ourselves I saw at a glance that we were at the foot of the upper cascade, which we had descended in about the worst place in what we reckoned to be record time. Lashby's back was rather badly hurt, and our biscuit-box had burst and scattered the contents, of which we could recover very little.

‘ We lunched somewhere about Allan's camp, and, there being still a strong wind and drift, we had the ill-luck afterwards to strike the second cascade in a very bad part. With great care we got safely down, but had not gone another quarter of a mile on the

level before Evans and I went simultaneously down a crevasse. The sledge came rushing after ; one runner snapped off short, but by an extraordinary good-fortune the other held, and Lashby, who was pulling wide, was just able to spring back and hold it. In this position he could do nothing but slide a ski under with one hand to help support the sledge.

‘ In the crevasse we were rapidly being frost-bitten whilst discussing the situation, when my dangling feet fetched up on a sort of half-bridge which I found would just support my weight, and eventually I was able to guide Evans’s feet to the other end of it. There remained only one thing to do, and that was for one of us to climb the trace. With frost-bitten fingers, and encumbered with heavy clothes and crampons, it scarcely seemed possible, but, as it was no use waiting, I took off my harness and mits and made a start. I don’t know how long it took ; I only remember starting hand over hand, and finally, with a last effort, launching myself clear of the edge with hands quite gone. After a few minutes for recovery, the two of us were able to help Evans up. We re-stowed and trimmed the sledge end for end, and that night reached the depot to enjoy the first warm calm with sunshine we had had for six weeks.

‘ The forenoon of the 15th was spent in putting on German silver. In the afternoon we got on the plateau below Finger Mount Falls. We were, unfortunately, obliged to push on from shortage of oil and biscuit, though I wanted to spend some time in the upper part of the glacier.

‘ On the 16th we lunched at the depot, and camped for the night in Knob Head Moraine.

‘ From here spent 17th, 18th, and 19th down north arm of glacier, with most interesting results, reaching a level of about 200 feet above sea.

‘ On the 20th we reached “A” depot, after measuring movement of new glacier marks a little higher up.

‘ On the 21st got within a few miles of end of glacier.

‘ On the 22nd picked up another depot, and camped within three miles of the eskers.

‘ On the 23rd reached the eskers, and spent most of the day examining them from north to south. In the evening started for ship, which we reached, against a strong head-wind, with both sledges on the evening of the 24th.

‘ The three of us scaled 40 pounds less than when we left the ship, and this was after full feeding since we left the depot Nunatak. When we arrived at that spot we were all as thin as rakes; the men looked positively haggard.

‘ I have gone into some detail in this matter because I think, as does the doctor, that the men not only deserve, but require a day or two of rest and full feeding before going down on the saws; and, for myself, I am particularly anxious to work out my sights and ascertain how far we got, and, roughly, what the variation was at different points. Consequently I shall remain here for a day or two before coming down to join in the work. Will you be good enough to make the contents of this letter known to officers and men? In view of our experiences of the last six weeks, I do not think they will grudge us this rest, for certainly our work has been uncommonly hard. I will not now name a date, but in consider-

ably less than a week I hope to be at work with you all. I have a bad attack of indigestion, due to Ford's cooking, which is quite the most excellent thing, but disagrees with me.

'Uniformly bad weather accompanied us on our sledging trip. On returning we carried it with us down the glacier and across the floe, but yesterday and to-day here have been quite delightful, and I hope the change is the same with you. Everything and everyone on board seems to be in good fettle.

'Please give my remembrances to all, and tell Hodgson I want to discuss the glacier with him.

'Yours sincerely,

'ROBERT F. SCOTT.'

Before I heard of the Captain's return I had told Bernacchi that I should require him to go to the ship and make an observation for time for the rating of the Captain's watch, and when he arrived at the ship the Captain was able to hear all the news first-hand instead of by letters.

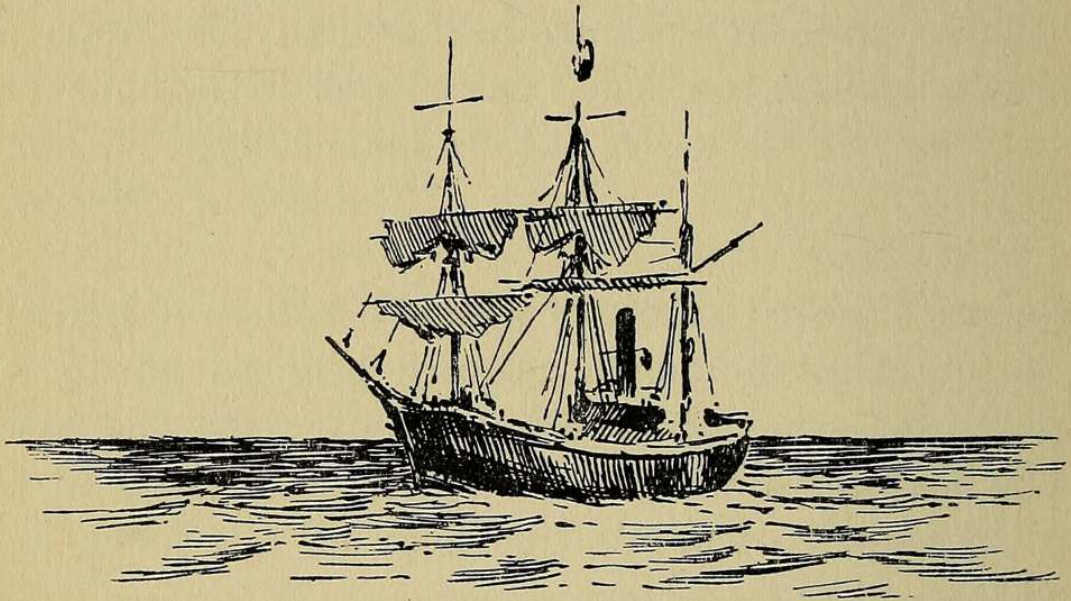
Bernacchi told him how the cuts froze up again, and how far the water was away from the scene of operations. I had perhaps rather misled him by being somewhat too optimistic, but, if such was the case, our physicist soon put a damper on any idea that the saws would aid in our release at all.

On the last day of the year Captain Scott and his party arrived at the camp, and gave us all a day off work for New Year's Day. He and two others went out to the ice-edge, which they found to be eight and a half miles away.

The next morning, after inspecting the work done at

the saws, he decided to give up using them so far away from the ship, as our eleven days' toil had quite proved to him that the *Discovery* was not to be set free by that means.

With the exception of Captain Scott, Wilson, and five hands, we all returned to the ship, leaving the tent standing. The Captain and Wilson went to a cape on Ross Island, which the Captain named after Royds. They had one of the small tents with them,



THE 'TERRA NOVA.'

and intended remaining there some little time to study the penguins, etc.

In the meantime the saws were again got to work near the ship, but the progress made was far slower, even, than before.

On January 5 we received a surprise. Heald, who was one of the men left at the camp, brought us the welcome news that the *Morning* had arrived, and that another ship was in company with her. Opinions were varied as to what the other ship was doing down

South, but none of us quite guessed what she was really sent out for.

We received our letters the next day, and all of us were soon immersed in them, trying to gather together the threads of our home-life.

