

CHAPTER - 9

HEREDITY AND EVOLUTION

SYNOPSIS :

- Transmission of characters from parents to offsprings is known as '**heredity**'.
- **Variation** means something different from organism of one generation to that of parental generation. Variation means diversity observed individually.
- **Traits** in one individual may be inherited separately, giving rise to new combinations of traits in the offspring of sexual reproduction.
- The path of **transmission of factors** from parental generation to offspring is indicated by Mendel.
- Sexually reproducing individuals have two copies of genes for the same trait. If the copies are not identical, the trait that gets expressed is called the '**dominant trait**' and the other is called the '**recessive trait**'.

- The phenomenon determining whether the developing embryo will produce male or female is known as '**sex determination**'.
- Sex is determined by different factors in various species. In human beings, the sex of the child depends on whether the **paternal chromosome** is **X** (for girls) or **Y** (for boys).
- **Variations** in the species may confer survival advantages or merely contribute to the genetic drift.
- **Evolutionary relationships** are traced in the classification of organisms.
- **Evolution** can be worked out by the study of not just living species, but also fossils.
- **Complex** organs may have evolved because of the survival advantage of even the intermediate stages.
- Organs or features may be adapted to new functions during the course of **evolution**. For example, feathers are thought to have been initially evolved for warmth and later adapted for flight.

- **Evolution** cannot be said to progress from lower forms to higher forms. Rather, evolution seems to have given rise to more complex body designs even while the simpler body designs continue to flourish.
- **Study of the evolution** of human beings indicates that all of us belong to a single species that evolved in Africa and spread across the world in stages.