

Advertiser, March 27/1911.

## ANTARCTIC EXPLORATION.

### PROFESSOR DAVID'S RETURN.

#### FUTURE PROBLEMS DISCUSSED.

Professor T. W. David, one of the members of Sir Ernest Shackleton's expedition to the Antarctic, was a passenger by the R.M.S. Orvieta, which reached the Outer Harbor on Saturday from England. His visit to London was to make arrangements for the publication of the geological and mineralogical results of that expedition, and when he left England satisfactory arrangements were being concluded. The manuscript and plates had been handed into the publishers (Messrs. Heinemann and Co.), who had the publication of the narrative of the Shackleton expedition in the book termed "The Heart of the Antarctic." Professor David, who was looking exceedingly well, was met at the Outer Harbor by Professor Henderson and Mr. W. Howchin, of the Adelaide University, and, accompanied by them, he visited the city. When interviewed by a representative of "The Advertiser" he expressed himself as well satisfied with the result of his trip, and spoke hopefully of the future of Antarctic exploration.

"While in England," he said, "I delivered lectures at the Universities of Cambridge and Oxford, at Bristol, and Cardiff, and before the Geological Society of London and the Royal Geographical Society. Antarctic matters were also discussed at the Royal Society and at the Meteorological Office. At the latter discussion Dr. Shaw, the head of the British Meteorological Office, raised the question whether, after all, there was any general circulation of the atmosphere from the direction of the equator to the South Pole between the limit of what is called the southern anti-cyclone belt and the south geographic pole. The latter belt is usually situated almost centrally, rather than from east to west, across Australia, and dominates the Australian weather. Dr. Shaw suggested that instead of high level currents of air from over Australia to the South Pole, with a return surface current back from the pole towards Australia, there might be a concertina-like movement of the whole atmosphere, alternately flowing polewards for a time and then back from the pole towards Australia. The evidence adduced showed that in the Mount Erebus region of the Antarctic undoubtedly nearest to Australia there is undoubtedly a steady and strong circulation. For example, the great steam cloud on Mount Erebus is constantly being dragged out in an enormous white streamer pointing towards the north-east, showing that a powerful high-level current is flowing back from the pole towards New Zealand and Australia. Above this, again, is another great current flowing at right angles to the former, and coming from the north-west, namely, from the warmer regions towards the south-east, or colder regions situated near the pole.

"On the return of the Nimrod at the end of February, 1908, from Mount Erebus to New Zealand, the ship left towards the close of a blizzard, and, contrary to all expectations, it was found that this blizzard wind blew strongly from the south, and carried her all the way, as on a strong fair wind, to Lyttelton. It seemed incredible that such an air current should cross what is called the 'Roaring Forties' where the dominant winds blow strongly from the west. Dr. Shaw explained that the intensely cold heavy masses of air, such as form the Antarctic blizzard, may be capable of displacing the lighter westerly winds of the 'Roaring Forties,' vertically hoisting them, so to speak, over their shoulders, and forcing their way beneath them, so that eventually these blizzard winds impinge on the shores of Australasia.

"The greatest interest was evinced amongst scientific men in the old country on the subject of recent developments in Antarctic meteorology, and it is hoped that Captain Scott's expedition and that projected by Dr. Mawson will materially add to our knowledge on this subject and prove of great scientific value, as well as being economically important. Considerable interest was also shown in the discoveries in the Antarctic of the fossils so well known in the South Australian limestone. Large collections of these fossils, gathered by Mr. W. Howchin, of the Adelaide University, were placed in the hands of Mr. T. Griffiths Taylor for description, and recently Mr. Taylor, who is now senior geologist in Captain Scott's expedition, published an able memorandum on this subject published by the

Royal Society of South Australia. The limestones of the Antarctic were handed to Mr. Taylor after the discovery of these fossils, known as archæocyathina, and he has written an interesting chapter to the geological memoirs, now in the press, on this subject. These fossils are interesting links between the important groups of sponges on the one hand and the corals on the other. It is of great scientific interest to find the same varieties of fossils present in the Cambrian limestones of South Australia and those of the Antarctic, the latter only 300 geographical miles from the South Pole itself. Mr. Taylor will undoubtedly be able to make important additional collections of these fossils.

"In regard to the south magnetic pole, the general results obtained by Dr. Mawson on the occasion when with Dr. Mackay and me he reached and located the magnetic pole seem to point to the fact that the magnetic pole has moved about 40 miles northwards within the last six or seven years. Magnetics in the old country, including Mr. Bernacchi, formerly of Tasmania, who took most of the magnetic observations for the Borchgrevink and Discovery expeditions, considered that it was of great scientific importance, as well as of interest economically in regard to navigation, to get their observations at or near the south magnetic pole in order to decide as to whether this great movement is constantly maintained.

"At the meeting of the Royal Geographical Society Antarctic matters were discussed, and Sir Lewis Beaumont, formerly commander-in-chief of the Australian station, expressed himself as being warmly in sympathy with the scheme put forward by Dr. Mawson for his Australian expedition. The portion of the new Antarctic coastline which Dr. Mawson proposes to explore, is the least known of the Antarctic regions, and offers great scientific possibilities. It is probably in that part of the coast that the most suitable spot will eventually be found for the establishment of a meteorological observatory. Any preliminary determination of this kind will of course be left for Mr. H. A. Hunt, the Commonwealth Meteorologist, who at present is working up for publication the meteorological results of the Shackleton expedition.