We heard that the other vessel was the *Terra Nova*, a Scotch whaler that had been bought by the Government and sent out to succour us poor '*Discovery's*.'

Well, we thought it very kind of the Government, of course, but all the same, when we heard the orders that had been sent out to Captain Scott, we were not so enthusiastic as we ought, perhaps, to have been over the *Terra Nova's* arrival. These orders, which the Captain read to all hands on the mess-deck, were to the effect that, if the *Discovery* was not freed that season, she must be abandoned. We did not fancy the idea of abandoning the good ship that had been our home for so long, from which we had sallied forth on our sledge journeys with high hopes, returning to her again with those hopes fulfilled. No, we could not picture the *Discovery* deserted while we went safely home in another vessel—it would not be the same thing at all, however warm the welcome might be; and I am confident that there was not a single man on board who, if given the choice of staying another two years in the *Discovery* ice-bound, or of deserting her to return safe home, would not have chosen the former course.

## CHAPTER XVIII

### OUR RELIEF AND RETURN

Chances of release—Blasting—Transshipment of stores—The *Terra Nova* and her personnel—The *Morning* and her ship's company—The relief ships approach closer—The break-up of the ice—Free!—Aground—Good-bye to McMurdo Sound—The *Morning* parts company—A damaged rudder—In Wood Bay—We change rudders—We lose the *Terra Nova*—The Balleny Islands—Shallow soundings—The Auckland Islands—New Zealand, the home of hospitality—Farewell to our friends—The voyage home—The lights of England—Feasting—Rewards—Finis.

THE fast ice was of much greater extent this year than it was the year before, so that the outlook for the *Discovery's* release was not brilliant. One thing was in our favour, however, and that was that no heavy pack-ice of a nature to stop the swell from entering McMurdo Sound was in the Ross Sea.

The ice gradually broke away, and the relief ships approached nearer and nearer. When they first arrived, Captain Scott carried out some blasting experiments. The *Terra Nova* had brought out a great quantity of guncotton and other material for blasting purposes, so that two or three charges could be fired at one time. This we were unable to do the year before, because we had not the necessary length of circuit. As, however, there appeared to be no



sufficient result to justify the expenditure of gun-cotton at such a distance from the ship, the Captain ceased attempting to break away the ice by explosions until the ships were much closer.

In the meantime, as, of course, we might have to abandon our ship, all arrangements were made for doing so. The various scientific collections, the instruments, the records—in fact, everything of value was packed and sledged over the ice to the *Morning* and *Terra Nova*.

The *Terra Nova* was, perhaps, the most powerful and the strongest of the Dundee whaling vessels extant, and her commander, Captain Mackay, was one of the most experienced ice-masters of the Northern seas living. On the voyage down from New Zealand she had been of great assistance to the *Morning* whenever any ice-pack was met with, for she was easily able to penetrate it, while the *Morning* followed in her wake before it closed up again. This not only enabled the *Morning* to economize her coal, but it saved much delay to a ship with such small steam-power that, according to rumour, she had to stop her engines when her steam-whistle was blown.

The officers of the *Terra Nova* were Mr. Jackson, chief officer, lent to the Admiralty by the Atlantic Transport Steam Shipping Company; Mr. Eales, second officer, late of the Royal Mail Steam Navigation Company; and Mr. Day, third officer, of Wilson's line of steamships. The crew were nearly all whaling men hailing from Dundee.

Theirs was rather a thankless task, for, rightly or wrongly, they looked on themselves as, to a certain extent, interlopers who had been forced upon us.

None the less, however, did every man on board the *Terra Nova* do all in his power to help us, whether it was in transshipping stores or in trying to blast away the ice which held us prisoners; and there was not a man on board either the *Discovery* or the *Morning* who evinced a keener interest in freeing the former, or a greater delight when she finally left her ice-bed, than the people of the *Terra Nova*.

Captain Colbeck still commanded the *Morning*, and he had the same officers, and for the most part the same crew, as had been in her during her previous voyage to the South. We welcomed them as old friends, and they, on their part, seemed hardly able to do enough to show us how great their pleasure was in again meeting us.

I do not think that I have mentioned the two youngest of the *Morning's* company, who were also the two youngest persons who had ever been so far South. One of them was named Pepper, and was the son of the well-known Captain Pepper, of Wilson's line. The other was named Maitland Somerville, the grandson of Sir Clements Markham's Captain when he (Sir Clements) served in Her Majesty's Royal Navy. They were both midshipmen on board the *Morning*, and served in her throughout her cruise. Of course there were constant visits paid to both ships, and I am sure that we all look back with pleasure to the continual good-fellowship that prevailed amongst the three ships' companies.

Morrison and Doorly had another stock of songs, and Jackson, of the *Terra Nova*, who was an exceedingly amusing man, kept us laughing most of the time that we were in his company.

Wilson camped out at Cape Royds for some time, and while there killed a sea-elephant that apparently had lost its way, for it was the only one seen at South Victoria Land during the expedition.

At the end of January the relief ships were off Dellbridge Islands, and our hopes ran high. Explosives were again brought into play, and had a good effect in shaking up and cracking the ice in readiness for the ocean swell when it came along.

For two days (January 27 and 28) we had seen the effect of the swell off Hut Point and in our little bay, for there were many cracks formed, and the *Discovery* creaked and groaned as though she was once more free and rolling home.

At some times it seemed as though our boundaries would never narrow; at others quantities of ice would separate from the main body and float away to the northward without any apparent reason. Often, after a charge had been fired, there was no change in the appearance of the ice for some hours; and then, suddenly and quietly, a large flat piece of ice would detach itself from the parent floe and set out on its voyage of discovery and dissolution.

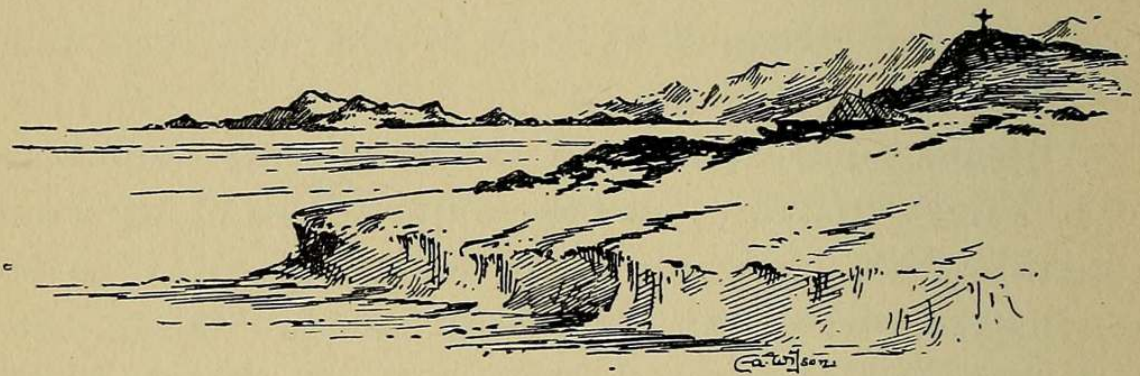
I had been paying a visit to the *Morning* for a few days when the final break-up of the ice in McMurdo Sound took place. Men from the three ships were working busily on the floe, making holes for the charges of guncotton when it commenced; but they could not keep pace with Nature's forces, so had to board their ships.

