NEO-DARWINISM: A LOOK AT THE ALLEGED GENETIC MECHANISM OF EVOLUTION

by

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INTRODUCTION

Charles Darwin argued that species always are changing—the result of natural selection. His concept was that of descent-with-modification, with continual and gradual change. Geographical distribution and natural selection, Darwin felt, were the modes of evolution.

Then, at the turn of the century, the science of genetics began to appear on the scene. Genetics made spectacular advances, and has continued to do so in the last 90+ years. Once man understood the nature of deoxyribonucleic acid (DNA) and its function in sexual reproduction, he could see a great deal of the mystery of life unraveling before his very eyes.

Some scientists suggested that they had the answers as to how variation and change occurred. It was done, they said, by genetic mutations. Many geneticists came to believe that natural selection played a role in evolution, but should not have the prominence that Darwin originally had assigned it. The geneticists' idea was that species arose by mutations, which then were incorporated into the evolutionary system via natural selection.

Today most textbooks of genetics (and even general biology) use this science to support the theory of organic evolution. If scientific creationism is mentioned at all (and it rarely is), it is regarded as a discarded theory of the pre-scientific era and is rejected because it "conflicts" with the laws of heredity and the "facts" of evolution. However, an unbiased examination of the Neo-Darwinian system of evolution, as opposed to scientific creationism, will reveal that it is evolution, not creation, which is in conflict with the known laws of science and the scientific facts. Scientific creationism, rather than being at odds with the facts of heredity, fits the facts perfectly. In fact, the scientific evidence from genetics is exactly what the creation model predicts.

THE IMPORTANCE OF GENETIC MUTATIONS IN NEO-DARWINIAN EVOLUTION

Genetic mutations are of no little importance to the theory of evolution. This will become increasingly evident throughout the remainder of this paper; nevertheless, a quotation from one of the foremost evolutionists of the twentieth century, George Gaylord Simpson, formerly of Harvard, will suffice to explain just how important genetic mutations are to evolution theory. Dr. Simpson, in his famous high school biology textbook, *Life: An Introduction to Biology*, wrote: "Mutations are the ultimate raw materials for evolution" (1965, p. 430). Thus, Dr. Simpson has asserted that without genetic mutations, there would be no evolution! Indeed, we were told at the turn of the century, and we are being told today, that genetic mutations are responsible for the forward progress proposed by the theory of evolution. Is this correct? Are genetic mutations responsible for organic evolution? Is this a plausible explanation in keeping with the scientific facts currently available?

WHAT IS A MUTATION?

What is a genetic mutation? Biologists, in general, allow a wide variation in the definition of "mutation." Webster's Dictionary defined a mutation as: "change; a significant and basic alteration; a hypothetical, sudden, fundamental change in heredity producing new individuals basically unlike their parents." A 1974 biology textbook defined mutations as "genetic change that can be inherited" (Moore, p. 760). A 1973 college biology textbook defined mutations as "a change in the form, qualities, or nature of the offspring from their parent type brought about by a change in the hereditary material from the parents" (Wasserman, p. 803). A 1976 college textbook in genetics stated concerning mutations: "Basically, a mutation is a sudden, random alteration in the genotype of an individual. Strictly speaking, it is a change in the genetic material itself..." (Burns, pp. 313-14).

Mutations, then, are hereditary changes caused by alterations of the genetic material. The debate still is ongoing as to whether only those changes that are deleterious to an organism should be called true mutations, while only those changes that are beneficial to an organism are attributed to built-in mechanisms. We shall have to await the outcome of that discussion.

NATURAL SELECTION AND MUTATIONS

Darwin's critics pointed out some weaknesses in his natural selection theory, especially the fact that it did not explain the origin of the types from which it was assumed that the fittest was selected. When the celebrated Dutch botanist, Hugo deVries, proposed his mutation theory at the turn of the century (deVries "re-discovered" the work in genetics of the Austrian monk, Gregor Mendel, independently of, but at the same time as, Correns of Germany and Tschermak of Austria; see Sturtevant, 1962, p. 36), it first was taken as a rival theory and therefore was rejected. Dr. deVries reminded the strict Darwinians that "natural selection may explain the survival of the fittest, but it cannot explain the arrival of the fittest" (1905, pp. 825-826). Nevertheless, deVries' mutation theory was not accepted immediately.

