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POLAR REGIONS

British Antarctic Expedition, 1907-9, under the Command of Sir E. H. Shackleton, C.V.O. Reports on the Scientific Investigations. Geology, vol. 2. Contributions to the Palæontology and Petrology of South Victoria Land.—**W. N. Benson, F. Chapman, F. Cohen, L. A. Cotton, C. Hedley, H. T. Jensen, D. Mawson, E. W. Skeats, J. A. Thomson, A. B. Walkom, W. G. Woolnough.** London: W. Heinemann, 1917. 4to, viii., 270 pp., 38 pl. 3 guineas.

The second volume of the Geological Results of Sir Ernest Shackleton's Expedition of 1907-9 is a handsome quarto volume which will be a further enduring monument of the success of that well-managed bold adventure. It has a short preface by the editor, Sir Douglas Mawson, and includes thirteen chapters and appendices. Nine of these are technical descriptions of the rocks collected, of which the most interesting are the kenytes, alkali-rich lavas first discovered on Mount Kenya in East Africa. Dr. Jensen contributes a short chapter on the soils, and his experiments show that the absence of vegetation is due to the climate and not to the poverty of the soil. Several of the chapters have interesting geographical bearings, such as Mr. Chapman's comparison of the Arctic and Antarctic foraminifera, and Mr. Hedley's explanations of the poverty of shells on the Antarctic beaches, and his conclusion that the shell beds beside the Ross Sea which have been called raised beaches are uplifted patches of sea floor and are not littoral deposits.

The first chapter is a valuable account by Sir D. Mawson of his observations on the structure of the ice in the Antarctic lakes. He shows that the salt in their water is blown inland by the wind, and its varying concentration in certain layers can be recognized by the ice structures; the fresh water freezes in large prisms, the brackish water in smaller prisms; highly saline water forms platy ice; and the cryohydrates of the most intense concentration solidify as fine-grained granular ice.

The preface by Prof. David and Mr. Priestley refers to one important change of view from the first volume, wherein it was suggested that those "Ice barriers" which project as long tongues into the Ross Sea rested on submarine banks of gravel and moraine matter; and these banks from their long and relatively narrow shape were compared to eskers. Prof. David concludes that this hypothesis is untenable, partly from the variations of depth beside the barriers; thus at the end of the Drygalski barrier the depth is only 300 fathoms, whereas 20 miles nearer the shore the depth is as much as 668 fathoms. The barrier appears to be a floating glacier which has been pushed out to sea, and has deposited a huge submarine terminal moraine. This ridge and the bank between it and the shore would not be expected to agree in structure with eskers, which have the characters of shallow-water formations, and not of deposits at the depth of 600 fathoms. The terminal ridge corresponds no doubt to the thresholds across the lower ends of many fiords. For threshold is suggested the alternative name of "cill," which is open to two objections. It is a synonym of sill, which is already used in geology in a different sense. The spelling "cill" is dismissed by the *New English Dictionary* (vol. 2, 1893, p. 416) as "var. of sill, still occasionally used." The *Imperial Dictionary* (edit. 1902, vol. 1, p. 472) also dismisses it curtly, with the entry "cill, see sill." The second objection is that a sill is a solid block of wood or stone, as in a window-sill. A threshold on the other hand may consist of trodden earth and is thus applicable to either a rock bar or to a morainic bank.

J. W. G.