A swell was rolling in and rapidly breaking up the ice on February 14, and the *Terra Nova* by continued butting endeavoured to become an ally of the sea.

The *Morning* could not butt to any purpose, but still she managed to creep along, and was in our bay nearly as soon as the *Terra Nova*.

All the people in the *Discovery* collected round the flagstaff on Hut Point, and as the two ships passed them cheer after cheer rent the air. It was a great moment for us, for our ship was no longer in danger of remaining as a monument in the Antarctic to the enterprise of our employers.

On February 16, 1904, at 11.45 a.m., the *Discovery* was freed by a final charge of guncotton, which shook



VINCE'S CROSS.

her from stem to stern. We hove up our starboard bower anchor and prepared to coal from the *Terra Nova*, which came alongside us early in the afternoon.

Before dinner on board the *Discovery*, to which Captain Mackay and the officers of the *Terra Nova* had been invited, all the '*Discovery's*' landed and assembled round a wooden cross which had been erected on Hut Point to the memory of our lost comrade. Captain Scott read some prayers, as, bareheaded, we grouped in front of him. We had very much to be thankful for in that but one of our number had gone the last long journey of all; but we all felt sad to

think that that one was not to return with us, but remained the silent caretaker of the land from which we had wrested so many secrets.

At midnight Captain Mackay hurriedly rejoined his ship because of a gale which suddenly sprung up, and the *Terra Nova* had to cast off and stand out from our bay. Eales and Soutar, her doctor, missed their passage, and had to remain on board us for the night.

Pack-ice drifting from the southward soon surrounded us, and at noon we hove short, for our stern was unpleasantly close to the ice-foot.

At twenty-five minutes past twelve the *Discovery* was under way for the first time for nearly two years, and ten minutes later the force of the gale that was blowing drove her on shore on Hut Point. The Captain telegraphed 'Full speed astern,' and then tried 'Full speed ahead,' setting square sail on the fore at the same time. But all was of no avail; she merely stuck the faster. We sounded round the ship, and found 3 fathoms of water astern, 2 fathoms round the ship, and  $2\frac{1}{2}$  fathoms under the bowsprit. Shortly before 8 p.m. the ship, which had been bumping very heavily, came off the bank and was once more afloat.

We steamed to the head of the sound and made our ice-anchor fast on some sea-ice not far from the *Terra Nova*. From there we proceeded to the tongue of ice which jutted out from the slopes of Mount Erebus, watered ship, and shipped some stores from the *Morning*. We kept to leeward of the spit of ice as much as possible, shifting twice in order to do so, for the fresh wind raised quite a little lop. On one of these occasions, while I was manœuvring the ship to

turn her, she struck the ice violently with her rudder, but at the time no notice was taken of it.

As the weather did not improve, and Captain Scott was anxious to get away, we did not stop to finish watering ship, or, more important still, to swing her for deviations, the fact of the matter being that we had a very small supply of coal. The *Morning* and the *Terra Nova* had brought us provisions and clothing that we could, possibly, have managed without; but the one thing that was of most value to the expedition, coal, they appeared to be extraordinarily short of, and could only give us a small quantity. So the greatest economy was used in its expenditure.

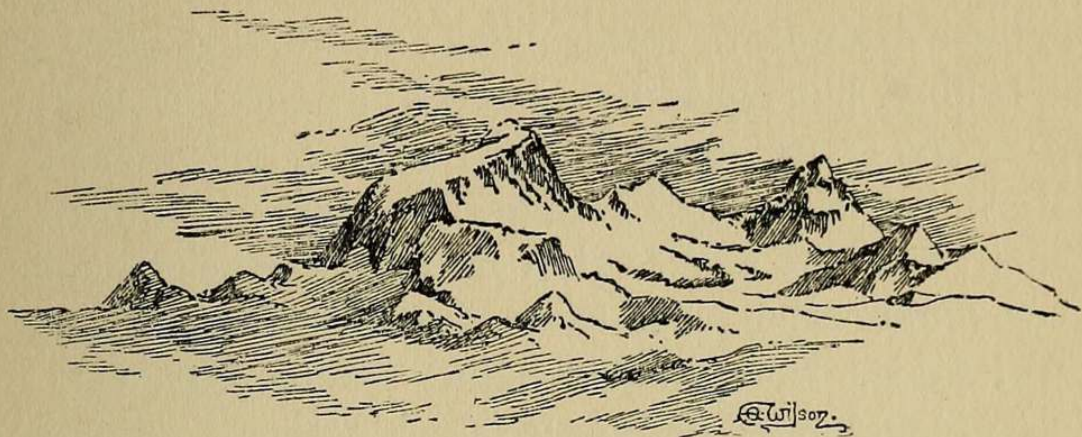
Geography was deemed the most important subject that we had to deal with; therefore the coal was reserved for geographical work to the westwards, and the lesser sciences, such as biology and terrestrial magnetism, had to suffer for our want of black diamonds.

On February 19, then, at 4.30 p.m. we steamed out of McMurdo Sound; and although we were joyful at the thought of being on our way home, it was with a feeling of regret that I, for one, looked back at the familiar mountains and landmarks that we had had in view for so long a time.

Gone was the awe with which the Western Mountains inspired me on our first acquaintance; I had fought them and conquered them. True, Mount Erebus still remained an object of mystery, but even Erebus had become as an old friend who, in spite of great size and strength, had never shown any trace of malevolence towards us.

When off Wood Bay Captain Scott signalled the

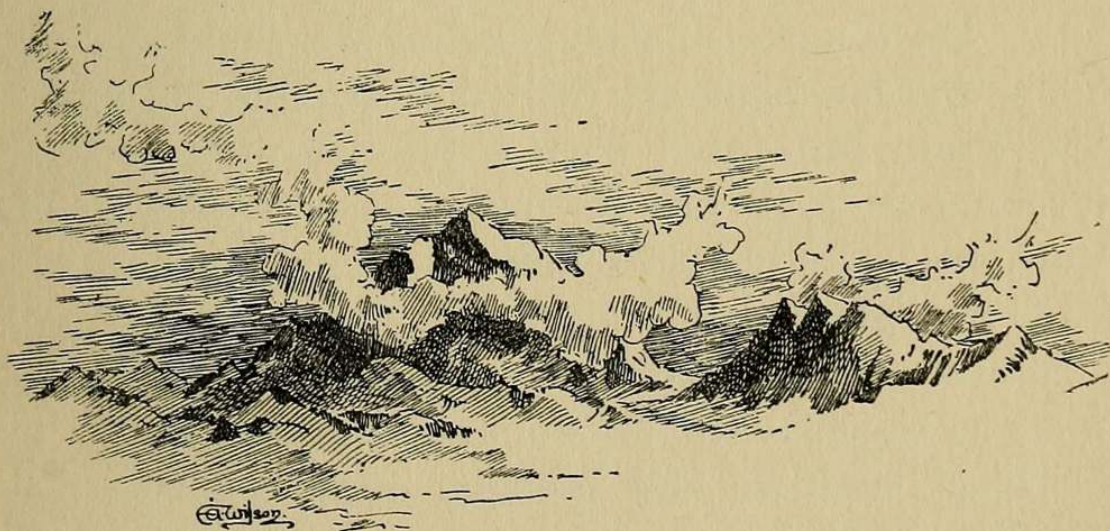
*Morning* to proceed to our rendezvous, Sarah's Bosom in the Auckland Islands. The *Terra Nova*, which was able to keep up with us, was to remain in our company,



MOUNT MINTO AND MOUNT ADARE FROM THE NORTH,  
FEBRUARY 24, 1904.

but stayed in the offing while we entered the bay to water ship and swing her for corrections of the compass, etc.

