

EVOLUTION

Natural Selection Still True

► NATURAL SELECTION can still explain how the leopard got its spots.

Charles Darwin's theory of natural selection, presented a century ago with the publication of his "The Origin of Species," has run into considerable criticism over the years, Prof. I. Michael Lerner said. However, the University of California geneticist pointed out that many of the objections are a result of mistaken interpretations of Darwin's theory.

Yesterday we spoke of the leopard's spots as being "good" for it. In these terms natural selection acquired a certain moralistic tone, Prof. Lerner explained. Today we understand that factors such as biochemistry or physiology provide a basis for natural selection regardless of the human moral concept of "survival of the fittest."

The only way we can measure survival of the fittest, Prof. Lerner said, is in terms of those animals or plants that leave the most offspring. Offspring that are mediocre or inadequate can be produced through natural selection which has become for many persons simply another name for survival of the fittest.

Now many biologists accept as a definition of natural selection that it is a "non-random differential reproduction of genotypes," Prof. Lerner said. This is defining

the century-old concept in terms of our current knowledge of genetics.

Individuals with different combinations of genes, different genotypes, thus result from the interaction of many factors. Among these factors are mutation, isolation, environmental conditions, and so on. Actually, Prof. Lerner pointed out, the success of natural selection is largely based on Mendelian inheritance, or the laws governing the role genes play in the individual's make-up.

Concerning man, Prof. Lerner said that he does not believe we have eliminated natural selection as an influence on man. We have, instead, changed the factors that are in operation.

Where the brute strength of the cave man was a factor in the natural selection of offspring, today genes are a more important factor. In simpler terms, as man controls his reproduction more and more, through contraceptive methods for example, a gene for "maternal instinct" could play a very important role in natural selection.

Prof. Lerner gave the opening address at the American Philosophical Society's annual meeting in Philadelphia. The meeting is being held in commemoration of the centennial of the publication of Darwin's "The Origin of Species."

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Discuss Darwin's Influence

► EVIDENCE to support Darwin's theory that "man is descended from some lower form" was almost non-existent when he published his "The Origin of Species" 100 years ago and his "Descent of Man" in 1871, the famous anthropologist Sir Wilfrid Le Gros Clark, anatomy professor at Oxford University, told the American Philosophical Society meeting in Philadelphia.

Now fossils have been found which provide a record of evolution over the last million years or so, he said. These fossils comprise a graded series which carries human evolution back to ape-like creatures approximating closely Darwin's conception of "connecting links."

"The fact that such discoveries have led to considerable controversy by competent authorities on the question whether these links are properly to be regarded as 'advanced' apes or exceedingly primitive hominids," Sir Wilfrid commented, "is itself an impressive testimony to the essential accuracy of the thesis expressed by Darwin that 'man is descended from some lower form.'"

Darwin based this conception on indirect evidence of comparative anatomy of lower animals and humans, on embryology and by analogy with what was then known of the evolutionary history of other groups of mammals.

Darwin implied prediction that the con-

necting links would some day be discovered when he said "that those regions which are the most likely to afford remains connecting man with some extinct ape-like creature, have not as yet been searched by geologists."

Darwinism Affected Arts

► THE BOOK we read and the sermon we listen to at religious services have also been profoundly influenced by Charles Darwin's theories of evolution.

This influence has not been merely a destructive one as has been commonly thought, two professors pointed out at the Philosophical Society symposium. Darwin positively influenced the arts, religion and all society in some way.

Although he contributed powerfully to the spread of agnosticism, Dr. John C. Greene, professor of history at Iowa State College, said that Darwin contributed to the "philosophical reconstruction" of religion. Darwinian biology emphasized "organism, process, spontaneity, creativity and the like." In this respect, Dr. Greene said, it released religious and esthetic intuitions from the strict bonds of scientific materialism.

In his influence on literature Darwin contributed to contemporary pictures of

nature as "blind struggle and universal death." Writers as varied as Tennyson, Hardy, Swinburne, Meredith, Huxley and Spencer reacted to the new biology in many ways—from a starkly realistic view of life to a "rejoicing in upward evolution."

Prof. William Irvine of Stanford University concluded that Darwin gave rise in creative literature to an important religious and philosophical debate that made further debate seem worthless.

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ICHTHYOLOGY

Dolphins Hitch Free Rides On Bow Waves of Ships

► BELIEVERS OF the tale that the fun-loving dolphin races alongside ships and leaps playfully in the air for the amusement of mankind are in for some disheartening news.

Studies in dolphin territory by Dr. P. F. Scholander have revealed information that spikes the charming legend. Dolphins are air-breathing animals and they leap out of the water to catch their breaths.

But, do not lose faith in the slithery sea beast, for Dr. Scholander views them as quite clever innovators who allow themselves to be pushed long distances, at little expense of energy, by the bow waves of ships. This is why they seem to be racing with ships.

Dr. Scholander, a physiologist at the Scripps Institution of Oceanography, made these observations during his spare time while investigating the gas content of icebergs near Greenland. His work was sponsored by the Arctic Institute of North America in Washington, D. C.

Aboard the Norwegian sealing vessel, M. S. Rundoy, which was engaged in an iceberg-capturing mission, he tested this theory that dolphins get their push from bow waves by putting their tail flukes at a certain angle in the upwelling water. He put a metal vane about the size of a tail fluke in the bow wave at various angles and measured the push. The force, he figured, was enough to keep dolphins abreast of the ship. He described the dolphin free-ride technique as follows:

"An attentive observer leaning out over the railing can watch them speeding along close to the bow . . . but, unless already briefed, he is likely to miss the fact that the (dolphins) just seem to be 'standing' there motionless, as if getting a free ride.

"Assisted by its pectoral fins, the dolphin steers itself horizontally while he leans his tail fluke against the upwelling water. The water (of the wave) is not only pushed upward and forward, but also outward, and he may ride keeled over on his side."

Dr. Scholander also suggested that the famous little pilot fish, which keeps company with sharks by riding just ahead of their snouts, may employ the same principle. The only way it can keep pace with fast-moving sharks is to ride on the sharks' nose wave.

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