

MLS COLLEGE SARISAB-PAHI, MADHUBANI

TOPIC: BIRD MIGRATION

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# BIRD MIGRATION

## MIGRATION:

Migration is the long journey taken by animals from one place to another and back. It is a regular cyclic and seasonal phenomenon. These long journeys are mainly for breeding and food gathering.

The word migration has been derived from the Latin word "Migare" which means to travel (one place to another place). According to Cohn; Migration is the periodic passing of animals from one place to another.

## MIGRATORY ANIMALS:

A wide variety of animals do migration. But the migrations taken by five groups of animals are more significant. They are the following:

A. Pteromyzon Migration

B. Fish Migration

C. Bird Migration

D. Mammalian Migration and

E. Insect Migration.

MIGRATION OF BIRDS:

The periodic travelling of birds from one place to another and back is called bird migration. It is a two-way migration. It involves -

A. Emigration and

B. Immigration

A. Emigration:

Emigration is the outward migration from the feeding ground to the breeding ground.

B. Immigration:

Immigration is the inward migration or return journey from the breeding ground to the feeding ground.

## MIGRATORY BIRDS:

The following are the important migratory birds:

<u>General Name</u>	<u>Scientific Name</u>
(i) Swift	Golden plover
(ii) Sparrow	Humming bird
(iii) Robin	Paradise flycatcher
(iv) Oriole	Greylag goose, etc.

## PURPOSE OF BIRD MIGRATION:

Birds migrate for the following

purpose :-

- (i) Competition for food.
- (ii) Territory.
- (iii) Nest sites.
- (iv) Hormones
- (v) Sexual maturity
- (vi) light, darkness, temperature, humidity.

## TYPES OF MIGRATION:

There are six types of bird migration;

[A] Daily/Local Migration

[B] Seasonal Migration

[C] Cyclic Migration

[D] Latitudinal Migration

[E] Altitudinal Migration and

[F] Longitudinal Migration

### [A] DAILY / LOCAL MIGRATION:

Birds may make daily migrations from their resting sites to feeding areas.

Many birds make daily movements from their nest in response to environmental forces such as light, darkness, temperature, humidity and food availability.

e.g.

House sparrows, crows, Starlings, Rocky herons, etc.

[B] SEASONAL MIGRATION:

OR

MOULT MIGRATION

Migrations of birds in response to seasonal changes are called seasonal migration.

e.g. Ducks, etc.

[C] CYCLIC MIGRATION:

Migrations of birds are seasonal but do not occur at regular intervals are called cyclic migration.

e.g. Snowy owl etc.

[D] LATITUDINAL MIGRATION:

It is the migration from north to south or south to north.

e.g. Shorebirds, Graylag geese, pintails, common teals, gadwall, etc.

## [E] ALTITUDINAL OR VERTICAL

### MIGRATION:

Migrations of birds from mountains to warmer or lower altitudes or vice-versa are called altitudinal or vertical migration.

e.g. Mountain quails, blue grouse, alpine ptarmigan, etc.

## [F] LONGITUDINAL MIGRATION:

Movement of birds from east to west or vice-versa is known as longitudinal migration.

e.g. Evening grosbeaks, California gulls, etc.

## ADVANTAGES OF MIGRATION:

There are following advantages of migration of birds —

- (i) It provides certain genetic and evolutionary benefits.

- (ii) It promotes the geographic dispersal of birds.
- (iii) Securing a better climate for living by avoiding cold and stormy weather.

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TOPIC: CELL THEORY

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TITLE: CELL THEORY

The theory was jointly put forward by Schleiden and Schwann (1839) in their paper "Microscope Investigations on the similarity of structure and growth in animals and plants." Cell theory states that the bodies of all organisms are made up of cells and their products so that cells are units of both structure and function of living organisms.

Formulation of Cell Theory:

It involves observation, hypothesis, formulation of theory and its modification.

Observations were started by Matthias Schleiden (1838), a German botanist who examined a large number of plant tissues. He found that all plant tissues were made of one or the other kind of cells. Therefore, he concluded that cells constitute the ultimate units of all plant tissues. Theodore Schwann (1838), a German zoologist, studied different types of animal tissues including development of embryos. He found that animal cells lack a cell wall. Instead they are covered by a membrane. Otherwise cells of both plants and animal are similar.

