

Neo-Darwinism

JUNE '2000

SATURDAY

3

APPOINTMENTS

Introduction:-

- DARWIN'S theory of Natural Selection was accepted on account of its direct approach and practical nature.
- Darwin had not given any importance to the process of mutation.
- Many Scientists performed various experiments in support of his theory of natural selection.
- All these advancements in cytology, genetics, cytogenetics, population genetics and evolution gave a way for the formulation of a coherent theory called modern Synthetic theory around 1930s by S. Wright, H. J. Muller, Th. Dobzhansky, R. B. Goldschmidt, J. S. Huxley, R. A. Fisher, J. B. S. Haldane, E. Mayr and G. L. Stebbins.

WORK TO DO

- ⇒ This theory of evolution involves five basic processes:-
 - ① Mutation
 - ② Variation
 - ③ Heredity
 - ④ Natural selection
 - ⑤ Isolation.

- ⇒ In addition, three accessory processes affect the working of these five basic processes.

Migration of individuals from one population to another as well as Hybridization between closely related species both increase the amount of genetic variability available to a population. The effects of chances acting on small population may alter the way in which selection guides the course of evolution (Stebbins 1971).

PHONES

4 SUNDAY

JULY 2000
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1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16 17 18 19 20 21 22
23 24 25 26 27 28 29 30 31

There are
mutate

Most of

WORK TO DO

and these are able to express
phenotypically only in homozygous
condition.

Thus point mutations tend to
produce variations in the offspring.

① Variation (Recombination):-

Besides mutation several other processes
like genetic recombination, hybridiza-
tion, genetic drift, migration e.t.c.
also bring about variations.

PHONES

The nature of genetic variations caused
by reshuffling of genes during
sexual reproduction was very little
known at the time of Darwin.

Recombination - that is, new genotypes
from already existing genes: is of several
kind:- 1. the production of gene
combinations contained in the same
individual two different alleles of the
same gene.

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25	26	27	28	29	30								

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TUESDAY

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APPOINTMENTS

2. the random mixing of chromosomes from two parents to produce a new individual (sexual reproduction),
3. the mixing of a particular allele with a series of genes not previously associated with it, by an exchange between chromosomal pairs during meiosis, called crossing over.