the whole zone are associated in different parts of it. From our tabular views of the distribution of the plants inhabiting the various groups of islands in the South Indian Ocean, and the sketch of the flora of Macquarie Island a few pages forward, it is quite clear that in the southern, as in the northern hemispere, the only admissible demarcation of the coldest floral region is a zonal one. Proceeding northward in the three great land areas, the differences in the vegetation soon become so pronounced, that it is convenient to treat them as distinct floral regions; yet, apart from the Antarctic types, the relationships of the distribution of other peculiarly southern types is highly interesting, and seems to point to a migration northward, and a former greater land connection in the southern hemisphere. Wallace, while discarding Hutton's theory of a great southern continent uniting New Zealand and Australia with South America, and probably also with South Africa, suggests the probability of a former less interrupted communication between Cape Horn and New Zealand by way of the South Shetland Islands, Graham's Land, "whence the Antarctic continent or a group of large islands probably extends across or around the south polar area to Victoria Land, and thence to Adélie Land." And he assumes that there have been alternations of climate within the Antarctic Circle, as within the Arctic, "during which some portions of the now ice-clad lands became able to support a considerable amount of vegetation." Assuming this to be a correct deduction, the greater difficulties encountered in accounting for the present distribution of plants in the southern hemisphere disappear; for drifting ice and oceanic currents might well have conveyed seeds of the few plants found in the islands of the South Indian Ocean, when they were less isolated from each other than now. And, if we accept Dyer's theory of an original southward migration of the forms of vegetable life from which all the southern ones have been derived, this explanation is sufficient. But the evidence seems to point to a former greater land connection than Wallace admits, and to a northward migration of southern forms which has hardly ceased. Until more conclusive testimony is forthcoming of the former existence of Proteaceæ, *Eucalypti*, &c., in Europe, we cannot avoid the conviction that they originated in the south.

Sir Joseph Hooker, discussing[1] the probable origin of the vegetation of Kerguelen Island, says: "Turning to the natural agents, winds are no doubt the most powerful and sufficient to account for the transport of the cryptogamic spores; these, almost throughout the year, blow from Fuegia to Kerguelen Island, and in the opposite direction only for very short periods, but appear quite insufficient to transport seeds over 4000 miles. Oceanic currents have, doubtless, brought the marine algæ; but the transport of the seeds of the fresh-water plants, of the grasses, and of the two plants with hooked and barbed appendages to the fruit, is not apparent in the case of a country that has no land-birds but an endemic one (*Chionis*), and of which the water-birds come to land only, or chiefly, at the breeding season, and this after long periods of oceanic life in a most

[1] *Philosophical Transactions of the Royal Society of London*, clxviii. p. 13.