

however, not found to be a good plan to play on the day after a rough night crossing.

The Boxing Competition was a great success. The entries were, as usual, very numerous, and the various bouts were fought out with great spirit and determination. It was a considerable advantage to have a referee for the finals with the expert knowledge of the noble art as possessed by Captain R. S. Hume, and his presence and services were very much appreciated by all concerned.

Speaking generally, the Term was conspicuous for happy relations all round, and Swanson is to be congratulated on the successful performance of his duties as Chief Cadet Captain. He was ably supported by his fellow Cadet Captains.

THE NEW EXPEDITION TO ANTARCTICA.

SPECIALLY DESCRIBED AND ILLUSTRATED
FOR "THE SPHERE,"

And re-printed by kind permission of the Proprietors.

Mr. J. Lachlan Cope, B.A. (Cantab), F.R.G.S., who accompanied the last Shackleton Expedition as Surgeon and Biologist to the Ross Sea party, proposes to lead an expedition to the Antarctic this year for the purpose of further geographical and scientific exploration in these regions, and the "Conway" is particularly interested as an Old Boy, P. S. Campbell, has been appointed to the Command of the Ship. Lieut. Campbell left the Ship in 1911, after being on board for four years and one Term. His apprenticeship, which was completed in 1914, was served in sail, and at the commencement of the War he joined up for Active Service at Midshipman, R.N.R. He was among the first R.N.R. Midshipmen to transfer to the R.N., and subsequently saw much service in Destroyers, and was promoted Lieutenant.

The expedition will leave this country in June of this year in Captain Scott's old ship,

the "Terra Nova," and will proceed to Wellington, which will be the last base in civilisation. After a brief stay there, the "Terra Nova," with the total complement of the expedition, will proceed south, calling first at Macquarie Island for the purpose of carrying out a geographical and geological survey of this island. From there she will proceed to Scott Island, where three men will be landed, and a small, specially-constructed hut erected. These men will remain here for one year, and will carry out meteorological research. From Scott Island the vessel, entering the Ross Sea, proceeds to New Harbour, which is situated



LIEUT. PATRICK CAMPBELL, R.N.,
Captain of the expedition ship "Terra Nova."

in the foothills of the Western Mountains, between Ferrar and Taylor Glaciers. Here the main hut will be erected. This having been accomplished, six men will be taken from the shore party on board the ship to Cape Crozier on Ross Island. Another small hut will be erected, and three of these men will remain till the following year to study the conditions under which the Emperor penguin breeds and the meteorological conditions—work commenced by the late Captain Scott. The other three men, with a portable hut, will proceed as far south as practicable over the

Great Ice Barrier, where they will spend a winter studying the meteorological conditions. This is a piece of work never before attempted, and the results should be extremely valuable, as the conditions are unaffected by land masses and oceanic influences.

On board the ship an aeroplane will be carried, and during the month of December, if the weather permits, an attempt to fly to the Pole will be made. It will not be possible to make a non-stop journey, as the load the machine will have to carry (beside petrol and three men, it will include photographic gear, a sledge, and provisions for one month) will not allow her to rise sufficiently to cross the great range of mountains which blocks the way from the Barrier surface to the polar plateau. Therefore, prior to reaching the Axel Heiberg Glacier, a depot of petrol will have to be made, and the machine, thus lightened, will be able to rise over the mountains, and so to the Pole—and on the return journey she will again alight at this depot to pick up the fuel and return to the ship. If, however, weather conditions do not allow an attempt to be made at that time, the flight will be postponed until the following year.

After this, the ship will proceed back to Wellington, where she will provision for four years. Leaving Wellington early next year, she will proceed to Scott Island and take on board the three men left there the previous year, then to Cape Crozier, where she will pick up the six men stationed there (the three men from the Barrier having returned to Cape Crozier by this time), and from there to New Harbour, where these nine men will be returned to the shore party. It is at this time that in the event of the Pole flight having been postponed the previous year, a new attempt will be made.

After leaving final instructions at New Harbour, the ship will proceed on her task of circumnavigating the continent, and throughout the expedition thorough oceanographical investigations are to be carried out, besides surveying and charting the interior.

It is hoped that the ship will get to Cape Ann by February, 1922, where she will winter, and here, in the following summer, the aeroplane is to be used for surveying the interior of the continent by means of photographs taken from the air. In this way large tracts of country will be charted in a single season. Further, throughout the trip, the localities and migra-

tions of whales are to be studied with a view to adding further knowledge to the whaling interests which at present exist in the Antarctic.