Schleiden and Schwann compared their findings, discussed Schwann's hypothesis and formulated the cell theory in their joint paper in 1839. The theory proposed that cells are the units of both structure and function of organisms.

### FUNDAMENTAL FEATURES OF CELL THEORY

Five fundamental observations of the cell theory are:

- ① All living organisms are composed

of cells and their products.

- (ii) Each cell is made of a small mass of protoplasm containing a nucleus in its inside and a plasma membrane with or without a cell wall on its outside.
- (iii) All cells are basically alike in their chemistry and physiology.
- (iv) Activities of an organism are the sum total of activities and interactions of its constituent cells.

### MODERN CELL THEORY:

It is also known as cell doctrine or cell principle. Modern cell theory states that

- (i) The bodies of all living beings are made up of cells and their products.
- (ii) Cells are units of structure in the body of living organisms. Every cell is made up of a mass of protoplasm having a nucleus, organelles, and a covering membrane.
- (iii) Cells are units of function in living organisms, that is, the activities of an organism are the sum total of the

activities of its cells.

- (iv) While a cell can survive independently, its organelles cannot do so.
- (v) The cells belonging to diverse organisms and different regions of the same organism have a fundamental similarity in their structure, chemical composition and metabolism.
- (vi) Life exists only in cells because all the activities of life are performed by cells.
- (vii) Depending upon specific requirement, the cells get modified, e.g., elongated in muscle and nerve cells, loss of nucleus in RBCs or cytoplasm in outer skin cells.
- (viii) Growth of an organism involves the growth and multiplication of its cell.
- (ix) Genetic information is stored and expressed inside cells.
- (x) Life passes from one generation to the next in the form of a living cell.
- (xi) New cells arise from pre-existing cells through division. All new cells

Contain the same amount and degree of genetic information as contained in the parent cell.

(xii) All the present day cells/organisms have a common ancestry because they are derived from the first cell that evolved on the planet through continuous line of cell generations.

(xiii) Basically the cells are totipotent i.e., a single cell can give rise to the whole organism) unless and until they have become extremely specialized.

(xiv) No organism, organ or tissue can have activity that is absent in its cells.

### OBJECTIONS:

(i) Viruses are acellular and do not have a cellular machinery. Even then they are considered to be organisms.

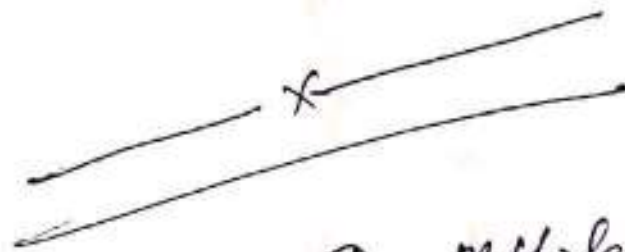
(ii) In some organisms, the body is not differentiated into cells though it may have numerous nuclei (coenocytes, e.g., *Rhizopus*)

- (iii) Protozoans and many thallophytes have a uninucleate differentiated body (e.g., *Acetabularia*) which cannot be divided into cells. They are acellular.
- (iv) Bacteria and cyanobacteria do not have nucleus and membrane bound organelles.
- (v) RBCs and sieve tube cells continue to live without nucleus.
- (vi) Protoplasm is replaced by nonliving materials in the surface cells of skin and cork.
- (vii) Schleiden and Schwann did not know the mechanism of cell formation. Schwann believed cells to develop spontaneously like a crystal. Schleiden thought new cells to develop from cytotblast or nucleus.

### SIGNIFICANCE OF CELL THEORY:

- (i) There is a structural similarity in cells belonging to diverse groups of organisms.
- (ii) All the cells perform similar metabolic activities.

- ③ Life exists only in the form of cells.
- ④ Life passes from one generation to the next as cells.
- ⑤ All living beings are descendents of a primitive cell that developed on earth as the first eucaryote and prior to that as the first procaryote.



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