

But it is known that thousands of wild species, that we have on earth today, did not exist in earlier geological ages just as there are thousands of species that lived in past geological ages that are not living today.

The conception of a world that does not change is one that may have seemed possible to monks shut in their cells; but every one, who has travelled and observed widely, knows that the face of the earth is changing; and every one who has lived with and bred animals and plants knows that they too are changing.

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### EVIDENCES FOR EVOLUTION

#### NO.2

#### MAN'S INSTINCTS AND EMOTIONS SHOW

#### EVOLUTIONARY LINK WITH ANIMALS

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Biologist Holds that Nerves, Muscles, Glands, and Structure  
are Evidence of Filial Relation with Rest of Nature

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By Dr. William E. Ritter,  
President of Science Service.

(Dr. Ritter was formerly director of the Scripps Institution for Biological Research and professor of Zoology at the University of California. He is author of the "Unity of the Organism" and the "Usefulness of Science".)

Down to a few years ago nearly all the facts on which rested the hypothesis that man originated from lower forms of life by some marvelous process of natural transformation were drawn from studies on bodily structure. Fossil remains, physical organization of men and other creatures now living, and developing embryos, were the almost exclusive sources of such facts.

But now that researches into the activities and mental life of all sorts of men, in comparison with all sorts of inferior beings, has been and is being pursued on a vast scale and with great accuracy facts from this other source apparently having the same meaning are coming to light in astonishing numbers. Charles Darwin foreshadowed the new era of investigation by his book "The Expression of the Emotions in Man and Animals". But the most positively scientific gate-opening into this great realm was made nearly simultaneously by the American psychologist, William James, and the Danish physiologist, Carl Lange. The combined results of these initial labors was what is known as the James-Lange theory of the emotions.

The main facts invoked by this theory are too obvious to escape any one: All emotional states as of joy, grief, fear, anger, jealousy, love, are associated with more or less characteristic bodily manifestation, these often seeming to involve the entire physical framework. The theory says the bodily states thus manifested actually constitute the emotions. It is not, as the older theories had it, that the body is played upon as it were, by some independent entity, as a spirit, something as a piano is played upon by a pianist, but that the living organism's mode of responding to certain influences from the external world are the emotions.

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

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

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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.