The most important business, of course, was to



MOUNT SABINE FROM THE NORTH, FEBRUARY 24, 1904.

obtain fresh water while the weather remained fine. We experienced some difficulty in finding a suitable piece of ice for our object, and, when we did so, in

being able to secure ourselves alongside it. I was in the crow's-nest, navigating her through the pack with which a great part of the bay was filled, but could not manage to lay the ship alongside the ice that the Captain desired to water from ; so he had a try from the bridge, but could not succeed, as there were really too many spurs jutting out from it underneath the water. So, instead of anchoring to the awkward lump of ice that had aggravated us for nearly an hour, we secured a smaller piece to us and carried on the work.

When we were backing and filling over the first piece of ice, I had occasion to push astern against some loose ice on one or two occasions, and the creaking and splintering sounds that came up the rudder-well first announced the fact that the rudder, massive though it was, had suffered in its conflict with the ice when in McMurdo Sound.

After we had taken in sufficient fresh water, in a solid form, for our purposes, we proceeded to swing ship. Most unfortunately, before we could complete the operation, pack-ice drifted down on us, and we were again prevented from obtaining very necessary corrections for all our magnetic observations in high Southern latitudes, this being the greater loss since I was not afforded the opportunity again.

Between our winter-quarters and Wood Bay, indeed as far as Cape Adare, we were able to keep closer in to the coast than we had been on our outward voyage, and this enabled Mulock to make an excellent running survey of the coast-line.

After leaving Wood Bay we noticed that the rudder was seriously damaged, the constant work to which it was subjected having aggravated the injury which it



had received. We accordingly made for Robertson Bay, noticing on our way that the channel between Coulman Island and the mainland was filled with ice. We passed between the Possession Islands and anchored in Robertson Bay at 4.30 p.m., the *Terra Nova* again standing off and on until we were ready to proceed. We weighed anchor at 10.50 a.m. the next morning after shipping our spare rudder—a very creditable performance on the part of Royds, Feather, and our blue-jackets.

Three days afterwards, during a thick, heavy squall, we lost sight of the *Terra Nova*. We saw her plainly as the squall came on, but when it was over there was not a trace of our companion; so we continued our voyage alone.

We were very desirous of following the coast-line north of Cape North, but the pack, which always appears to be heavy about this portion of the land, forced us out, and we set a course for the Balleny Islands, not having the coal requisite to force a passage through the ice-pack.

Early in the morning of March 2 we sighted the islands, and soon found that, most fortunately, they were clear of ice, so that we were able to pass between Buckle and Sturge Islands; and had we but been supplied with more coal, we might, I believe, have stood considerably to the south.

As it was, we continued on our course westwards, never seeing any of the land described by Wilkes. Certainly, taking it all round, the weather was not the kind in which one could see any great distance, but I am quite sure that if there had been any high land within fifteen miles of us I should have been able

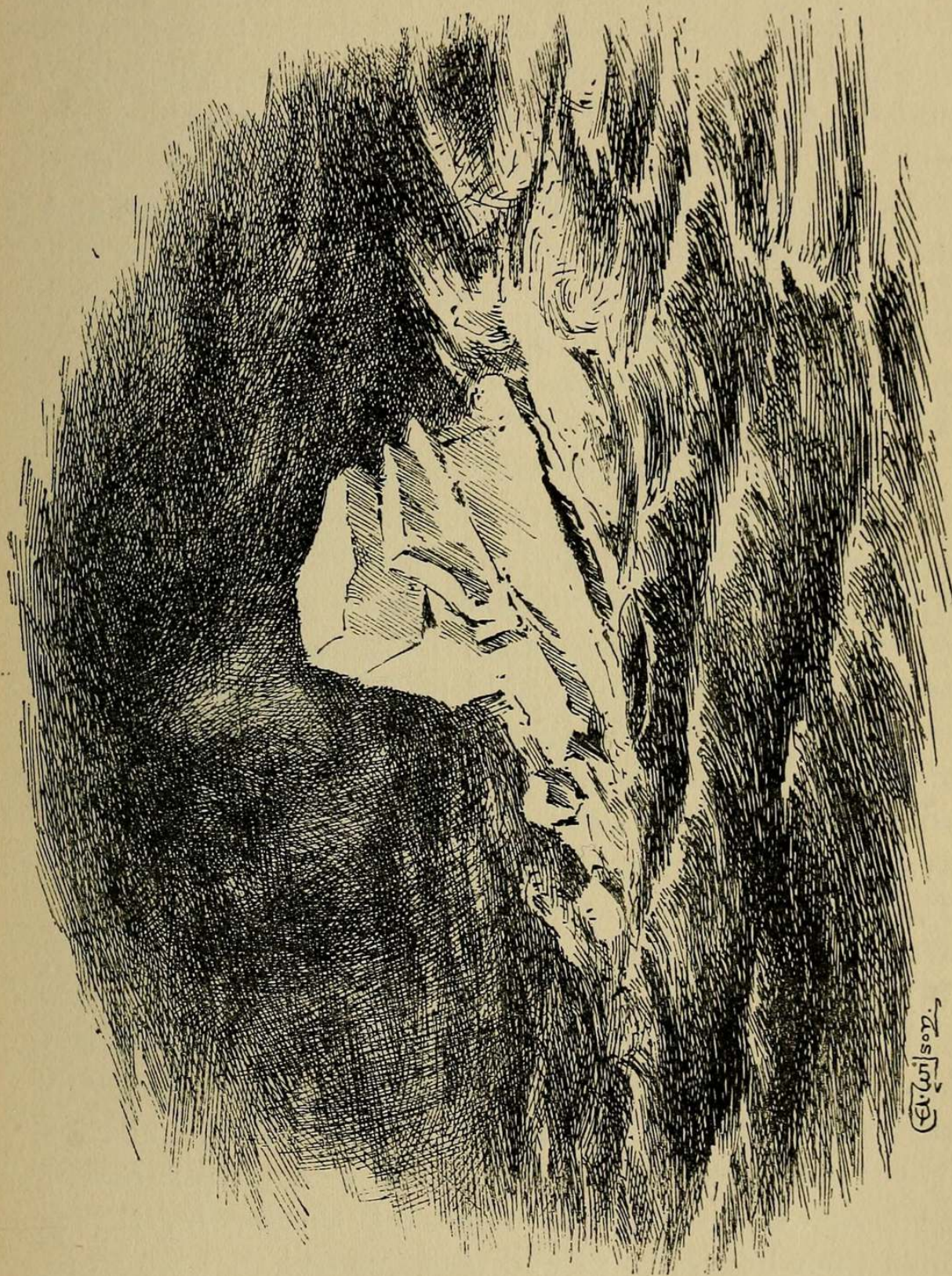
to see it from our crow's-nest on several occasions. Although we did not see land, our soundings indicated that it was not very far off, for while we were steaming to the westward we obtained soundings as follows: 256 fathoms; 354 fathoms, with yellow mud; 284 fathoms, with mud bottom; and 264 fathoms.