When the ship is freed from the ice she will proceed to Coats Land, where further survey will be carried out. She will not attempt to penetrate the Weddell Sea, but will probably make for the Falkland Islands, where she will winter. In the following summer (1923) the cruise will be resumed, and passing the South Orkneys and South Shetlands, Graham Land will be reached and the coast followed up to Charcot Land.

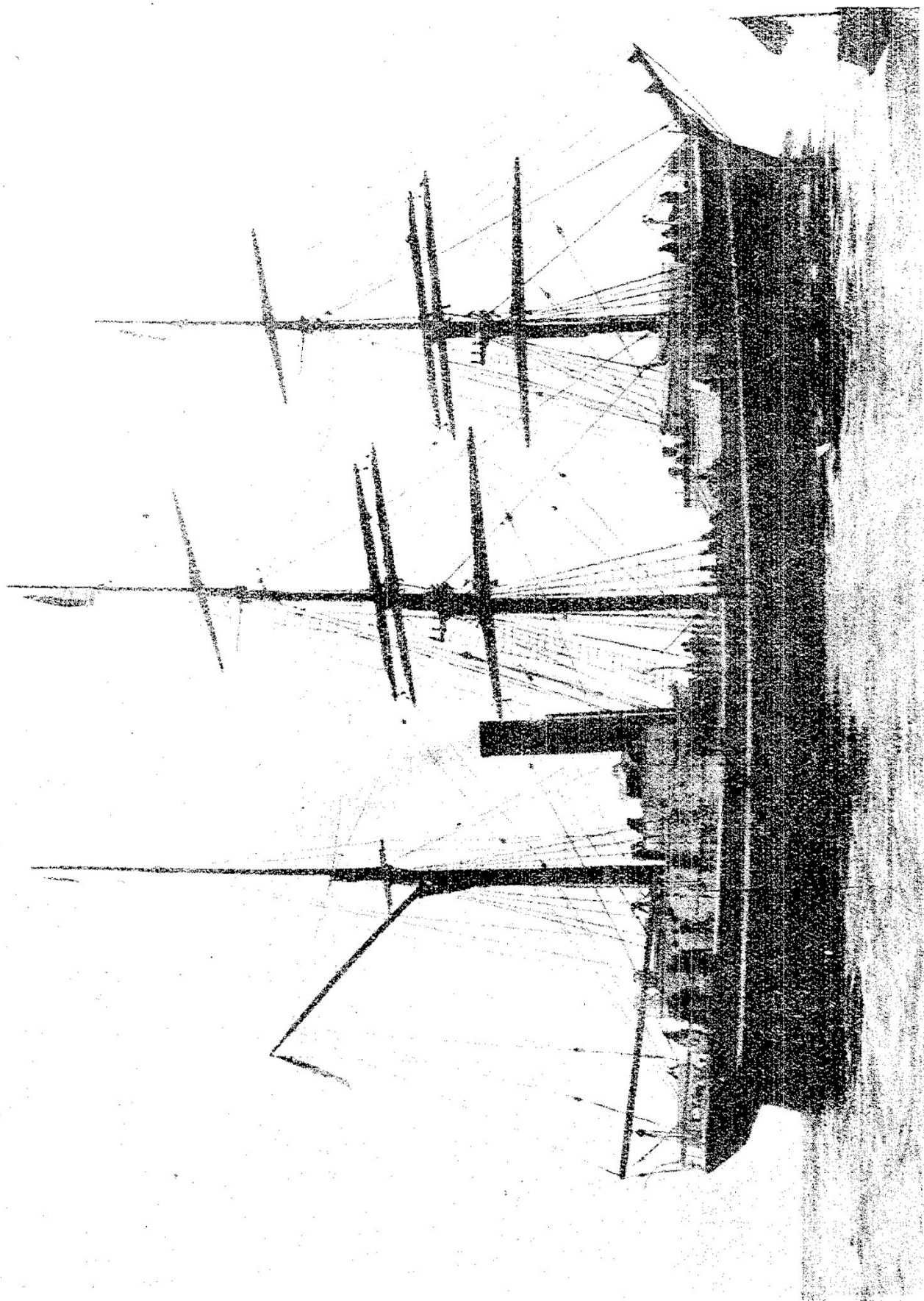
INTO UNKNOWN TERRITORY.

From here onwards, until the ship gets to King Edward's Land, as at present known, the course of the vessel cannot be described, as one is there passing through an area unknown. Finally, the vessel will enter the Ross Sea again, and running along the Barrier edge, she will round Cape Crozier and, crossing the McMurdo Sound, finally reach New Harbour, where the shore party, whose labours of geological research in the Western Mountains will have ended, will be taken on board. The ship will then proceed to Wellington, reaching her destination about February, 1926.

