

## MAY.

The usual monthly meeting of the members of the Royal Society was held at the Museum on Monday, May 7, when the chair was occupied by the Hon. C. H. Grant, M.L.C.

Apologies were read from His Excellency the Governor and Mr. J. Barnard, vice-president, for non-attendance. The Secretary said it would be interesting to know that it was just 53 years this week since Mr. James Barnard, its senior vice-president, was elected to membership, his nomination being seconded by Sir John Franklin. With the exception of the period when he was visiting England, Mr. Barnard had seldom missed a meeting of the Council or the monthly gatherings during his more than half century of membership.

## ANTARCTIC EXPLORATION.

Mr. A. MAULT read a paper on Antarctic Exploration. The subject, he said, was no new one for the Society, as its founder was the hero of Arctic research, and one of its Fellows a distinguished explorer of the Antarctic world. Detailing Sir James Ross' account of a storm he encountered in the ice in 1842, the lecturer urged the great advantage it would be in all future explorations to have steam instead of sailing vessels engaged in the work. The most important work had been done by Weddell in 1823, and Ross in 1841 and 1842. Weddell crossed the deep basin of the South Atlantic, and had fairly open water. Ross' track took him across no such deep basin, but he also found what the former experienced, the warm underlying current of water, which had a temperature of 39deg. at 1,000 fathoms, against 30 for the surface. At his farthest south, Ross found the warm water at the surface with a temperature of 32deg. against an atmospheric temperature of 27deg., and a sea bottom temperature at 250 fathoms of 33deg. The open sea to be met with in the south was held to be largely due to the existence of a line of seismic and volcanic action extending from New Zealand to Mount Erebus. The knowledge of the Arctic region was of little value in predication of the Antarctic conditions, the difference between the two, especially in regard to meteorology, being entirely and unaccountably different. The barometric pressure, for instance, was much less in the south than in the north by about half an inch of mercury. Then the Arctic region had a summer, but there was none in the Antarctic so far as was known. The variations of the thermometer were also very slight in the Southern Polar district. He quoted largely from papers read before the Royal Geographical Societies, and concluded by urging the advisability of prosecuting further researches in the Antarctic regions. Commercially speaking he left to others, although he felt that commerce always followed thorough scientific exploration. But the scientific interests were so important as to fully justify their being regarded as of such national concern as to require a special expedition. Tasmania in particular was interested in the matter of terrestrial magnetism observations, and he hoped that renewed attention would be given to the matter. His own opinion was that the exploration should be carried out by the Royal Navy, and if it were done then one of the vessels of the Australian squadron might very well be allowed to take part in it.

Captain PASCOE CRAWFORD, R.N., said he was very interested in the paper and the subject matter, and quite concurred in the opinion that the work of Antarctic exploration should be carried out by the Royal Navy. There was a great deal to be done in the matter. In previous expeditions the ocean currents had been observed, and the result of the observations was of great value, but there was still a mass of evidence to be collected on the subject. As regards Tasmania and Australia, fresh and more elaborate information on the currents would be of much value meteorologically.



