Schopp, G. M. 1976. Dogs provide no evidence for evolution. ***CRSQ*** 12:220. Dogs provide no evidence for infinite variation.

Smith, E. N. 1985. The role of creation research in modern biology. ***CRSQ*** 22:105-107. The research needed to develop the kind concept was outlined.

von Fange, E. A. 1989. The Litopterna—a lesson in taxonomy: the strange story of the South American 'false' horses. ***CRSQ*** 25:184-90. A historical and scientific review of the supposed evolution of the horse. A reader can detect the failure of the infinite variation postulate again.

Conclusion

Considerable creationist literature is available that illustrates the truth of limited variability in nature. Hopefully creationists will continue to do research on this topic and improve the creation model of science.

SYMPOSIUM ON VARIATION—II

WHAT IS A SPECIES?*

BOLTON DAVIDHEISER**

Received 1 October 1990; Revised 12 November 1990

Abstract

A ***number of examples are given to show that there is no definition of the term "species" applicable to resolve questionable cases. Taxonomists disagree among themselves and change their minds as to what is a species and how many there are in various genera. As an evidence of evolution, taxonomy has a problem with gaps similar to the problem in the fossil record. Hereditary changes within species may represent "natural selection" but not evolution. Since the term species cannot be adequately defined it is not proper to say that creationists believe each species was created separately.***

Introduction

What is a species? Dr. James Fisher (1940) of the London Zoological Society said, "Two animals belong to the same species if such is the opinion of a competent taxonomist." But recognized taxonomists frequently disagree. Charles Darwin recognized the problem and wrote in his ***Origin of Species,*** "From these remarks it will be seen that I look at the term species as one arbitrarily given, for convenience. . . ." No definition of species can be applied to resolve questionable cases—it is a matter of opinion.

There is a popular misconception that if animals or plants can be crossed and produce fertile offspring they belong to the same species, otherwise not. This no longer is recognized as an adequate criterion by most scientists. Dr. Fisher (1940), for example, says,

> Two animals do not necessarily belong to the same species if they interbreed in the wild. There are many examples of distinct species which have increased their range . . . so as to overlap. In this region of overlap they may interbreed, producing a mixed or hybrid population. Nevertheless this does not mean that they are the same species.

Professor Michael F. Guyer (1948) of the University of Wisconsin wrote,

> Ordinarily individuals of the same species are entirely fertile when inbred, and individuals of different species cannot or will not reproduce with each other, but there are so many exceptions to this rule that it cannot be used as a satisfactory distinction.

Species Differences

Sometimes species are separated on the basis of trifling physical differences. Ernst Mayr (1942, pp. 272-73) tells of two species of European birds called brown creepers which differ in that one has a long, nearly straight claw on the hind toe while the other has a short, curved claw. They occur together but are said not to interbreed. He also mentions two species of flycatchers. One has a longer tail than the other, but the difference is so slight that the species cannot be told apart unless the birds are caught and the tails measured.

There are species that are distinguished by detailed internal anatomy. Dr. Carl Heinrich (1956) of the Smithsonian Institution says of moths of the family Phyctidae, "Anyone wishing to identify phyctids must resign himself to a tedium of dissection and slide making." According to Robert W. Pennach (1953) of the University of Colorado, there are some annelid worms in which:

> . . . identification depends on internal details of the reproductive system, and though careful dissections are often adequate, it is frequently necessary to make stained serial sections of the segments containing the reproductive structures. Usually cross sections are sufficient, but some workers advocate longitudinal sections in addition.

Some species are identified physiologically, This is frequently the case in bacteria, where distinct morphological characteristics may be difficult to find. Two species of the single-celled green alga *Chlorella* are identified by measuring their average rates of respiration.

Another phenomenon which may cause trouble for the taxonomist is alternation of generations. In some animals each generation is very different from the one which preceded and like the one before that. The

***Editor's note: This article is an excerpt from the author's book,** *Evolution and Christian Faith.* **1969. Presbyterian and Reformed Publishing. Phillipsburg, NJ.**

****Bolton Davidheiser. Ph. D.. 13530 Fonseca Ave.. La Mirada. CA 90638.**

classic examples occur among the jellyfish, but it is found also among some insects and other creatures. Dr. E. P. Felt (1923), state entomologist of New York, said,

> One of the most striking and well established is the well-known alternation of generations in gall wasps, a divergence so marked that alternate generations up to within a few years ago were regarded as belonging to different genera.

There are species of the water flea *Daphnia* in which individuals exist in a single morphological form from October to March, but the rest of the year their offspring look like a multitude of different species.

