PART 3

The Causes of Evolutionary Changes in Populations

Using the model situation in which no evolutionary forces are acting, other than those imposed by the genetic mechanism itself, we have derived certain properties of the genetic structure of populations. Like all scientific models, this equilibrium model does not give an exact representation of the real situation. Its chief purpose is to provide a starting-point from which we can explore more complex situations. This is what we shall do in this section, when models that are closer to the real situation are introduced.

In the earlier sections of this book, we have assumed that the five principal forces for evolutionary change were absent, namely that there was no migration, no mutation, no selection, random mating, and no stochastic changes in the genetic composition of the population (in other words, infinite population size). In the next five chapters, we shall study the ways in which the equilibrium situation is altered when each in turn of these five assumptions is dropped.