

With some modification later research has strengthened and extended this theory. All our sentiments, emotions, passions, the noblest and the basest alike, are the working together in response to stimulation, of sense organs, nerves, muscles, blood vessels, viscera, glands. Finally, only yesterday and today come the discoveries of internal secretions and vitamins which are essentially special agencies for exciting the various body parts to their appropriate actions. Consequently, so much to the front have the activities of animal organisms been brought by the new discoveries and theories, that reflex actions, tropisms, instincts, appetites, emotions, passions, have become the central interests of the day not only in the science of mind but in art, literature, and nearly all practical life.

And through these activities, subject as they surely are to the laws of physiology and heredity, man's identification with the whole of living nature is made direct and inevitable. There is not an item in the list of structures and activities mentioned that is not common to men and some, if not the whole, of the animal world.

If all this does not mean filiation by descent with animate nature generally, what does it mean?

We have reached a point in the study of man where it becomes clear that whatever theory of his origin shall finally prevail must be accordant with the major facts of his daily life. And anyone who would contend that these facts do not necessitate belief in some form of evolution or natural transformation is compelled by the fact that he himself possesses the power of reason, to produce a rational theory of his origin that accords better with the facts of his own nature and the nature of all living beings than does any transformational theory.
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EVIDENCES FOR EVOLUTION

NO. 3

ACTUAL ORIGIN OF SPECIES HAPPENS

BEFORE EYES OF OBSERVING NATURALISTS

Evolution Authority Says Sudden Modifications Called Mutations
Give Rise to New Species of Plants and Animals.

By Dr. Vernon Kellogg,
Permanent Secretary, National Research Council

(Dr. Kellogg, before he became the head of the National Research Council, was professor of entomology and lecturer in evolution at Stanford University. He is author of "Evolution", "Darwinism Today", and "Evolution and Animal Life".)

When any kind of animal or plant produces offspring these young resemble their parents - but never exactly. There are always differences; lesser or greater. These differences are called variations.

Most of these variations are mere fluctuations around a mean and are not necessarily repeated in the next generation. Some of them, which may be more marked, are undoubtedly due to varying environmental influences and also are not repeated in later generations unless these generations are reared under the same kind of environment.

But sometimes some of these variations reappear in the next and all the succeeding generations, even though the environment surrounding the development of these succeeding generations is not the same as that which surrounded the first generation in which the variations appeared. Such variations are inherited. They breed true.

Such heritable or fixed variations are called mutations, meaning that from one kind of plant or animal a new kind has been produced by a persisting change or sudden little jump. This is the production of a new kind of animal or plant. This is species-forming by mutation. It is the easiest kind of origin of species to observe. It has been observed by many naturalists. These naturalists have seen evolution actually happening.

A kind of little fly, called fruit-fly, which has been very carefully studied for several years by various naturalists, chief of whom is the American zoologist, Thomas H. Morgan of Columbia University, has given rise, under their eyes, to many mutations. These are new kinds of fruit flies. Most of them are not kinds better fitted for existence than the original kind of fly from which they arose. But some are sufficiently fit to persist. They can hold their own in the struggle for existence. They are new additions to the kinds of fruit-flies. They are visible evidences of the present-day evolution of animal kinds.

Similarly, botanists have seen new kinds of plants arise by mutations. The most famous cases of this kind are the mutations of the evening primrose, first carefully observed and described by the great Dutch botanist De Vries of the University of Amsterdam, and later observed and studied by German, English and American botanists. These new kinds of evening primroses, arising by fixed "jumps" or mutations from a species called Lamarck's evening primrose, are visible evidences of the present-day evolution of plant kinds.

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EVIDENCES FOR EVOLUTION

No. 4

TOOLS OF OLD STONE AGE PROOF OF MAN'S CULTURAL EVOLUTION

Early Progress of Human Invention Extended Over Several Hundred
Thousand Years, says Anthropologist

By Dr. George Grant MacCurdy,
Curator, Anthropological Collections, Yale University,
Author of "Human Origins", etc.

The evolution of human culture is well exemplified by a study of the artifacts of the Old Stone Age in Europe. This Age covered a period of several hundred thousand years. It is commonly divided into two periods - the Eolithic and the Paleolithic; the latter is subdivided into Lower, Middle, and Upper Paleolithic. Cultural evolution has its parallel in organic evolution, and, like the latter, its pathway is strewn with extinct forms. Of the two, cultural evolution is subject to more rapid changes, its chief basis being human inventiveness. One invention leads to others by a system of budding and branching; so that a single invention may give rise to a whole cluster of related activities forming what