

them some facts as to the present distribution of life and of the agencies which influence it.

If we examine Petermann's map of the ice of the north and south polar regions, reproduced by Wallace, we shall find a remarkable contrast. In the southern polar region a space extending in all directions twenty degrees, and in some directions twenty-five degrees, is occupied with permanent snow. Thus we have a snow-clad continent, at the outer edge of which the stratum of solid water is at least a mile in thickness, attaining a diameter of over 2000 miles. Around this we have floating ice dispersed in all directions, on the Atlantic side beyond the parallel of 40° , and on the Pacific side only a little short of this. In other words, we have a distribution of floating ice, bearing with it stones and other land material, over a radius of about 3000 nautical miles from the south pole. This is an extension of polar ice nearly equal to that which occurred in the northern hemisphere in the great glacial age, and as it evidently results from the existence of a compact mass of high land serving as a condensing-ground for the aqueous vapor of the surrounding ocean, we have only to imagine a few spurs of high ground like Greenland projecting from the antarctic continent to render the present glacial age of the southern hemisphere even more severe than that of the Pleistocene probably was in the north. As it now is, Heard's Island, in south latitude 53° , is glaciated down to the sea, and New Zealand, in south latitude $43^{\circ} 35'$, has a glacier descending to within 705 feet of the sea.¹

If we turn now to the north polar region, the case is very different. Here the area of permanent ice is scarcely more than half that of the south pole, and if we were to remove the exceptionally high and ice-covered tract of Greenland it would be scarcely more than one third. The distribution of floating ice is in like manner limited to a narrow belt along the west side of the north Atlantic and to the coasts of the most northern part of the Pacific. Geological facts indicate that within a comparatively recent period the state of matters in the north was much less favorable as to temperature, but that previously to this for

¹ It is a significant fact that while in latitudes lower than 40° the southern hemisphere is the colder, in higher latitudes it is the warmer. Thus a glacial age may affect temperate latitudes more than those which are polar.