

furnish food for bird life. As far north as the arctic regions this supply is very abundant. Various kinds of berries are produced in great quantities during the brief summer owing to the continued heat of an unsetting sun. By the time these berries are fully ripe, however, most of the birds have gone south, but the fruit is thickly covered during the long winter with a snowy mantle, and is thus preserved till the following summer, when the melting snows reveal them—a banquet ready spread. Insect life is also very abundant during the excessive sunshine of an arctic summer, so that insectivorous birds find a ready food supply. The arctic seas, also, abound in minute animal life, as well as many kinds of fish, which all serve as food for the various species. Yet nothing in colder climes can exceed the food supply of tropical summers so we must look again for a sufficient cause for the northern migrations.

At the close of the Tertiary period—in geological time—the climate of the higher latitudes was changed from a sub-tropical to a frigid condition. The birds which during that period had been distributed over the whole continent, were thus driven in large numbers towards the equatorial belt. Here with so great a mass of birds in so comparatively small a space the struggle for existence became so intense, that those species best adapted to stand climatic changes moved northward for the rearing of their young, returning south during the winter season.—Like conditions continued to produce like changes in the range of bird life, and owing to the hereditary nature of habit the migratory instinct thus became developed. As the breeding grounds from the true home of each species this innate love of native haunts—so strikingly illustrated by many birds—explains more largely than any other theory, the fact of northward migrations. The so called “homing” of pigeons is well known. The return year after year of the same pair of birds to the same nesting site, plainly indicates an inborn love of home and the possession of memory concerning their place of birth. Wild birds have frequently been captured and marked in some manner. They have gone south with the autumn migration and, the same individuals have been identified the following summer at their former nesting site.

All birds are not in the same degree migratory. Many species—especially the sandpipers rear their young within the Arctic circle, and spend the winter near the equator, being seen at any intermediate place only for a short time—twice each year—during their northward and southward movements. Again some species rear their young in the extreme north, but winter no further south than Nova Scotia, or the North Atlantic States. Other species nest at varying degrees of latitude, and perhaps migrate slowly only a few hundreds of miles southward. Indeed some species do not migrate at all, but remain in the same latitude throughout the year. Such are the grouse or partridge and crows. The latter are not considered migratory though more or less of a roving nature. Many species of