As years passed, however, evolutionary scientists finally accepted deVries' mutation theory along with Darwin's theory of natural selection, and the two together were proposed as an explanation of the mechanism of evolution. During the 1920s and 1930s, the scientific community began to realize that this combination of ideas from Darwin and deVries was not an adequate mechanism for evolution. Scientists then "gave up" on natural selection coupled with genetic mutations as evolution's mechanism, and many freely admitted that they did not know how evolution came about. Yet, they believed that given additional time, they would find the answer. A statement by professor George H. Parker of Harvard University illustrates the feelings of scientists in the 1920s and 1930s (even though at that time they did have the theory of mutations as a mechanism of evolution): "Because biologists have not as yet discovered how evolution takes place, is no reason for denying evolution itself" (1926, p. 62).

Eventually, of course, it became clear to members of the evolutionary community that **they had nothing better**! So evolutionists swallowed their pride and re-accepted the mutation theory, coupled with natural selection, as the alleged mechanism of evolution. Today, the Neo-Darwinian theory uses as its mechanism genetic mutations plus natural selection. As evolutionary scientists had studied evolution, it became increasingly apparent to them that neither ordinary variations nor recombinations of existing characters could account for the "upward" nature of evolution. Some extraordinary mechanism had to be

found for this purpose. In the modern synthetic theory of Darwinism, the mechanism universally adopted for this purpose is that of genetic mutations.

The phenomenon of mutation, therefore, is a most important component of the evolution model. Evolution theory must postulate some mechanism to produce the required upward progress in complexity that characterizes the model in its broadest dimension. Mutation supposedly is that mechanism. The basic evolution model would predict, therefore, that primarily mutations must be beneficial, generating a "vertical" change toward higher degrees of order. Each such change must be positively helpful in the environment if it is to be preserved by natural selection and thereby contribute to the evolutionary process. With these things in mind, then, let us examine (using the scientific data as provided by evolutionists) genetic mutations as an alleged mechanism of evolution.

MUTATIONS ARE RANDOM

First, it is essential to understand that mutations are entirely random. The earlier definition of a mutation from a genetics textbook referred to mutations as "sudden, **random** alteration(s)…." Indeed, the late C.H. Waddington, himself a renowned evolutionary geneticist, stated: "It remains true to say that we know of no way other than random mutations by which hereditary variation comes into being, nor any process other than natural selection by which the hereditary constitution of a population changes from one generation to the next" (1962, p. 98). Henry M. Morris, a creationist, agrees: "There is no way to control mutations to make them produce characteristics which might be needed. Natural selection must simply take what comes" (1974, p. 54). It is an established fact of science that mutations are entirely random. So, the obvious question is: "How often do these random mutations occur?"

MUTATIONS ARE VERY RARE

How often do these random mutations occur? Professor Waddington stated: "Mutations occur rarely, perhaps once in a million animals, or once in a million lifetimes" (as quoted in Jackson, 1974, p. 54). Francisco J. Ayala, writing in *Philosophy of Science*, commented: "It is probably fair to estimate the frequency of a majority of mutations in higher organisms between one in ten thousand and one in a million per gene per generation" (1970, 37:3). Evolutionists frankly and candidly admit what every research bi-

ologist knows: mutations occur rarely, and when they do occur, they are entirely random. Actually, however, evolutionists are not concerned merely with how often mutations occur. The question that must be asked is this: "How often do **good** mutations occur?"

GOOD MUTATIONS ARE VERY, VERY RARE!

