

only 18 cryptogams, mosses, lichens, and algæ, 12 of which were terrestrial, no trace of phanerogams. Yet in Saltdalen, in Norway, north of the Arctic Circle, there are fine timber forests and thriving farms, yielding abundant crops of hay and barley. Melville Island, in lat.  $74^{\circ} 75' N.$ , 500 miles north of the Arctic Circle, has a vegetation of 67 flowering plants.

Sir J. D. Hooker, in his latest memoir on the botany of Kerguelen's Land, says: "The three small archipelagoes of Kerguelen Island (including the Heard Islands), Marion and Prince Edward's Islands, and the Crozets, are individually and collectively the most barren tracts on the globe, whether in their own latitude or in a higher one, except such as lie within the Antarctic Circle itself; for no land, even within the North Polar area, presents so impoverished a vegetation."\*

About the sides of the hummocks already described grew scantily four species of mosses, one of which proved to be new and peculiar to the island.

The majority of the land surface of Heard Island, free from ice, besides the green tract described, is entirely devoid of vegetation. Only on the talus slopes of the hills, on their sheltered sides, are seen scattered in a very few places scanty patches of green. The lower portions of these are composed mainly of *Azorella*, and they stretch up the slopes, and terminate at an elevation of a few hundred feet in bright yellow patches, consisting entirely of mosses, just as at Marion Island. I searched in vain for lichens of any kind.

There seems to be a very great difference with regard to the vertical range of plants in these southern islands, and in the Arctic regions. In Marion Island, I estimated the absolute limit of vegetation at an altitude of about 2,000 feet; in Kerguelen's Land, the limit seems to lie at about 1,500 feet or lower; plants of any kind are there already scarce at 1,000 feet above sea level. In Heard Island vegetation seems to cease at 300 or 400 feet altitude. Yet in East Greenland, the same plants are found to range from sea level up to 3,000 feet, and there is no real limit of altitude; even at 7,000 feet elevation a thick cushion of moss, several inches in length, was found by the German North Polar Expedition covering the ground.†

This remarkable condition in the Arctic regions is mainly accounted for by Dr. Pansch, by the fact that, with the sun always near the horizon in high latitudes, the hill-slopes receive

\* "Observations on the Botany of Kerguelen Island, by Sir J. D. Hooker, P.R.S.," etc. *Transit of Venus Expedition, Botany*, pp. 2, 3.

† "Die zweite Deutsche Nord-Polarfahrt in den Jahren 1869 und 1870." 2 Bd. *Wissenschaftliche Ergebnisse*, Leipzig. F. A. Brockhaus. "Klima und Pflanzenleben auf Ostgrönland," von Adolf Pansch in Kiel.