"In the part of the Antarctic which Dr. Mawson proposes to explore there is every

prospect of finding the continuation of the great coal field which we traced at intervals during the 1907-9 expedition for fully 1,000 miles from north to south. This coalfield, with the exception of the volcanic rock of Mount Erebus and its associated volcanoes, belongs to the newest formation yet discovered in Australia or the Antarctic. Underneath its comparatively horizontally-bedded strata are the highly contorted ancient series of crystalline and other rocks, formed of granite, slate, diorite, &c. There is every prospect of minerals, such as gold and tin, being discovered in these ancient pre-Cambrian forms, which closely resemble in their characteristics the rocks of Kalgoorlie and Coolgardie. It would scarcely be possible to work auriferous gold economically in the Antarctic on account of the shortness there of the period of thaw, which lasts only about a month, beginning just before Christmas and ending in the third week of January. During that period immense avalanches descend from the stupendous cliffs facing Ross Sea, rising to a height of 10,000 to 12,000 ft. Rivers then form from the thaw water and start flowing down with vast quantities of sand and gravel. Enormous faces of rock are thus exposed to view free from snow and ice. This, of course, will be the most suitable period for prospecting with the prospecting dish, but even if alluvial gold were found by this means, in view of the fact that the thaw does not extend downwards for more than about a foot into the old alluvials, it would only be possible to work the sediment from the new summer floods down to about a foot below the surface, the earlier alluvial being frozen as hard as concrete. If, however, a good lode or reef carrying gold were discovered there is scarcely any reason why it should not be worked as systematically as a reef at Klondyke. Probably the conditions of living would be very little more severe than at Klondyke, but, of course, it would be more costly on account of the difficulties of transport, but after all this portion of the Antarctic is only a fortnight's steam from Tasmania or New Zealand.

"The keenest interest is being evinced in England and Europe in Antarctic doings. Unfortunately I missed Dr. Mawson, who is now in England. My time was limited, as I had only the vacation term at my disposal, and Dr. Mawson passed homewards as I was coming out. We crossed each other about two days out from Naples. Great things are expected from the German expedition, under the leadership of Lieutenant Filchner. His party is well equipped in every respect, and should achieve something of considerable scientific value."

### INTERVIEW WITH MR. BATCHELOR.

At noon Professor David, accompanied by Professor Henderson and Mr. Howchin, had an interview with the Minister for External Affairs (Mr. Batchelor) with reference to the grant for which a request was made a few days ago to assist in equipping Dr. Mawson's proposed expedition. Professor David gave Mr. Batchelor information as to the equipment of former expeditions, and at the close of the interview the Minister said he would confer with his colleagues as to the attitude to be adopted.

Professor David rejoined the steamer in the afternoon, and continued his journey to Melbourne. He will then proceed to Sydney by train.

Register, March 27/11.

## ANTARCTIC PROBLEMS.

### DR. MAWSON'S EXPEDITION.

#### PROFESSOR DAVID INTERVIEWED.

Professor T. W. David, of the Sydney University, who accompanied the Shackleton expedition to the Antarctic in 1907-9, returned from a trip to London by the mail steamer Orvieta on Saturday. In an interview Professor David said the object of his trip had been to arrange for the publication of the geological and mineralogical results of the expedition. At the conclusion of his visit satisfactory arrangements had been concluded, and the manuscripts and plates handed in to the publishers (Messrs. Heinemann), who had already brought out the narrative of the Shackleton expedition in the book termed "The Heart of the Antarctic." Lectures were delivered by Professor David at the Universities of Cambridge, Oxford, and Bristol, and before the Geological Society of London and the Royal Geographical Society.

#### —Meteorological Theories.—

"Antarctic matters were discussed at the Royal Society," said Professor David, "and at the Meteorological Office in London. At the latter discussion Dr. Shaw, head of the British Meteorological Office, raised the question whether there was any general circulation of the atmosphere from the direction of the equator to the south pole, between the limit of what is called the southern anti-cyclone belt and the south geographical pole. The latter belt is there situated almost centrally, running from east to west across Australia, and dominates the Australian weather. Dr. Shaw suggested that instead of a high-level current of air from over Australia to the south pole, with a return surface current back from the pole towards Australia, there might be a sort of concertina-like movement of the atmosphere, the whole atmosphere alternately flowing polewards for a short time, and then spreading back from the pole toward Australia. The evidence adduced shows that in the Mount Erebus region of the Antarctic, situated closest to Australia, there is undoubtedly a steady and strong circulation. For example, the great steam cloud of Mount Erebus is constantly being dragged out in an enormous white streamer, pointing from the south-west toward the north-east, showing that a powerful high-level current is blowing back from the pole to New Zealand and Australia. Above this again is another great current blowing north at right angles to the former, and coming from the north-west, that is from warmer regions in the direction of the south-east, that is toward the cold area, situated over the pole. On the return of the Nimrod at the end of February, 1908, from Mount Erebus to New Zealand, she left at the close of a blizzard, and contrary to all expectations it was found that this blizzard, blowing strongly from the south, carried her all the way, blowing as a strong fair wind to Lyttelton. It seemed incredible that such an air current could cross what is called the belt of the roaring forties, where the dominating winds blow strongly from the west. Dr. Shaw explained that the intensely cold, heavy masses of air such as form the antarctic blizzards may be capable of displacing the lighter westerly winds to the roaring forties, vertically hoisting them, so to speak, over their shoulders, and forcing their way beneath them, so that eventually these blizzard winds impinge on the shores of Australasia. The greatest interest was evinced amongst scientific men in the old country on the subject of recent developments in antarctic meteorology, and it was hoped that the present expedition under Capt. Scott and the forthcoming one under Dr. Mawson would materially add to our knowledge of this subject, which should prove of the greatest scientific interest, as well as economical importance."