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frequently quoted as an authority, should appear as Sebre. The illustrations are usually excellent.

F. R. C.

'In the Torrid Sudan.' By H. L. Tangye. (London: Murray. 1910. Pp. xii., 300. *Map and Illustrations*. 12s.) The author followed the White Nile above Khartum, and also crossed Sennar to and beyond the Blue Nile. He gives a historical introduction, and in the midst of incidents of sport and travel provides much information about the present condition of the Anglo-Egyptian Sudan. This might not be gathered from the gratuitous epithet chosen for the title.

AMERICA.

'Labrador.' By W. G. Gosling. (London: Alston Rivers. 1910. Pp. xii., 574. *Map and Illustrations*. 21s.) This book will form a complement to Dr. Wilfrid Grenfell's studies of Labrador, being a detailed and elaborate history of that country. It is well written, and contains much matter hitherto inaccessible. Among its chapters is one on the "cartographical evolution of Labrador," which contains photographs of several maps of the sixteenth century.

'Through Afro-America.' By William Archer. (London: Chapman & Hall. 1910. Pp. xvi., 395. 10s. 6d.) This book, according to the sub-title, is "an English reading of the race problem," and in large part reproduces articles which have already appeared in the press. The author's solution of the problem does not lie in the direction of fusion, but in the concentration of the negroes in a state exclusively their own within the Union.

AUSTRALASIA AND PACIFIC ISLANDS.

SOUTHERN ISLANDS.

Vergleichende Darstellung der Pflanzengeographie der Subantarktische Inseln, insbesondere über Flora und Vegetation von Kerguelen.' H. Schenck and A. F. W. Schimper in 'Wissensch. Ergebn. Deutsch. Tiefsee-Exped. . . . *Valdivia*, 1898-99,' Bd. II., Theil I., Liefg. 1—i. and ii.

The various notices contained in this volume are certainly useful as bringing together and condensing all the essential points of what is known up to date regarding the physiography, flora, and vegetation of most of the sub-antarctic islands. Special interest, however, attaches to the study of Bouvet island, the Kerguelen group, and St. Paul and Amsterdam group, since it forms the original contribution of the expedition. The plant-geographic observations were taken by the late Prof. Schimper, and have been edited by Prof. H. Schenck.

As is now well known, the combined actions of the westerly gales, cool summers, snow- and rain-storms of daily occurrence carry the limits of the antarctic tundra up to 45° S. The Kerguelen group still lies within this belt of cold deserts. Two main plant-formations divide among themselves what portion of the ground is not covered by snow and ice, viz. the *Azorella* and *Acœna* formations. In the first type of tundra, the dense and often huge cushions of the *Azorella selago* bulge out, scattered and rounded, over the grey rocky, boulder-strewn surfaces. The *Acœna adscendens*, thanks to a remarkable plasticity, fills the swamps and marshy depressions, the banks of streams, and other humid habitats with carpets of varying aspect, colour, and mode of life. It even forms green oases, corresponding to the heat-oases of the arctic tundras, in sheltered and sunny slopes facing north and east. From an analysis of the flora, Prof. Schimper does not favour the hypothesis of a former antarctic connection as far as Kerguelen is concerned. The plant population of

this group offers two very distinct elements—a primitive and original one represented mostly by lower plants with the exception of two early types of higher plants—Pringlea and Lyallia, which their extraordinary adaptability has saved from destruction, and the recent migrated element of flowering plants which have mostly come from South America. The study of the fauna reveals the same contrast. The succession of a once milder climate, as evidenced in the coal measures, followed by one or more glacial extensions, as shown on the basalts, seems to account for this. The ice has not yet retreated very far, since Bouvet island is still glaciated. In point of climate, Kerguelen does not differ widely from Cape Horn. Its flora, which exhibits decided affinities with Prince Edward, Heard, and Crozet islands, only offers remote connections with Fuegia and Auckland island. Yet it seems fairly established that the bulk of its more recent flora is due to colonization from South America. Distance only, and the absence of fertilizing animals, limited the number of colonists which came over by the means now available. The various members of the Kerguelen group certainly show a pre-glacial common stock. But the divergencies evinced by the older elements preclude the idea of a union since the Cretaceous.

The Prince Edward, Crozet, and Macdonald groups display a vegetation very similar to that of Kerguelen. South Georgia is known to differ from the latter in that it has the Tussock grass (*Poa flabellata*) instead of the Azorella. On Falkland islands the place of the *Azorella selago* is taken by *Azorella glebaria*, the Balsam bog, besides the Tussock grass.

Reviewing the question of a former land connection between New Zealand and Fuegia, Prof. Schenck believes that the existence of a mild and uniform climate over the Antarctic regions in pre-Tertiary and Tertiary times, as evidenced by the various geological finds in Antarctic islands, suffices to account for the intermigration of floras through the agency of winds, ocean currents, birds, etc., without resorting to the hypothesis of a continuous land bridge. In the case of the islands south of New Zealand, the professor also agrees with Schimper, as *versus* Cockayne, that there is no necessity to assume a former connection among them, far less with Kerguelen, to account satisfactorily for the present biological relationships.

M. H.

SAND-DUNES OF NEW ZEALAND.

'Report on the Sand Dunes of New Zealand.' By L. Cockayne, PH.D. Issued by the Department of Lands, Wellington, New Zealand. 1909.

Dr. Cockayne has made important contributions to our knowledge of the botany of New Zealand, and his present report on the subject of sand-dunes and their reclamation will be specially welcomed by those who have had to contend with the encroachments of blown sand in different parts of the world. He has been ably assisted by Mr. R. Speight, B.Sc., the lecturer on geology in Canterbury College, by whom the section on the origin and material of dune sand is contributed.

The coastal dunes of New Zealand cover an area of some 314,000 acres, nearly nine-tenths of which are situated in the North Island, in the provinces of Auckland and Wellington. These sand-hills, almost wholly composed of material formed by the action of the waves on the margin of the land, blown inland from the foreshore, form a natural and valuable barrier against the encroachments of the sea. The necessity for a proper control of the dunes is, however, recognized as a national concern, since every year, owing to their steady advance inland, considerable tracts of valuable grazing land are being added to the already immense area occupied by shifting sands.

The importance of the dune question has been recognized for some time, as is