The man who probably devoted more study than any other man to experimental observation of mutations, Hermann J. Muller, Nobel Laureate and world-renowned evolutionary geneticist, stated in *American Scientist* some years back that "mutations are found to be of a random nature, so far as their utility is concerned. Accordingly, the great majority of mutations, certainly well over 99%, are harmful in some way, as is to be expected of the effects of accidental occurrences" (1950, 38:35). Dr. Muller echoed that same sentiment in an interview in *Time* magazine when he said: "Most mutations are bad; in fact, good ones are so rare that we may consider them all as bad" (as quoted in *Time*, 1946, p. 96).

Professor Theodosius Dobzhansky, one of the outstanding evolutionary geneticists of our day (and himself an evolutionist), admitted frankly and honestly that favorable mutations amount to less than 1% of the mutations that occur (as quoted in Davidheiser, 1969, p. 209). Sir Julian Huxley, the man who likely was more responsible than any other for the modern view of evolution known as Neo-Darwinism (the view that says evolution proceeds by the accumulation of small mutations preserved by natural selection) expressed even less confidence in the frequency of beneficial mutations when he wrote: "A proportion of favorable mutations of one in a thousand does not sound like much, but it is probably generous, since so many mutations are lethal, preventing the organism living at all, and the great majority of the rest throw the machinery slightly out of gear" (1953, p. 45).

Huxley, in other words, has suggested an even lower percentage of good mutations than Dobzhansky. Huxley said that one-tenth of one percent is good. In fact, Dobzhansky observed: "Most mutants which arise in any organism are more or less disadvantageous to their possessors. The classical mutants obtained in *Drosophila* usually show deterioration, breakdown, and disappearance of some organs" (1955, p. 105). Henry M. Morris summarized the detrimental effects of mutations.

> As a matter of fact, the phenomenon of a truly beneficial mutation, one which is **known** to be a mutation and not merely a latent characteristic already present in the genetic material but lacking previous opportunity for expression, and one which is permanently beneficial in the natural environment, has yet to be documented. Some evolutionists doubt that they occur at all (1974, p. 56 emp. in orig.).

Evolutionist C.P. Martin, writing in the *American Scientist*, stated:

> Accordingly, mutations are more than just sudden changes in heredity; they also affect viability, and, to the best of our knowledge, invariably affect it adversely. Does not this fact show that mutations are really assaults on the organism's central being, its basic capacity to be a living thing (1953, p. 102).

THE OVERALL NET EFFECT OF MUTATIONS IS HARMFUL

Essentially, all of these men—and I have quoted from the leading evolutionists—are saying one thing: the overall, net effect of mutations is harmful. Christopher Wills, writing in *Scientific American*, placed the matter in its proper perspective when he stated:

> The large majority of mutations, however, are harmful, or even lethal to the individual in whom they are expressed. Such mutations can be regarded as introducing a "load" or genetic burden into the pool. The term "genetic load" was first used by the late H.J. Muller, who recognized that the rate of mutations is increased by numerous agents man has introduced into his environment, notably ionizing radiation and mutagenic chemicals (1970, 222:98).

Dr. Morris concluded along these same lines: "That the net effect of mutations is harmful, rather than beneficial, to the supposed progress of evolution is made transparently clear by the zeal with which evolutionists for decades have been trying to get mutation-producing radiations removed from the environment" (1974, p. 56). It does seem logical that if evolutionists really believed that evolution is due to mutations, they would favor all measures that could increase the rate of mutations and thus facilitate further evolution. Instead, they have been trying for decades to reduce nuclear testing for the very purpose of **preventing** mutations. Why so? Geneticist William J. Tinkle explained: "Mutations regularly reduce vigor, whatever else they do" (as quoted in Ward 1965, p. 81).

IF MUTATIONS ARE SO HARMFUL, WHY ARE THEY SO IMPORTANT TO EVOLUTION?

Since so many mutations are harmful or injurious, it is only natural to inquire as to why they are considered so important in evolution. The answer is: **evolutionists, quite frankly, having nothing better**! Nothing else can furnish the basic variations required for evolutionary change.

