entirely similar. Of course, I do not take into consideration such forms as pass their existence on the bottom of the deep-sea or at the surface of the ocean. It appears scarcely probable that the shore fauna of two regions so far separated from each other as the arctic and antarctic seas, has any direct exchange of forms at the present epoch, so as to allow the same species, in its larval or adult state, to pass from one pole to the opposite without settling at interjacent regions. In brief, I do not believe that at the present epoch the arctic shallow-water fauna can directly originate from the antarctic, or *vice versa*.

On the other hand, it is a fact that the two faunæ in question resemble each other very closely, and, with regard to the Holothurids, that several forms occur in the arctic sea which are most closely allied to those in the antarctic. I am inclined to suppose that the progenitors of these Holothurids have had a much wider distribution during a past period, that altered physical conditions, a keener struggle for existence, &c., under the tropic and the temperate zones have effected their extinction, or their migration towards the polar seas, or even produced changes in their organisation and general appearance so marked, that their descendants which still remain in the tropical zones present themselves as species distinct from the original, and finally that the polar seas with their more uniform physical conditions, allowed them and their descendants to live there and to develop slowly but continuously after almost the same plan.

The genus *Psolus* offers an instructive example of forms which are distributed over all seas from the Arctic Ocean to the Antarctic, and which are so very little differentiated that we scarcely acknowledge them as distinct species. Thus the northern species, *Psolus squamatus* and *Psolus fabricii* pass imperceptibly into *Psolus operculatus*, *Psolus complanatus*, and several other tropical or subtropical forms, which in their turn are replaced towards the antarctic regions by *Psolus antarcticus* and *Psolus ephippifer*, &c. But it must be observed that all these forms of *Psolus*, though they apparently present great similarities, are nevertheless distinguishable, though the differences may or may not be of specific value. It appears pretty evident that they are all descendants from the same ancestors, which may have had their origin in the polar seas or in the tropic or subtropic oceans, and that they, in their wide dispersion, have sustained very well the influence of altered and very various physical conditions in different regions of the world. But, of course, different physical conditions and an altered mode of life have caused some small deviations in internal and external organisation.

With regard to the remaining species of Holothurids mentioned above, I think the same is or has been the case. Forms intermediate between those in the arctic and those in the antarctic seas, are either still living in interjacent regions, having undergone alterations of a more or less adaptive nature, or they have succumbed.

As a fact, numerous arctic forms of animals are "circumpolar," and among the Holothurioidea, *Myriotrochus rinckii*, *Chirodota lævis*, *Cucumaria calcigera*, *Cucumaria*