It was a thousand pities that we could not continue west, but Captain Scott thought it wiser, with our small stock of coal, to stand up for the Auckland Islands, where we were to meet the other two ships and make ourselves tidy for New Zealand.

There followed a succession of severe gales, which nearly drove us to leeward of our destination; but, after dodging various icebergs, the last of which we were very glad to see, we sighted the Auckland Islands on March 14, and let go our anchor in Laurie Harbour on the following day.

Then followed a delightful two weeks of rest from being tossed about on the billows of the Shrieking Sixties, which are far worse than the famous Roaring Forties. Shooting-parties were got up, and Captain Scott and Royds shot a bull—a very tender bull, too—for which an irate farmer in New Zealand afterwards sued them. Barne shot a wild pig, too, which was voted delicious.

Four days after we had arrived at Laurie Harbour the *Terra Nova* entered, and was followed on the next day by the *Morning*. We rather chaffed the '*Terra Nova's*,' for they had talked tall about their steaming and sailing qualities, saying that they could walk round us. However, they said that they had been searching for us for two days after we parted com-



A FLOATING ICEBERG.

Chapman & Co. N.Y.

pany, and had experienced tempestuous weather. The *Morning*, too, had had a bad time of it, having got to leeward and been a long way north of the islands.

There were a number of sea-lions in Laurie Harbour, and the first time that some of the *Terra Nova's* people went on shore they returned in a hurry, saying that they had been chased by animals with pig's bodies and lion's heads.

We coaled ship again from the *Terra Nova*, and watered from the shore, being able to pass a hose over our stern to a stream that soon supplied us with what we required.

The New Zealand Government's s.s. *Hinemoa* visited the islands on her periodical tour of inspection while we were there, and her people kindly gave us what papers they had and some fresh vegetables. We heard, too, of the Russo-Japanese War, and conjectured as to whether England would be drawn into it or not.

On the 29th we weighed anchor, and early in the morning of April 1 we all three entered Port Lyttelton, where we received the warmest of welcomes. Here we saw, for the first time in two years, the other sex. They appeared very strange—and good to look upon. Many of our old friends met us. One lucky man, Wilson, was met by his wife.

It is impossible for me to adequately tell of all the kindnesses that we received at Christchurch. I can only say that Lord Ranfurly set the example, and that it was followed by everyone with whom we came in contact. Long will the names of those who threw open their houses to us and made us feel that we were at home in the truest sense of the word, remain in our memories—indeed, they will never be effaced. We

were made free of the clubs, of the principal hotel (Coker's), and of the railways; the only thing that we could not do with impunity was to shoot colonizing cattle on outlying islands like the Aucklands. Most of my time was spent at the Magnetic Observatory standardizing the ship instruments, but the others were able to travel over the beautiful country, and were everywhere treated with the greatest hospitality.

Before we left Lyttelton we gave a ball to those who had been so kind to us, and at its close some 300 of us encircled the large ballroom with clasped hands, singing 'Auld Lang Syne.' It made a scene that, I am sure, we shall none of us forget.

On June 8 a small band of those with whom we had formed close friendships assembled on board the *Discovery* and *Morning*—the *Terra Nova* had sailed some days earlier—to wish us a last farewell, when, cheered away by H.M.S. *Ringarooma*, we left for home viâ the Magellan Straits, the Falkland Islands, and the Azores.

We had on the whole a fine voyage; added our anchor to a small and increasing heap of ground-tackle at Punta Arenas; spent a very pleasant week at Port Stanley, where everyone was most hospitable and kind to us; and were entertained by H.H. the Prince of Monaco on board his magnificent yacht, the *Princess Alice*, at Punta Delgada, in the Azores.

At 8 p.m. on September 8 we saw the lights of England, and a thrill went through us as we realized that we were within sight of home once more.

On the morning of September 10, three years and a month after our departure from the Solent, we entered Portsmouth Harbour amid the cheers of the

men-of-war in port. One of the first to welcome us was Sir Clements Markham, who beamed with happiness as he shook our hands, for all anxiety as to the fate of the expedition that he had organized so successfully was now ended.

The Admiralty promoted our Commander to Post-Captain, and Admiral Sir Lewis Beaumont informed the other Royal Naval officers of the expedition that their interests would be looked after.

The Royal and Royal Geographical Societies passed resolutions of praise, and forwarded us printed copies of them.

Captain Scott received two gold medals from the Royal Geographical Society, and the remainder of us were given a silver duplicate of one of them, on which was inscribed: 'Presented to Captain Robert Falcon Scott, R.N., C.V.O., F.R.G.S., for Antarctic Exploration, by the Royal Geographical Society.'

His Majesty the King conferred on our Commander the distinction of C.V.O., and by his orders a special medal for the expedition has been struck.

All of us, however, found our best reward for our voluntary exile in the service of our country when we met those who had been waiting and watching, hoping and praying and longing, through three weary years for the return of their loved ones.

Then indeed we were at home!

**A P P E N D I C E S**

APPENDIX A.—ANTARCTIC CLIMATOLOGY.  
SOME TEMPERATURE DATA.

BY LIEUTENANT ROYDS.

Month.	Discovery, 1902.			Discovery, 1903.			Cape Adare, 1899.		
	Mean.	Max.	Min.	Mean.	Max.	Min.	Mean.	Max.	Min.
January (navigable season in 1902) ...	25.9	41.5	8	24.9	39	9	33	48.9	22.5
February ...	15.8	29.2	0.8	10.9	32	-10	26.4	—	—
March ...	7.3	27.5	-13	1.8	25.5	-21	17.7	31.1	-2.5
April ...	7.5	19.8	-31	-17	5.2	-43	10.3	30	-10
May ...	-12.9	19	-39.6	-17	9.2	-52	—	23.2	-31
June ...	-16	13	-47	-16.3	17	-48	-11.8	14	-36
July ...	-8.6	15	-38	-21.5	12	-55	—	23.8	-39.9
August ...	-17	6	-50.5	-18	11.8	-54	-13.4	18.9	-43
September ...	-13	15	-44.5	-20	13.2	-59.5	-11.9	11.5	-36
October ...	-9	11	-41.8	-7.5	12	-43.8	—	19.6	-35.5
November ...	12.2	27.8	0	—	—	—	17.8	45.7	-4
December ...	23.4	39	4	—	—	—	31.8	42.2	+20
Year ...	-0.1	41.5	-50.5	-4.6*	39	-59.5	+7	48.9	-43

\* November and December of 1902 used.



## APPENDIX B.—TERRESTRIAL MAGNETISM

IN regard to terrestrial magnetism, the remarks which follow deal merely with my methods of observation. The results are in the hands of Captain Chetwynd, R.N., of the Hydrographic Department at the Admiralty, and will, I believe, be issued shortly.