Mr. MORTON said Dr. Murray, one of the members of the scientific staff that was on board the Challenger expedition, had recently read a paper before the Scottish Geographical Society entitled "Notes on an Important Geographical Discovery in the Antarctic regions." Dr. Murray stated that the most interesting discovery made by the whalers who last season visited the Antarctic Seas to the south of Cape Horn was that of the Norwegian schooner Jason, under the command of Captain Larsen. During a short visit to the shores of Seymour Island Captain Larsen picked up a good many fossils, which had fallen from a decomposing cliff. Some of these fossils were procured by Dr. Donald, and on critical examination they turned out to be specimens of *Cucullæa*, *Cytherea*, and *Natica mollusca*, similar to those found at Table Cape of the Tertiary period, together with some pieces of a coniferous tree. These fossils, Dr. Murray writes, are probably of lower Tertiary age, and indicate a warmer climate than now prevails in these high southern latitudes. Captain Larsen, Dr. Murray says, has again made a voyage in the Jason to the same waters as last year, and has made some highly important geographical discoveries—the most important made in the Antarctic regions since the time of Captain Ross in the voyage of the Erebus and Terror. In 1843 Ross spent nearly the whole season in attempts to penetrate the ice to the south and east of Louis Philippe and Jourville Land. Last year the Scotch and Norwegian whalers found the sea blocked in the same position. Captain Larsen this year found a comparatively open sea, and was able to proceed a considerable distance within the Antarctic Circle to the south of Louis Phillipe Island. Dr. Murray, in his able paper, states that statements with reference to currents show that they come from the south. Although the barometer is relatively low, as in the case of all the observations in these latitudes, still there is often bright weather, especially when the wind is from the south. So far as they go, Dr. Murray says these observations of Captain Larsen confirm the view that there is a large anti-cyclonic region overlying the Antarctic Continent. In a paper I read before this Society in 1890, entitled "What Science and Commerce may gain from an Antarctic Expedition," I said that until we know all that can be discovered as to the limit of pack ice, the extent of the Antarctic Continent, the influence of Mount Erebus, the distribution of flora and fauna, and the probabilities of successful whale fishing, there will be enough to gain, either from a commercial or scientific point of view, to make it worth while to send an expedition to the Antarctic regions. Further, I suggested that England and Australasia should unite in sending an expedition so equipped and manned that failure, if not impossible, should at least be unlikely. As far back as 1865, in a paper read before the Royal Geographical Society of England by Captain Sherard Osborne, R.N., C.B., an eminent authority on the Polar regions, said, "an exploration of the Polar area should always be sent under naval auspices and naval discipline. The navy of England cries not for mere war to gratify its desire for honourable employment or fame, there are other achievements it knows well as victorious battle. Upon these points, as well as those of scientific results, it would not be too much to ask for a fraction of the vast sum yearly sunk in naval expenditure for two small screw vessels and 120 officers and men, out of the 50,000 men annually placed at the disposal of the Admiralty." In a letter written by that noble lady, the late Lady Franklin, dated Madrid, April 6, 1865, the following passage occurs:—"For the credit and honour of England, the exploration of the North Pole should not be left to any other country. It is the birthright and just inheritance of those who have gone through 15 years of toil and risk in Arctic seas. The glory that yet remains to be gathered should be theirs." I think we may very safely add the words, Antarctic exploration. Dr. Murray con-



cludes his very interesting paper as follows:—"The excursion of this small sealing schooner shows what large additions might in a short time be made to our geographical knowledge by a properly equipped expedition provided with steam power. If our Government would send for a British expedition, as is now being proposed, almost every branch of natural science would be enriched. Such an expedition must be accompanied by scientific men, and be fitted with all the apparatus of scientific investigations, or otherwise the expenditure and risk would hardly be justified. To determine the extent and nature of the land making up the Antarctic Continent, to penetrate into the interior of this continent, to ascertain the depth and condition of the ice cap, to take magnetic and meteorological observations on sea and land, to sound the ocean, to ascertain the temperature of ocean waters at all depths, to trawl up the animals on the sea floor, and to study the nature of the marine deposits; all this would be the work of a modern British Antarctic expedition. It is earnestly demanded by the science of our day, and should be undertaken by the Royal Navy in the same way as the expeditions of Cook, of Ross, and of the Challenger. It is to be hoped that the scientific societies and the general public will soon urge this matter on the attention of our Government. It is evidently our duty to undertake this kind of work as in the past. If we do not do so, then it is good evidence that the present generation takes little interest in conquests over the powers of nature, and is little concerned in maintaining the maritime position and scientific reputation of this great empire."

With Dr. Murray's paper is an extract from the Jason's Journal, from November 15, 1893, to December 14 of the same year. Captain Larsen gives the weather from calm and sunshine to good strong northerly and westerly winds. They saw and captured several seals, saw what they describe many blue whales and grampuses. On the 6th December he describes the weather as having been nice and warm, also saw many birds and some small fish with large eyes.

Mr. R. M. JOHNSTON also concurred in the necessity of the Royal Navy undertaking the work of exploration in the Antarctic Seas. There were many problems to solve, especially in regard to the existence of pre-glacial vegetation in the regions as had been found in the Arctic sphere. It would be of very great scientific interest, and although it was to be feared that local governments might not be inclined to undertake the work for a year or so, still he hoped that it would not be long before such an expedition set out either from the shores of Tasmania or Australia.

The SECRETARY (Mr. Morton) submitted a paper prepared by Mr. George Hogben upon "Tasmanian Earthquakes [of 1892," which was read.