

FAUNAS OF CANADA.

During this reoccupation a number of interesting things happened. High elevation is comparable in the condition it originates to high latitudes, and mountains, even in the tropics, if high enough, are covered with perpetual snow. High mountain and arctic conditions are similar and have little variety. Consequently, as the glacial ice withdrew first from the warmer lowlands some species adapted to the colder climate, instead of following the retreat along the valley lines northward, merely climbed adjacent slopes and there found acceptable habitats. If the mountains were too low to retain their arctic character in sufficient degree, those forms perished and were replaced by the next succeeding association until a permanent population was at last secured. If the elevation were greater the arctic forms survived as isolated communities, and hence to-day we sometimes find arctic forms on high table-lands and mountain ranges separated by many hundreds of miles of warm climate from their nearest allies.

It is obvious that these cold loving "relicts" of a previous order should, in the natural state of things, have been the last to break their connection with the European or Asiatic continent and the first to come again into contact with their old allies. In some cases probably the very hardest never completely lost touch with each other across the frozen wastes of separation. Arctic conditions are remarkably similar the world over, and these forms just clinging to the edge of habitability existed under like conditions and with far less stimulus to divergent progress than those in the warmer and more varied south. Evolutionary development is slower in the colder than the warm climates; generations are, on the average, slower of development and slight departures from a narrow successful groove are more ruthlessly weeded out; in fact there is less latitude between success and failure and fewer chances of departures from types being beneficial. All these reasons worked to the single end that the northern or arctic fauna was during the glacial epoch much less differentiated in the eastern and western hemisphere, and to-day we find that while in the extreme south the forms are now widely divergent, those of the northern areas are remarkably similar, and the circumpolar fauna is nearly identical throughout the circle. So in America we have a distribution of life closely related to European and Asiatic forms in the north, but gradually and regularly differentiating into peculiar and special forms as we proceed south.

Having considered the history and consequent relation of North American life to that of the world in general we can take up the details of its distribution on our continent. The general trend of geographical distribution in Canada is from southeast to northwest. Ocean currents have much to do with this. Our east coast is chilled by the cold arctic current coming directly down from the polar ice fields through Davis strait, and the west coast is warmed by the grateful temperature of the great final sweep of the Japan current. When we realize that the barren Labrador coast of the Gulf of St. Lawrence is in almost the same latitude as southern British Columbia and is slightly south of the most southerly point of the British Isles, we can see what a great and fundamental influence these ocean currents have on the distribution of life upon our continent.