The expedition was furnished with a set of magnetical instructions by Captain E. W. Creak, C.B., F.R.S., R.N.

Kew Observatory was our primary base station, and there constants for the various instruments were determined both immediately before our departure and shortly after our return. Observations were made at Simon's Town on our way out, and at our principal base station in the South—Christchurch, New Zealand. Messrs. Beatty and Morrison at the former place, and Dr. Coleridge Farr and Mr. Schey at the latter, rendered us most valuable aid. To the latter two gentlemen the expedition is specially indebted for the perseverance they displayed in its interests throughout, and I personally shall always feel grateful for the ever-ready and courteous manner in which they endeavoured to facilitate my somewhat tedious work.

A secondary base station was established in Victoria Land, where the differential instruments (variometers) were set up by Mr. Bernacchi. The instruments supplied for use on land were: Two portable unifilar magnetometers for determining the absolute horizontal force and declination; two Barrow's dip circles for determining the absolute dip or inclination, provided with two additional needles for determining the total force by Dr. Lloyd's method, and with deflection bars for determining the constant depending upon the distribution of magnetism in the two needles for force; and a self-recording apparatus or system of variometers for registering the diurnal variation in the declination, horizontal force, and vertical force (Professor Eschenhagen's system). The above were under the charge of Mr. Bernacchi, who was untiring in his zeal to make his records as valuable as possible.

There were also for shore use two small azimuth compasses

which fitted on to tripods, for use on sledge journeys, to observe the declination; one special azimuth compass, which was mounted on a tripod, for observing the declination; and half a dozen small compasses for use in directing sledging-parties, and which were interesting from having been used thirty years previously by the 1875 Arctic Expedition under Sir George Nares.

For ship observations, the instruments supplied by the Admiralty were: Two Lloyd-Creak dip circles for determining the absolute dip and relative intensity at sea or on land, which were specially designed for the expedition by Captain Creak; two Fox circles for use between stations at which the absolute values of the dip and intensity could be observed; a special Standard compass for observing the declination (variation) at sea, with special cards having periods of twenty-three and fifteen seconds respectively, the latter for use in regions of low horizontal force; a Fox compass; horizontal vibration needle, and vertical vibration needle in dip circle, for ascertaining the disturbing forces of the ship's iron at the centre of the ship's observatory or Fox position, and at the Standard compass position; and lastly a gimbal-stand, on which to mount the circles and the Fox compass, which was fixed in the centre of the ship's magnetic observatory.

Captain Scott, as well as Lieutenants Royds and Barne, had received instruction in the use of these instruments, and I also had undergone a course. At Captain Scott's request I undertook the charge of the magnetic observations at sea; Lieutenant Barne at first assisted me, but was relieved by Mr. Bernacchi when he joined us in New Zealand.

As related in the narrative, complete sets of observations were made at Simon's Town, Christchurch, our winter-quarters, and Falkland Islands.

At sea I usually made an observation for dip and total force with the Fox circle before breakfast; Bernacchi would follow suit in the forenoon; and I would use the L.-C. circle in the afternoon. Both in the morning and the afternoon, and whenever I observed the sun for position, I would obtain observations for declination (variation). Whenever opportunity offered

(all too seldom), I swung the ship for deviation of the compass at the Standard and Fox positions, the co-efficients  $\lambda$  and  $\mu$ , and the constants, being determined at the same time.

Among our instructions in the 'Antarctic Manual,' appear the words: 'It is necessary to keep the area comprised within the radius of 30 feet from the Fox position free from movable iron during magnetic observations.' This was an exceedingly difficult instruction to fulfil, but with the cordial co-operation of my brother officers I managed to do so fairly.

When the ship was constructed, the space in which the tinned provisions were to be stowed was, unfortunately, built exactly under the magnetic observatory, an oversight that rather upset my apple-cart. Occasionally, too, unconsidered trifles such as a parrot-cage, a sporting-gun, and various assortments of enamelled ironware, would be found suspended beneath my sanctum, not altogether to the benefit of the observations.

But, after all, the expedition was not organized solely for a magnetic survey, so there had to be a considerable amount of give-and-take with the other departments of science.

The L.-C. circle was my favourite, but, unfortunately, the *Discovery* was another word for perpetual motion, so that I could not use it so much as I should have liked to do; still, I have been informed that the results of the observations for inclination are very satisfactory.

The Fox circle was my *bête noire*, and the results obtained from observations made with it are not as pleasing as could be desired. Many and many a time I have scratched its back in an endeavour to make it buck up, balancing myself as best I could at the same time, with a lamp in one hand and the scratcher in the other; and it is somewhat disappointing to find that so many weary hours have been spent almost in vain.

The ship was swung off South Trinidad Island, in Simon's Bay, and at Port Lyttelton, on the way out. After we crossed the Antarctic Circle she was swung off Cape Adare, near Wood Bay, off Cape Crozier, and in McMurdo Sound before we were frozen in. On our way back to New Zealand we turned her

round each way in Wood Bay, not very successfully, however, and not again until we left the Auckland Islands.

Before we left New Zealand she was again swung, and also at the Falkland Islands. She was, of course, swung in Stokes Bay, both before leaving England and on our return there. The results are, on the whole, very satisfactory, but those wretched tins made themselves felt, especially after leaving New Zealand for Victoria Land, when apparently some considerable alteration must have taken place in their stowage.

The observations for variation have proved very good, and the results of these alone are sufficient reward for all the monotonous labour connected with magnetic observations at sea, if, as I believe they will do, they enable those who go down to the sea in ships to navigate with a greater measure of confidence and safety those waters that wash the shores of our southern possessions and South America.

#### APPENDIX C.—CLOTHING, SLEDGE EQUIPMENT, ETC.

I WAS asked by Captain Scott to undertake the job of procuring clothing and sledge equipment for the expedition. This I did, and the following list will show the amount of clothing, etc., supplied to every member of the expedition.

The men, with the exception of one or two items (blouses instead of vests, for instance) were supplied with similar clothing to the officers.

Messrs. Jaeger and Company, with their usual generosity, allowed a 40 per cent. discount on their prices. Their clothing was excellent, as were the boots, which they were particularly careful over. The same may be said of the Civil Service Supply Association, who made our outer garments under my supervision.

In regard to the sledge equipment, I should like, in the first place, to express my great indebtedness to both Dr. Nansen and Mr. Crichton-Somerville for the aid that they gave me in selecting the sledges and furs. I went over to Norway in order to select what was required, Mr. Christiansen of Christiania providing the sledges, and Mr. W. C. Möller the furs.

The sledges were made after Dr. Nansen's own design, and were as follows :

No.	Size.				Remarks.
	ft.	in.	by	ft. in.	
1	11	9	by	3 0	An experiment. Too cumbersome.
5	11	0	„	2 0	Good.
9	9	0	„	2 0	Excellent.
4	7	0	„	1 8	An experiment. Good for scientific work near the ship only.
4	11	9	„	3 0	Heavy fishermen's sledges for rough work near the ship.

The nine-foot sledges were decidedly the best for long journeys, and did wonderful work without giving way.

