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APRIL 2012

Lamarckism

Lamarckism

15

2012  
MARCH  
THURSDAY  
075-291 • Wk 11

Introduction: Lamarck in his book *philosophie Zoologique* (1809) conveyed the greatest theory of evolution of his time as a breakthrough of evolutionism. The full name of this evolutionist is "Jean Baptiste Pierre Antoine de Monet, chevalier de Lamarck". He wrote his belief in the form of soft inheritance and emphasized speciation by spontaneous generation and gradualness of evolution. It is for the first time, the importance of behaviour and environment were recognised in the course of evolution. He also showed ~~courage~~ courage to include man in the evolutionary stream.

Lamarck is considered as the "first evolutionist" by Mayr (1982). He was neglected for long time. In 1859 Lamarck was rediscovered and his ideas were coined as "Lamarckism".

2012

MARCH

FRIDAY

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FEBRUARY 2012

Wk 11 • 076 290

# 16 Lamarck's theory

Lamarckism is based on certain factors which govern the process of organic evolution. They are

9 am

10 am

11 am

(1) First Law of Lamarck (Law of use and disuse)

12 noon

(2) Second Law of Lamarck (Inheritance of acquired characters)

1 pm

(3)

2 pm

## First Law of Lamarck :-

3 pm

4 pm

5 pm

6 pm

In every animal, the more frequent and sustained use of every organ gradually strengthens, develops, and enlarges that organ, and give it a strength proportional to the length of time it has been used; while the constant disuse of such an organ imperceptibly weakens and deteriorates it, progressively diminishing its faculties until finally

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APRIL 2012

2012

MARCH

SATURDAY

077 289 • W 11

disappears. 17

EX - Many examples of use of organs were given in support of Lamarck's Theory, such as long neck of giraffe, webbed feet of duck etc. ~~The ear~~

The cave dwelling animals have lost their eyes through disuse in the darkness of the cave. Limbless in snakes.

Second law of Lamarck (Inheritance of acquired characters.

The changes that take place in the body of an individual during its life time due to environmental influences or due to use and disuse are termed as "acquired characters". Such acquired characters are preserved by the reproduction and inherited by the

next generation. Process continues, producing a new type of individual with better adaptive combination.

SUNDAY 18

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~~Confession of ...~~

2012  
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077-289 • Wk 11

disappears. 17

Ex - Many examples of use of organs were given in support of Lamarck's Theory, such as long neck of giraffe, webbed feet of duck etc. ~~The ear~~

The cave dwelling animals have lost their eyes through disuse in the darkness of the cave. Limbs in snakes.

Second law of Lamarck (Inheritance of acquired characters).

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next generation. Process continues, producing a new type of individual with better adaptive combination.

2012 Criticism of Lamarckism

MARCH

MONDAY

WK 12 • 079-287

19 Lamarckism Criticised

by the modern scientist like  
Mr. Dargall, Kummerle, Weismann

9 am On the following ground.

10 am First point of Lamarck that  
Environment influences all  
11 am for types of animals and brings  
about changes in organism. As  
regards the first factor the environ-

12 am ment can affect animal but it  
is doubtful that new struc<sup>re</sup>  
1 pm or organs result from new needs.

The critics also "neglected

2 pm Lamarck's carefully developed  
Chain of causation from needs

3 pm → to efforts → to physiological  
excitation → to the stimulation of

4 pm growth → to the production of  
Structure. (Mayer, 1982). According

5 pm to Lamarck the evolutionary  
force was not teleological but

6 pm materialistic.

The second one is organs  
will develop due to use and  
degenerate due to disuse. This  
in concert some for some  
~~extent~~ extent.

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M	T	W	T	F	S	S

APRIL 2012

2012

MARCH

TUESDAY

080-286 • Wk 12

second

20

The third one is

the inheritance of acquired character is disputed. This factor has been tested or <sup>experiment</sup> many biologists and found have it to entirely incorrect.

### New Lamarckian Theories.

The term "New Lamarckism" was proposed by A.S. Packard in 1884. To oppose Darwinism, several theories were combined as Neo-Lamarckism. This concept shares with Lamarckism in two aspects — ① the evolution is "vertical" and the other is that the acquired characters of an individual can be inherited. But this concept ignores the most fundamental component of Lamarckism, i.e. There is a finalistic element in evolution leading phyletic lines of organism to even greater perfection.

21

therefore according to  
Mayer 'New Lamarckism was much a  
theory of inheritance than a theory  
of evolution'.

Geoffroyin, one of the Neo  
Lamarckian theories, ascribes  
evolutionary change to the direct  
influence of the environment.

"Psycho-Lamarckism" was  
proposed by Parly which  
emphasized mental forces and  
compared with Lamarck's  
'efforts' and consciousness"  
to satisfy "needs". Freud  
proposed that any mental or  
psychological development  
in a generation is hereditary  
transmitted to the next  
generation.

The most imp't aspect  
that the Neo Lamarckians  
had ignored is the contributions  
mutations and recombination  
as the genetic vehicle of evolution.

Lamarck theory of evolution is now considered as an erroneous assumption since the acquired characters are not inherited. But Lamarck deserves much credit for his vision of evolution and his theory still occupies a very important place in the history of evolutionary thought as this was the first scientific theory in favour of organic evolution.

### Baldwin effect and Neo-Lamarckism —

#### Baldwin and Morgan

tried to bridge up between genetic concept and Lamarckism, and proposed that,

- ① Organism adapt themselves in the new environment by non-genetic mechanism.



MARCH

FRIDAY

23

WA 12 • (883-983)

20 21 22 23 24 25 26 27  
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FEBRUARY 2017

① Random micro-mutations throw up new alleles which produce the required developmental modifications.

② Natural selection increases the frequency of new alleles by which the developmental modifications which was originally acquired, become an inherited one.