Number of Species

Birds have been studied from a taxonomic standpoint more thoroughly than any other class of animals. Professor Ruggles Gates (1948, p. 389) of Rutgers University says that the number of species of birds has been reduced, through changes of opinion as to what is a species, from 27,000 to 8,500.

In 1876 Jordan's list of fishes of North America contained 670 species. During the following 10 years 125 newly discovered species were added. That makes a total of 795 species. But during those 10 years 196 species were dropped from the list because it was decided that they were not species after all. So in spite of the discovery of 125 new species the number of recognized species was less by 71.

Mayr (1942, p. 28) mentions that the freshwater clam *Anadonta* was formerly classified in 251 species, but later this was reduced to a single species. In 1931 Swarth studied the ground finches of the Galapagos Islands, and as reported by Julian Huxley (1939) he classified them into five genera and 317 species and subspecies, but confessed it would be as logical to put them all in a single species. David Lack (1947) of Cambridge studied these finches and in his much-quoted book *Darwin's Finches* reduced the genera to four and the species to 14. This seems to have stabilized as Dr. Peter Grant (1986) of Princeton retains the same number in his thorough study. *

It is generally agreed that living human beings all belong to the same species, *Homo sapiens,* but it has not always been so. Professor Gates (1948, p. 406) tells that he with Professor Henry Fairfield Osborn would divide living man into a number of species, while Professor Franz Weidenreich (1946) includes fossil forms within our species. In recent years the Neanderthals have been graduated from *Homo neanderthalensis* to our species, *H. sapiens. Pithecanthropus erectus* and *Sinanthropus pekinensis* have graduated to our genus, *Homo erectus.*

One more example of many may be considered, the case of the despised "poison ivy," which is not an ivy. It belongs to the Cashew Family. From American specimens sent to him Linnaeus separated *Rhus radicans* and *R. toxicodendron* on the basis of whether they climbed or grew as a shrub. Later it was discovered that they are the same thing, which climbs if it has something upon which to climb and otherwise grows as a shrub. Of those who consider it a single species, some call it *R. radicans* and some call it *R. toxicodendron.* One author applied the name *R. toxicodendron* to a different species that grows only along the Atlantic coast from New Jersey southward. Generally four species are recognized, including the "poison oak" of the West, which is not an oak.

*Editor's Note: See Lammerts, W. E. 1966. The Galapagos Island finches. *CRSQ* 3(1):73-79.

Classification

Professor Hooton (1938) of Harvard said, "I am convinced that a zoological classificationist may be as dissolute as a lightning-rod salesman." In more erudite language Professor Mayr (1942, p. 4) wrote,

> Systematics is in a more difficult position than other sciences . . . we have an almost unlimited diversity of opinion in answer to such questions as: What is a species? How do species originate? Are systemic categories natural? [That is, do they show evolutionary relationships or are they merely arbitrary arrangements?] And so forth. There is no uniform point of view among taxonomists; in fact, in regard to many of these questions there may not be even a majority opinion.

New Species

That animals and plants can be classified into various categories because of similarities and with increasing complexity is claimed as an evidence of evolution. But as in the case of the fossil record, there are the glaringly embarrassing gaps. Speciation, if it occurs, does not bridge the gaps and is not the answer. Hence Goldschmidt's lucky monster theory and Gould's punctuated equilibria have been offered.

Have any new species come into existence in historic times? Certain hybrids have been claimed a new species and even a genus, *Raphanobrassica,* a cross of radish and cabbage. It has a top like a radish and a root like a cabbage and it is difficult to maintain. A hybrid merely has a combination of parental genes, and as to evolution it is a blind alley leading nowhere.

The case which has been most widely used to sell evolution to the public is that of the light and dark moths in England. The natural state of tree trunks covered with lichens is a perfect background to conceal the light moths as they rest on the trees in the daytime. The dark moths stand out in contrast and are more easily seen by predatory birds, with the result that there are more light moths in the population. But in industrialized areas the trees have been darkened by contaminants, and the situation with the moths is reversed. Dr. Kettlewell (1959) investigated this and called it "Darwin's missing evidence"! It does illustrate "natural selection," but there is no evolution. The moths are still moths and they are even still moths of the same species. They are not becoming anything else. It is not uncommon for evolutionists to tell students and the public that cases like this represent evolution, and having convinced their audience that this is so, they switch definitions to include what really could be evolution.