The whole of our furs, with the exception of a few wolf-skin suits and mits, which were specially obtained for use by the officers and scientific staff when at work near the ship, observing, etc., were of reindeer-skin. The following is the list :

Article.	Remarks.
36 Reindeer-skin suits complete.	Blouse with mits attached and without hood, wide-armed, enabling arms to be withdrawn ; trousers with flaps.
15 Wolf-skin suits.	
24 Wolf-skin caps.	Helmet-shaped.
96 Wolf-skin mits.	
132 Fur boots (Komager).	
180 Hide boots (Lanparsko).	
48 Fur boots.	Long (reaching above knee), with fur stockings inside.
20 Sleeping-bags (reindeer).	
100 Selected skins (reindeer).	To make sleeping-bags, etc.
Considerable quantity of gut, raw-hide strips, etc.	To repair sledges and furs.

Besides the above, I ordered 153 pairs of human-hair and goat's-hair socks.

I was told to provide clothing, etc., for fifty-one men, and that there was £2,000 to do it with, but that I was to be most economical and save all that I possibly could, as funds were short.

In addition, there were numerous other articles required in connection with a possible landing-party who would be separated from the main body of the expedition. If it had not been that I, fortunately, obtained the services of Messrs. Laure and Alder, the £2,000 would not have been enough. As it was, a fair sum was saved out of it. My thanks are specially due to Mr. Laure for the great interest he took in every small detail of the equipment which he supplied. He spared no pains, and his charges were surprisingly moderate. My object was to provide for every contingency, and the facts that not one member of the expedition has to regret the loss of even a little toe, and that sledging was continued on an extensive scale to the last, speak for themselves.

The following letter was addressed to each member of the expedition.

‘ NATIONAL ANTARCTIC EXPEDITION,  
‘ UNIVERSITY BUILDING,  
‘ BURLINGTON GARDENS, W.,  
‘ *April 11, 1901.*

‘ SIR,

‘ Articles of clothing, as enumerated in the attached list, will be supplied for your use in cold climates.

‘ The cloth garments are being made at the Civil Service Supply Association, Limited, Chandos Street, Strand. The woollen clothing and boots are being made by the Dr. Jaeger's Sanitary Woollen System Company, Limited, 126 Regent Street, W.

‘ You are desired to call at each of the above establishments at your earliest convenience, in order that your measurements may be taken.

‘ All fur clothing (now being made in Norway) will be supplied to you, but all light clothing required for the tropics

or elsewhere you will be required to procure at your own cost. Such light clothing can be obtained by you from the firms mentioned above at a reduced cost.

‘You should use the utmost care in the selection of your clothing and other belongings, in order to avoid a superfluity of baggage, as stowage for such can only be provided in your own cabin.

‘Yours faithfully,

‘R. F. SCOTT,

‘Commander, R.N.’

#### OFFICERS (EXECUTIVE).

##### *Outer Garments.*

- |   |  |
|---|--|
| 2 Suits, blue pilot cloth,<br>thick. Burberry's<br>covering for same. | 1 Blouse, Jaeger (sledging).<br>2 Pairs Burberry's leggings.<br>1 Oilskin. |
| 1 Pair breeches (sledging).   |  |

##### *Underclothing.*

- |                |                  |
|----------------|------------------|
| 6 Undervests.  | 4 Shirts.        |
| 6 Pairs pants. | 3 Suits pyjamas. |

##### *Caps.*

- |                     |                |
|---------------------|----------------|
| 2 Caps, winter use. | 2 Helmets.     |
| 2 Caps, summer use. | 1 Sou'-wester. |

##### *Hosiery.*

- |                    |                    |
|--------------------|--------------------|
| 12 Pairs socks.    | 3 Pairs mocassins. |
| 3 Pairs stockings. | 1 Colic belt.      |

##### *Boots.*

- |                                     |   |
|-------------------------------------|---|
| 1 Pair stout tourist-boots.         | 2 Pairs slippers.                         |
| 1 Pair extra stout Arctic<br>boots. | 1 Pair knee-boots.<br>1 Pair thigh-boots. |

##### *Sundries.*

- |                          |                                      |
|--------------------------|--------------------------------------|
| 4 Pairs shooting-gloves. | 1 Blanket.                           |
| 12 Pairs mittens.        | 1 Pillow.                            |
| 4 Pairs mits.            | 4 Pairs sleeping-socks (sledging).   |
| 3 Pairs anklets.         | 2 Pairs goggles                    ” |
| 6 Collars (woollen).     | 2 Housewives (fitted)           ”    |
| 2 Comforters.            | 1 Belt (leather)                   ” |
| 3 Cardigans.             | Necessary sledging equipment.        |
| 1 Sleeping-bag.          |                                      |

## APPENDIX D.—FOODS.

ON joining the expedition I found that little or nothing had been done towards its equipment. Dr. Koettlitz had drawn up a list of foods, etc., that would be required, and this, with some modifications by the Food Committee, was adopted. Dr. Koettlitz had aimed at procuring as great a variety of foods as possible, judging most rightly from his three years' Arctic experience that such was essential.

The great mistake made was to take tinned meats from England when such excellent preserved provisions are obtainable in New Zealand; the same remark applies to the butter. Indeed, there was no necessity to take a great quantity of tinned meats, when we could have obtained fresh frozen mutton at little or no expense.

The following is the list of provisions as drawn up by Dr. Koettlitz :

FOOD LIST FOR THREE YEARS, WITH QUANTITIES  
AND COST, FOR FORTY-SIX MEN.

MEATS (THREE-QUARTERS OF A POUND PER MAN DAILY).

	lb.		lb.
Roast beef ... ..	3,000	Sliced bacon ... ..	500
Boiled beef ... ..	3,000	Mock turtle stew ...	500
Corned beef ... ..	2,100	Haricot mutton ... ..	250
Boiled mutton ... ..	2,400	Roast turkey ... ..	500
Roast mutton ... ..	2,400	Salt pork ... ..	800
Compressed mutton ...	1,300	Salt beef ... ..	800
Roast and stewed kid-		Pork cutlets with sauce	250
ney ... ..	750	Duck and green peas	500
Roast veal ... ..	900	Mutton cutlets ... ..	250
Rump-steaks ... ..	1,500	Veal and tomato sauce	250
Brawn ... ..	1,500	Jugged and stewed	
Lunch tongues ... ..	1,500	hare... ..	150
Hams (York) ... ..	2,000	Roast pheasant ... ..	150
Minced collops ... ..	600	Bacon rations ... ..	750
Dried minced beef ...	600	Curried fowl, rabbit,	
Beef carbonate ... ..	750	lobster, prawns ... ..	500
Fricadelles ... ..	540	Tripe and onions ... ..	250
Rabbit ... ..	750	Roast porridge ... ..	250
Boiled chicken ... ..	750	Roast lamb and green	
Roast chicken ... ..	750	peas ... ..	250
Bacon ... ..	1,000		