Professor Dobzhansky, the late geneticist/evolutionist, commented: "The process of mutation is the only known source of the new materials of genetic variability, and hence of evolution" (1957a, 45:385). He even repeated this sentiment in a textbook that he revised: "Since mutation is the only known method of origin of new hereditary variability, the mutation process is considered to be the prime source of the materials of evolution" (1950, p. 315). It should be remembered that this is the same man who said that good mutations occur less than 1% of the time. He was forced to admit that the probabilities of good mutations occurring are ridiculous in the extreme. Still he accepted those probabilities in order to believe in evolution. And Dr. Dobzhansky has admitted very candidly that there is something amiss here. He stated: "The deleterious character of most mutations seems to be a very serious difficulty" (1955, p. 105).

Dobzhansky is correct. There are serious difficulties. Mutations may be compared with accidents. They are more like wrecking a car than building one. An accident is not usually thought of as an improvement, but a disaster. So it is with mutations. Consider, if you will, the example of the people of Japan following the explosions of the atomic bombs in their country. Those bombs produced numerous mutations, but none was good. Mutations may create a weaker plant or animal or human, **but they never create a new "kind."** The one-eyed fish is still a fish; the two-headed calf is still a calf; Siamese twins are still human. Yet they are worse off because of mutations.

Evolutionists claim that "nature" keeps selecting good mutations and rejecting bad mutations, so that one kind of life gradually becomes another kind of life, with improvements. Since more than 99% of all mutations are harmful, what is there for nature to "select"? If an organism did experience a good mutation (which is highly unlikely), followed by a bad mutation (which is highly likely if it mutates at all), then "nature," if it did anything, would reject this organism as unfit.

Natural selection, or "survival of the fittest," is extremely limited. Because a plant or animal survives, that does not mean it evolved. If a hen hatches a number of chicks and some are killed or die, does it mean that the others "evolved"? Certainly not. It simply means that some survived, while others did not. Those that did survive still are chickens!

IF 99% OF ALL MUTATIONS ARE HARMFUL, HOW DO

EVOLUTIONISTS EXPLAIN EVOLUTION?

If over 99% of all mutations are harmful, then how do evolutionists consistently stand by their theory and logically state that mutations can actually account for organic evolution? Frankly, some do not. For example, James W. Mavor, professor emeritus of biology at Union College, wrote:

> The thoughtful student will also ask whether random mutations and isolation and natural selection...could have built up organisms as complicated as the higher plants and animals. At present, no satisfactory direct answer can be given. That long eons of time and billions of individuals are involved is not in itself an entirely satisfactory answer (1952, p. 752).

Ernest A. Hooton, Harvard's famed anthropologist, said: "Saltatory [by leaps and bounds, not gradual—BT] evolution by way of mutation is a very convenient way of bridging over gaps between animal forms.... Now I am afraid that many anthropologists (including myself) have sinned against genetic science and are leaning upon a broken reed when we depend upon mutations" (1937, p. 118). Daniel P. Quiring, professor of biology at Western Reserve University, observed: "To explain these helpful and useful changes in organ transformation, we are thrown back, as indicated, on mutations for their appearance and operation, and yet to depend upon this explanation is to make excessive demands on the mutation concept" (1950, p. 314).

Yet there are evolutionists who avidly believe that mutations nevertheless are responsible for organic evolution. For example, Hall and Moog of Washington University stated in their textbook, *Life Science*:

> From myriad mutations occurring at random over the ages, there have evolved ever more varied and complex beings, including even the possessors of intelligent minds capable of attempting to comprehend the whole scheme. How can orderly progression emerge from randomness? Some philosophically-minded students have preferred to attribute the directiveness of evolutionary change to a supernatural intelligence beyond the realm of scientific inquiry. Yet it is possible to explain the long-continued trends that we find in evolutionary history by gene mutations, recombination, and selection (1955, p. 442).