Creationists and Species

Another common practice in college textbooks is to say that creationists believe every species was separately created. Since it is evident that specialists in taxonomy cannot agree about what is a species, it seems deceptive that they should imply that creationists, most of whom are not taxonomists, can discern species. Also, as the number of recognized species keeps changing, this implies that the number of original species created in the beginning changes from year to year in our day. This is obviously ridiculous. The evolutionary scientists who say this evidently do not think through their charge that creationists believe every species was separately created or else they bluff, expecting their victims to be too dull to notice the implications of what they are saying.

References

Felt, E. P. 1923. Origin and evolution of insects. *Scientific Monthly* 16:588

Fisher, James. 1940. Watching birds. Pelican Books. New York. p. 39.

Gates, Ruggles. 1948. Human ancestry. Harvard University Press. Cambridge, MA.

Grant, Peter. 1986. Ecology and evolution of Darwin's finches. Princeton University Press. Princeton, NJ. p. 51.

Guyer, Michael F. 1948. Animal biology. fourth edition. Harper and Brothers. New York. p. 563.

Heinrich, Carl. 1956. American moths of the subfamily *Phyctidae.* Smithsonian Bulletin Number 207. p. vi.

Hooton, Ernst. 1938. Apes, men, and morons. George Allen and Unwin. Winchester, MA. p. 115.

Huxley, Julian. 1939. The living thoughts of Darwin. Longmans, Green. London. p. 25.

Kettlewell, H. B. D. 1959. Darwin's missing evidence. *Scientific American* 200(1):48.

Mayr, Ernst. 1942. Systematic and the origin of species. Columbia University Press. New York.

Pennach, Robert W. 1953. Freshwater invertebrates of the United States. Ronald Press. New York. p. 287.

Weidenreich, Franz. 1946. Apes, giants, and men. University of Chicago Press. Chicago. p. 2.

SYMPOSIUM ON VARIATION—III

IS MORE THAN GENE ACTION REQUIRED TO ACCOUNT FOR VARIATION?

LESTER J. MCCANN*

Received 10 October 1990; Revised 20 November 1990

Abstract

Embryo cells move about on their own while fashioning the architecture of the developing embryo. This demonstrates that the functioning of the cell may not be solely the result of gene action. The ability of embryo cells to react creatively to any unchartable impediments bolsters this conclusion. A different source of directive control of cellular activity needs to be recognized, one that exceeds the limitations of genes in terms of originative activity.

We ***find that any aggregative construction requires an intelligence input. Without it, only chaos and disintegration results. It is therefore appropriate that we assign an intelligence determinant to the cell. The cell not only constructs itself, but embryo cells working together construct the multi-celled organism. Cellular intelligence is defined as the ability to select, control and direct energy. Cellular intelligence works in a copartnering arrangement with gene action.***

With this dual factor paradigm, in order to get phenotypic changes of sufficient scope to fuel an evolutionary agenda, two sets of changes must accrue: one genetic and the other intelligence-related. The chances for phenotypic alterations of a magnitude and specificity capable of producing organic evolution is thus more difficult to visualize. Stasis becomes easier to envision, particularly in terms of fundamental changes.

Introduction

Almost any dialogue regarding the manner in which living things come to differ leads into the well-worn orthodoxy of how differences in the genome, or genetic makeup, account for variations in phenotypic expressions, or the way in which genes manifest themselves. In seeking the cause for living variations, is there any need for investigating other factors besides gene function? There is at least one other important and usually neglected factor of copartnership which observably goes along with gene action.

The Second Factor

This other agency is demonstrable in a number of different ways. One of the best is observing the way in which a vertebrate embryo falls into place embryonically. It is evident that embryonic development involves more than gene action, that is, having the right genes turning on and off in the process of synthesizing the correct array of proteins.

*Lester J. McCann, Ph. D., 7555 Co. Rd. 10 N., Waconia, MN 55387.

There is also a vital crafting process that occurs. This structuring operation is accomplished by cellular efforts in which cells by their own effectiveness position themselves in strategic patterns in the process of which embryonic details are fashioned. The embryo manifestly does more than merely enlarge itself. Indeed it involves itself in a complex frameworking process during which the embryo resembles very little the individual-to-be. Through all of this it is clear that in the embryo's various transformations the finalized architecture is being anticipated.

The embryo in executing this construction effort presents a dynamic scene of activity. Cells move about animatedly, facilitated by the fact that all embryo cells are capable of motility. Their movements in some instances are remarkable. Cells proliferating and accruing in one location, becoming mesenchymatous, sometimes travel formidable distances to assemble at a different but predetermined location. Here they establish a focus of growth which turns out to be the primordium for a future organ.