

DARWINISM

DARWIN → **Origin of Species 1859**
(1809–1882)

↓
"THEORY OF ORGANIC EVOLUTION BASED ON
NATURAL SELECTION"

VOYAGE OF BEAGLE → **SOUTH AMERICA** → **GALAPAGOS ISLANDS**

• 965 Km West to
Equador

GIANT TORTOISE → **SHELL**

↓
Saddle shaped **Dome shaped**

FINCHES →

Types

FTB*

(14)

(13)

BTB*, KDK*

DARWIN'S CONCEPT OF NATURAL SELECTION

- Descent with modification
- Natural Selection

DESCENT WITH MODIFICATION → Backbone of Evolution theory

Parents → **Passing on Traits** → Off-springs

↓
modified

Crossing over → **Genetic Recombination**

NATURAL SELECTION

↓
Survival of fittest → **Pass on**

ARTIFICIAL SELECTION

↳ **Desired characters from
Plants and Animal.**

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• **DESERTIFICATION.**

Alternate Food

↓
Long Neck
(↑↑)

↓
Short Neck

↓
Going to be dead.

OVER-PRODUCTION

Species have capacity to reproduce.

OVER-PRODUCTION

Species have capacity to reproduce.

- House Fly \rightarrow 120 eggs
 - Rabbit \rightarrow 4 times/year
 - Elephant \rightarrow 6 offsprings
- Population Rate $\uparrow\uparrow$ $\xrightarrow{750 \text{ years}}$ 19 million population
Resources $\downarrow\downarrow$

STRUGGLE FOR EXISTENCE

Population $\uparrow\uparrow$, Individuals $\uparrow\uparrow \rightarrow$ Competition $\uparrow\uparrow$

INTRASPECIFIC

- Among individuals of same species.

INTERSPECIFIC (Prey - Predator)

- Among individuals of different species.

- ENVIRONMENTAL STRUGGLE (EXTRASPECIFIC)
Against Natural Forces.

VARIATION

\rightarrow Genetics

- +ive** \rightarrow Supportive to survival and successful reproduction in individual.
No. of individual $\uparrow\uparrow$
- ive** \rightarrow Do not support reproduction in individual.

Human \rightarrow Black, Brown, White \rightarrow Skin Colour

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SURVIVAL OF FITTEST

+ive / useful variations \rightarrow Survival

FLOOD

- Can breathe in water \rightarrow Survival chances $\uparrow\uparrow$ (Favourable)
- Can not breathe in water \rightarrow Dead (Unfavourable) \rightarrow Eradicated

"NATURAL PHENOMENON"
(Natural Selection of Alleles)

Survival of fittest \rightarrow Herbert Spencer
Natural Selection \rightarrow Darwin

ORIGIN OF SPECIE / SPECIATION

Selected Alleles

\rightarrow Transmission of allele

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ORIGIN OF SPECIES / SPECIFICATION

Selected Alleles
(Surviving individuals)

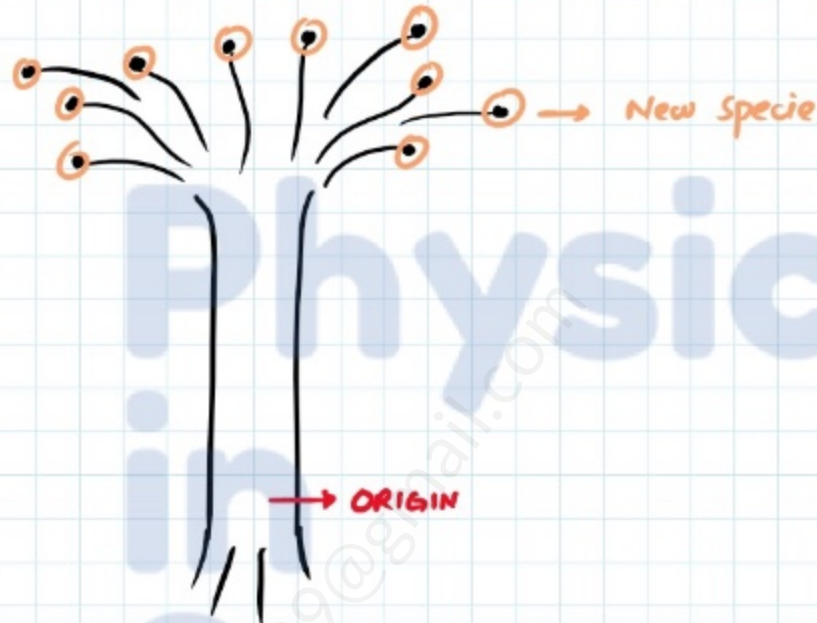


Transmission of allele
in offspring



Prevalence of Allele
(New Individual)

TREE EVOLUTION



CONTRIBUTIONS OF SCIENTISTS

CHARLES LYELL



English Geologist

Book

→ "Principles of Geology"

Gradual Geological Processes

→ Gradually shaped Earth's Surface.

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JAMES HUTTON



Scottish Geologist, Chemist, Naturalist

"Concept of Uniformitarianism"

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THOMAS MALTHUS



English Economist

"Essay on Population"

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Human Population Growth Rate $\uparrow\uparrow$ as that of Resources they depend upon.

Population $\uparrow\uparrow$ \rightarrow Calamity \rightarrow Deaths

\hookrightarrow Immuned / strong / Fit

ALFRED WALLACE \rightarrow Same time Era

DARWIN'S SUPPORTING EVIDENCES

- Palaeontology
- Geology
- Vestigial Organs
- Biogeography

- Geology
- Vestigial Organs
- Biogeography
- Comparative studies

NEO-DARWINISM

Natural Selection + Genetics + Biochemistry + Ecology + Palaeontology

Darwinism + Mendel's laws → Neo-Darwinism



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