Snyder and David, in *The Principles of Heredity*, made the following assertions:

> This unique ability of a gene to draw from the surrounding medium the various building blocks needed to duplicate itself and to impress upon them its own pattern, even when that pattern is a changed, or a mutated pattern, is at the very center of the process of the evolution of life.
>
> On this hypothesis a mutation, either natural or induced, is thought of as being an alteration in the chemical arrangement of the molecule. The mutated gene, in its reproduction, duplicates itself in its altered form just as faithfully as it previously copied its original form. This is one of the foundation stones of evolution (1957, p. 377).

There are, however, increasing numbers of evolutionary scientists who question the slow, gradual process of "microevolution" as the alleged mechanism of evolution over the ages. These scientists suggest that instead of a slow, gradual process, evolution proceeded via a rapid, saltatory process. The late Richard Goldschmidt of the University of California at Berkeley was one of the first to challenge the microevolutionary concept. He simply could not bring himself to accept organic evolution as a result of micromutations in the environment. He insisted that there is a limit to the amount of change that can be caused by an accumulation of mutations. He further insisted that mutations are inadequate as a means of bringing about the total evolutionary scheme. He did, however, accept evolution as a fact. In order to do this, he postulated that there must be some sort of rapid, drastic change that can be produced. This kind of change, which is much more extensive than those produced by known mutations, he designated as "systemic mutations." He believed that such changes might occur during embryonic stages of development. Most individuals in which this occurred would be, he admitted, so abnormal that they could not survive. The large number of necessary mutations, attacking the organism at such a young age, would destroy almost all such organisms. Nevertheless, Dr. Goldschmidt postulated that rarely there would occur "hopeful monsters" (his term) that would be the means of furthering evolution. Goldschmidt's views on "hopeful monsters" were published first in his classic text, *The Material Basis for Evolution*, in 1940. Twelve years later, in 1952, he still was advocating systemic mutations and hopeful monsters.

> Nobody has produced even a species by the selection of micromutations. In the best-known organisms like Drosophila innumerable mutants are known. If we were able to combine a thousand or more of such mutants in a single individual, this still would have no resemblance whatsoever to any type known as a species in nature (1952).

Dr. Goldschmidt was not the only eminent evolutionist of his day to recognize that there were serious problems with the micromutation concept. As early as 1944, George Gaylord Simpson of Harvard wrote concerning the ever-elusive "missing links" in the fossil record:

> ...continuous transitional sequences are not merely rare, but are virtually absent...their absence is so nearly universal that it cannot, offhand, be imputed entirely to chance, and does require some attempt at **special explanation**, as has long been felt by most paleontologists (1944, p. 105 emp. added).

Dr. Simpson, in his famous work, *Tempo and Mode in Evolution* (1944), not only suggested that a "spe-

cial mechanism" was needed to explain the remarkable absence of transitional forms, but even went so far as to suggest just such a mechanism. He was careful, however, to give it a more "respectable" name than something like "hopeful monsters." He called it "quantum evolution," and described it as follows:

> For the sake of brevity, the term "quantum evolution" is here applied to the relatively rapid shift of a biotic population in disequilibrium to an equilibrium distinctly unlike an ancestral condition. Such a sequence can occur on a relatively small scale in any sort of population and in any part of the complex evolutionary process (1944, p. 206).

Five years later, in his 1949 book, *The Meaning of Evolution*, Simpson still was trying to get across his point with regard to the need for a "special mechanism" and the aptness of quantum evolution to fill that need. He argued:

> It is thus possible to claim that such transitions are not recorded because they did not exist, that the changes were not by transition but by **sudden leaps** in evolution. There is much diversity of opinion as to just how such leaps are supposed to happen (1949, p. 231, emp. added).

In other words, in 1944 Dr. Simpson was advocating, not a system of slow, gradual, microevolution, but rather of rapid, saltatory, macroevolution. He continued to be an advocate of such a system, though at the time few of his evolutionary colleagues were willing to follow his lead. Thus, according to both Goldschmidt and Simpson, microevolution (with its transitional forms) was out; macroevolution (with its alleged explanation of why there weren't any transitional forms) was in. It appeared that only Goldschmidt and Simpson were brave enough to even postulate such a "special mechanism" as saltatory macroevolution required.