## FLOUR, BISCUITS, PEAS, BEANS, ETC.

	lb.		lb.
Flour ... ..	42,000	Rice ... ..	2,200
Cabin biscuits ...	16,000	Tapioca ... ..	600
Extra Navy biscuits (5,000 meal) ...	20,000	Sago ... ..	600
Split peas ... ..	3,300	Hominy ... ..	450
Haricot beans ...	3,300	Cornflour ... ..	360
Lentils ... ..	1,600	Semolina ... ..	300
Oatmeal (pinhead) ...	4,000	Blue peas ... ..	500
Quaker oats (twenty- five cases) ...	2,000	Macaroni ... ..	400
Pearl barley ... ..	1,700	Vermicelli ... ..	200
		Custard-powder ...	230

## PEPPER, MUSTARD, SPICES.

	lb.		lb.
Malt ... ..	150	X.D. spice ... ..	56
Hops ... ..	20	Nutmeg ... ..	20
Black pepper ...	120	Cloves ... ..	14
White pepper ...	112	Cinnamon ... ..	14
Mustard ... ..	216	Ginger ... ..	14
Salt ... ..	2,000	Assorted essence (pots)	96
Baking-powder ...	240	Egg-powder ... ..	200
Curry-powder ...	112	Egg (O.V.O.)... ..	224

## BUTTER, LARD, MARGARINE, JAMS.

	lb.		lb.
Butter ... ..	5,000	Assorted jams (2 lb. tins—cabin) ...	1,000
Nestlé's milk ...	2,500	Assorted jams (7 lb. tins—crew) ...	3,000
Viking milk ...	2,500	Marmalade (7 lb. tins —crew) ... ..	2,000
Demerara sugar ...	10,000	Marmalade (2 lb. tins —cabin) ... ..	500
Lump sugar ... ..	3,000	Assorted jellies ...	250
Hugon's suet (Atoria)	1,500		
Lard ... ..	500		
Margarine ... ..	1,500		
Californian honey ...	1,500		

## SOUPS.

	lb.		lb.
Maggi* ... ..	180	Kidney ... ..	500
Consolidated* ...	300	Julienne ... ..	600
Erbson Wurst Knorrs*	423	Tomato ... ..	300
Lazenby, assorted* ...	180	Gravy ... ..	100
Soup bouilli... ..	500	Hotch-potch ... ..	100
Mock turtle... ..	500	Cressy... ..	100
Oxtail ... ..	450	Giblet... ..	100
Mulligatawny ... ..	420	Cockie-leekie ... ..	100

\* Concentrated, half-ounce daily.

## PICKLES AND SAUCES.

1,200 Bottles assorted pickles.	56 Pounds celery seed.
200 Gallon jars assorted pickles (crew).	84 Pounds sweet herbs.
250 Gallons vinegar.	2 Dozen pints raspberry and black currant vinegar.
600 Pounds assorted sauces.	
10 Gallons wild-cherry sauce.	

## CONCENTRATED FOODS.

Chocolate foods	...	lb.	150	Protene	...	...	lb.	150
Pemmican	...	...	750	Dried pemmican	...	...	300	
Plasmon	...	...	225	Plasmon chocolate	...	...	150	
Somatose	...	...	75	Plasmon cocoa	...	...	150	
Tropon	...	...	150	Serin pulver	...	...	150	

Emergency rations.

## DRIED FRUITS AND PRESERVED FRUITS.

Apple-rings	...	...	lb.	600	Rhubarb, gooseberries, cranberries, apples, red and black currants, blackberries, cherries, raspberries, greengages, plums, damsons, pineapple chunks *	6,000	lb.
Pippins	...	...	600				
Apricots	...	...	600				
Peaches	...	...	600				
Pears	...	...	600				
Prunes	...	...	600				

## VEGETABLES.

Preserved potatoes	...	lb.	5,000	Preserved petit peas	...	lb.	400
Preserved beetroot	...	...	300	Tomatoes	...	...	250
Preserved carrots	...	...	450	Artichokes	...	...	100
Preserved parsnips	...	...	300	Asparagus	...	...	100
Preserved onions	...	...	450	Broad beans	...	...	100
Preserved spinach	...	...	300	Brussels-sprouts	...	...	200
Preserved cauliflower	...	...	300	Celery in juice	...	...	100
Preserved haricots verts	...	...	300	Horse-radish	...	...	56

\* In air-tight bottles.

## CHEESE (DUTCH AND 'CREASES').

							lb.
Assorted	...	...	...	...	...	...	5,550
Stilton	...	...	...	...	...	...	500

## FISH.

			lb.				lb.
Sardines	...	...	500	Fish pudding	...	...	500
Sardines and tomatoes	...	...	500	Cod roe	...	...	450
Bloaters	...	...	250	Anchovies	...	...	250
Haddocks	...	...	600	Salt cod	...	...	300
Fresh herrings	...	...	250	Fresh soles	...	...	150
Fresh cod	...	...	450	Halibut	...	...	200
Fresh turbot	...	...	450	Garnets	...	...	250
Fresh salmon	...	...	500	Plaice	...	...	250
Fresh prawns	...	...	300				

## MEDICAL COMFORTS.

			gals.				gals.
Brandy	...	...	27	Nestlé's and Viking milk	...	...	576
Whisky	...	...	27	Plasmon	...	...	150
Port wine	...	...	60	Somatose	...	...	75
Sherry	...	...	36	Devonshire cream	...	...	75
Real turtle soup	...	...	75	Carragheen	..	...	168
Mutton broth	...	...	150	Seltzogene	...	...	6
Chicken broth	...	...	150	Seltzogene powders	...	...	108
Beef essence	...	...	45	Viol	...	...	25
Arrowroot	...	...	90	Champagne.			

## BONDED LIST.

## TEAS, COFFEE, COCOA.

			lb.				lb.
Cabin tea	...	...	1,000	Currants	...	...	900
Crew tea	...	...	1,800	Muscateles	...	...	56
Cabin coffee	...	...	1,000	Tobacco — navy leaf,			
Crew coffee	...	...	1,800	plug, log cabin	...	...	1,800
Mexican chocolate	...	...	2,500				
Cocoa	...	...	1,000	Rum (gals.)	...	...	800
Raisins	...	...	900	Lime-juice (gals.)	...	...	156
Sultanas	...	...	600	Sealed figs (quarts)	...	...	96

## ESTIMATED COST OF PROVISIONS FOR THREE YEARS.

	£	s.	d.
Meats, etc. ... ..	1,250	0	0
Flour, bread, peas, beans ... ..	792	0	0
Pickles, sauces, etc. ... ..	70	12	0
Mustard, pepper, spices ... ..	91	5	0
Fruits, etc. ... ..	238	0	0
Teas, coffee, currants, raisins, etc. ... ..	530	0	0
Rum ... ..	120	0	0
Tobacco ... ..	103	0	0
Lime-juice ... ..	46	16	0
Vegetables ... ..	300	0	0
Fish ... ..	276	0	0
Soups ... ..	170	0	0
Cheese ... ..	225	0	0
Butter ... ..	300	0	0
Milk ... ..	98	0	0
116 cwt. sugar ... ..	95	14	0
Lard, margarine, suet ... ..	87	10	0
Honey ... ..	43	0	0
Cabin jam ... ..	29	3	0
Crew jam ... ..	37	10	0
Marmalade ... ..	33	10	0
Assorted jellies ... ..	9	0	0
<b>Total</b> ... ..	<b>4,946</b>	<b>0</b>	<b>0</b>





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