PLANS FOR THE PROPULSION AND SAFETY OF THE EXPEDITION'S SHIP, THE "TERRA NOVA."

Whilst every polar expedition of the past has done invaluable work, and each has added its quota to the sum of human knowledge and achievement, it may safely be said that the British Imperial Antarctic Expedition, having very little that may be called sensational in its programme, will appeal very much to that vast number who ask, "What is the use of polar expeditions?" and who deprecate a "pole-finding stunt." Its object is solid work—nothing less than a fairly thorough geographical and geological survey of Antarctica being but a portion of what its leader and those associated with him hope to accomplish.

"This is an ambitious programme—but ambition, with objects such as these, is essential; and to those who, agreeing with this, still hold that our programme is too large, we would point out that the poles, geographical and magnetic, have been located;



Reproduced by kind permission of the "Sphero."

BROADSIDE VIEW OF THE "TERRA NOVA."

certain isolated portions of Antarctica have been surveyed: and valuable minerals have been discovered; but, before the Empire can exploit and benefit materially by the resources (known and unknown) of Antarctica, a preliminary and fairly complete general survey, such as ours will be, is essential.

"The resources of Antarctica belong to the British Empire by reason of the achievements, strivings, and endurance—even unto death—of her sons. Every resource that is hers must be developed and utilized to assist her endeavour towards well-being and prosperity.

"In its effort to link up the work done by Scott, Shackleton, Mawson, and other deservedly famous explorers, and to fill up the great blank spaces, this expedition will avail itself of much that is new as an aid to exploration, and from which we hope for great results.

"The production of maps from aerial photographs has been brought to a fine art during the Great War, and it is our intention to exploit this means of rapid survey to the uttermost. A gyroscopic compass will be taken, and by its help we will obtain most accurate and valuable knowledge of the magnetic conditions surrounding Antarctica during our circumnavigation.

"When the vessel is fast in pack ice, it is intended to utilise telescopic masts (stayed to deck as far for'd and aft as possible, or even erected on the ice); by means of them we shall secure a far greater wireless range than is possible on an aerial extending from foremast to mizen-mast only. The most valuable feature of this is that we shall be able to receive time signals during portions of the circumnavigation, and so make possible the charting of our surveys with absolute accuracy.

"The circumnavigation of Antarctica is a task which will take from four to five years, and the fitting out of a vessel in such a way that there are reasonable hopes she will be able to carry this out has been a most interesting task. Deciding factors in the choice of a vessel are, firstly, the suitability of the ships available, and, secondly the amount one may spend on her. The 'Terra Nova' having been selected, it was determined to make her roomy enough so that she might leave for the south without the usual collection of deck houses, and deck cargo, which has been a source of anxiety, discomfort, and loss to former expeditions.

She will therefore be converted practically to a flush-deck ship by fitting a new deck over her present well deck, extending from the fore'st head to the poop.

"The 'Terra Nova's' ancient and venerable propelling equipment consists of a coal-burning boiler and compound engines, and whilst this would suffice for a return voyage from New Zealand to the Antarctic, it is out of the question for a circumnavigation voyage lasting four or five years. We intend, therefore, to instal oil engines for propelling and all auxiliary services.

"As we shall be isolated from the resources of civilisation for so long (and for other reasons), our oil engines are to be of the simplest—namely, a two-stroke surface ignition engine of about 320 b.h.p., and the particular engine taken will be selected on the result of tests in a cold chamber. The main engines will have to work readily in temperatures down to -25 deg. F., and auxiliary engines (driving lighting and wireless dynamos) must work at temperatures down to -45 deg. F.; in this connection it has been decided to use our fuel (kerosene) in our cylinder jackets for cooling purposes from the time we leave New Zealand.

"It is intended to have wireless and lighting dynamos, and engines driving them, in duplicate, also to duplicate the main engine auxiliaries and engines driving them. At will, either of these engines will actuate a line of shafting (carried through our 'tween decks), from which vertical drives are led to winches and windlass.

"In view of the probability of the vessel being severely strained by ice pressure, it is intended to divide her by four water-tight bulkheads, and to each of the four engines driving auxiliaries an emergency salvage pump will be coupled if necessary. Lastly, access to the bilge pipes for clearing, and to prevent their being frozen into bilge water, will be allowed for. The vessel's chances of winning through in such circumstances are thus vastly increased; and it is noteworthy, too, that every oil tank emptied becomes a valuable addition to her buoyancy."

BIRTH.

TETHER.—On December 18th last, to Major and Mrs. Tether, a daughter.