At least that used to be the case. Then, slowly, one member of the evolutionary community, and then another, and then another, began to accept, if not completely, at least in part, saltatory macroevolution. Harvard's influential geologist/paleontologist, Stephen J. Gould, was one of the first. He wrote in his regular column in *Natural History*:

> As a Darwinian, I wish to defend Goldschmidt's postulate that macroevolution is not simply microevolution extrapolated and that major structural transitions can occur rapidly without a smooth series of intermediate stages.... I do, however, predict that during the next decade Goldschmidt will be largely vindicated in the world of evolutionary biology (1977, pp. 24,22).

It appears that Dr. Gould's prediction may come true. On October 16-19, 1980, a meeting of international importance was held at the Field Museum of Natural History in Chicago, Illinois. The conference,

which took place under the simple title of "Macroevolution," was devoted entirely to saltatory evolution. One hundred sixty of the world's foremost evolutionists (geneticists, paleontologists, anatomists, etc.) gathered to discuss the universal lack of transitional forms, and to suggest a possible mechanism for evolution that would at least attempt to explain the absence in the fossil record of so many transitions. The consensus of opinion among the evolutionists in attendance at the conference was that some concept of rapid evolution must be accepted to explain the regular and systematic absence of the transitional forms in the fossil record. The idea made popular at the conference to accomplish this is known as "punctuated equilibria" (a name recommended by Stephen J. Gould and Niles Eldredge). The name is different, but it is merely "systemic mutations" and "quantum evolution" warmed over and renamed. The results of this conference have been monumental in the halls of evolutionary science. Within only a few short years, the public has begun to see a major change in evolutionary thinking toward complete acceptance of "punctuated equilibria." For that reason, it certainly warrants our attention here.

These concepts, however, have not been without their opponents. For example, in speaking of Goldschmidt's theory of "hopeful monsters," Dobzhansky, a contemporary of Goldschmidt (and himself an evolutionary geneticist), commented:

> Another theorist proposes that the marvelous gifts of evolution to the living world came to birth through sudden and drastic "systemic mutations," which created "hopeful monsters" that were later polished down to the final product by evolutionary selection. But these theories amount only to giving more or less fancy names to imaginary phenomena; no one has ever observed the occurrence of a "systemic mutation," for instance (1957b, p. 31).

Or, as Jack Wood Sears aptly commented: "But we have not seen...systemic mutations" (1969, p. 67).

ADDITIONAL INFORMATION ON MUTATIONS THAT SHOULD BE CONSIDERED

There is, however, still the possibility that a good mutation might come along—eventually. And although it certainly would be rare, nevertheless it is at least possible. Many evolutionists postulate (for lack of anything better) that this good mutation is picked up in nature, causing evolution to occur. Certainly we must investigate this idea. But before we examine whether or not evolution can indeed be caused by genetic mutations, other important points need to be mentioned.

First, one problem with the claim that mutations represent a mechanism for evolution is that primarily mutations are recessive. This is indeed a blessing, for if they were not, there would be many more deformed animals and humans than there are. Most mutations occur only in one gene, and when one gene of a pair is deformed, the normal gene will carry through while the mutated gene remains unexpressed. Occasionally mutated genes become dominant, and in that case a deformed or less viable organism is the result. Generally speaking, however, mutations remain recessive or hidden and do not affect offspring.

Second, mutations also are known to heal themselves. In August 1977, Paul Hooley, M.D., presented a paper at the Fifth Annual Creation Convention in Philadelphia, Pennsylvania on "The Genetic Load in the Creation Model." Dr. Hooley discussed how it is possible for many mutations to "heal" themselves so that they never become dominant. That is to say, they are repaired *in vivo* (i.e., in the living system) before they ever become apparent.

