

tion with the study of the influence of physical agents upon the character of animals and plants in different parts of the world. North America certainly does not resemble Europe and Northern Asia, more than parts of Australia resemble certain parts of Africa or of South America, and even if a greater difference should be conceded between the latter than between the former, these disparities are in no way commensurate with the difference or similarity of their organized beings, nor in any way rationally dependent one upon the other. Why should the identity of species prevailing in the Arctics not extend to the temperate zone, when many species of this zone, though different, are as difficult to distinguish, as it is difficult to prove the identity of certain arctic species, in the different continents converging to the north, and when besides, those of the two zones mingle to a great extent at their boundaries? Why are the antarctic species not identical with those of the arctic regions? And why should a further increase of the average temperature introduce such completely new types, when even in the Arctics, there are in different continents such strikingly peculiar types (the *Rhytina* for instance,) combined with those that are identical over the whole arctic area?¹

It may at first sight seem very natural that the arctic species should extend over the three northern continents converging towards the north pole, as there can be no insuperable barrier to the widest dissemination over this whole area for animals living in a glacial ocean or upon parts of three continents which are almost bound together by ice. Yet the more we trace this identity in detail, the more surprising does it appear, as we find in the Arctics as well as everywhere else, representatives of different types living together. The arctic Mammalia belonging chiefly to the families of Whales, Seals, Bears, Weasels, Foxes, Ruminants and Rodents, have, as Mammalia, the same general structure as the Mammalia of any other part of the globe, and so have the arctic Birds, the arctic Fishes, the arctic Articulata, the arctic Mollusks, the arctic Radiata when compared to the representatives of the same types all over our globe. This identity extends to every degree of affinity among these animals and the plants which accompany them; their orders, their families, and their genera as far as they have representatives elsewhere, bear everywhere the same identical ordinal, family, or generic characters; the arctic foxes have the same

¹ I beg not to be misunderstood. I do not impute to all naturalists the idea of ascribing all the differences or all the similarities of the organic world to climatic influences; I wish only to remind them that even the truest picture of the correlations of climate and geographical distribution, does not yet touch the question of origin, which is the

point under consideration. Too little attention has thus far been paid to the facts bearing upon the peculiarities of structure of animals in connection with the range of their distribution. Such investigations are only beginning to be made, as native investigators are studying comparatively the anatomy of animals of different continents.