Therefore, if the evolutionist depends on favorable mutations (and such mutations seem to be scarce), if the evolutionist depends on apparent mutations (and most are recessive), and if the evolutionist depends on expressed mutations (and most are healed before expression can occur)—then what does the evolutionist have going for his system? To add these problems to the process of evolution leaves the theory in serious difficulty, to say the least.

CAN GENETIC MUTATIONS ACCOUNT FOR ALL KNOWN FORMS OF LIFE?

Let me state at the outset that I am not denying genetic drift (microevolution), which is the long process of a genetic trait being incorporated into a particular kind of animal because that trait is better suited to the present environment of the animal than it was in the past with other traits. This concept is very important in helping animals adapt to their environments. As Sears has stated: "We can see the result of 'micromutations' and how their effects result through selection in the formation of new varieties, races, and perhaps what biologists call species" (1969, p. 57). It is not genetic drift I am questioning, but evolution by genetic mutations that lead to the crossing of phyla—and beyond.

Consider the following example. When one tries to hypothesize the evolution from amoeba to man, a serious problem arises (one of many) in making such drastic changes as, say, going from a reptile to a

mammal. Simpson, Pittendrigh, and Tiffany, in their biology textbook, *Life: An Introduction to Biology*, provided the reader with a listing of changes that would have to be made in such a transition.

Reptile to Mammal

1. Skull-brain case, teeth, jaw, palate, etc.
2. Brain-cerebrum exceeds cerebellum in mammals.
3. Ear ossicles—2 more bones in mammals.
4. Alligator-type to man-type posture.
5. Skin-scales versus hair.
6. Circulation and body temperature.
7. Reproduction—egg laying versus outside of egg.
8. Growth—sexual maturity limit for mammals (1957, p. 126).

My question is this: Is it possible that genetic mutations could account for these numerous major changes? Is it reasonable to suggest that genetic drift can account for these changes?

Suppose, for example, that a mutation took place in a reptile, causing it to become an animal that had a warm-blooded metabolism instead of one that is cold-blooded. This is quite an assumption, especially when one realizes the number of changes needed, but let us grant it for our argument. Could this creature then exist even with this new "adaption"? No. A reptile does not have a diaphragm in its lung system and thus could not oxygenate the blood adequately. Suppose another mutation somehow alleviated that problem. Could the animal then survive? No. Why? The reptilian heart is not efficient enough to circulate the blood properly. It would be necessary to produce a partition in the ventricle of the heart in order to get this part of the system operating. Suppose a mutation solved that problem. Could the animal then survive to "evolve"? No. Even with all of this "fixed" by mutations, the problem of tremendous heat loss from the animal still would exist since the reptile's system is designed to exchange heat with its environment and not to maintain its own body heat. Development of a fat layer (for insulation) and a skin change to allow this would produce a new set of problems in muscle and hair development. Reptiles have scales to exchange heat with the environment; mammals have hair. Which would we expect from mutations—hairy scales or scaly hairs?

In a word, the reptile would have to experience all of these many changes plus a large number not even listed here. And they all would have to occur **simultaneously**! The animal could not "drift" into such a condition because the changes involved along the way would be lethal. Furthermore, to suggest that genetic drift could account for the changes we are discussing here would be to refuse to recognize the influence of natural selection. An animal undergoing the gradual change from cold-blooded to warm-blooded certainly would not be viable in a competitive environment. It seems obvious that genetic drift could not accomplish the change. And science knows nothing of "hopeful monsters," "quantum evolution," or "punctuated equilibria." So then, how did evolution occur via genetic mutations?

CONCLUSION

While genetic mutations speak eloquently of the design built into nature so that organisms can change (within limits) to meet the needs of their environment, they do not offer a useful explanation of the mechanisms of gross changes between reptiles and mammals, reptiles and birds, and so forth. It would seem that there ought to be a better and more useful model that could be constructed to explain the formation of living things upon the Earth.

Evolution by random mutations requires incredible accidents—like flipping heads a million times in a row with a coin, and then flipping tails a million times in a row. The idea that, given enough time, we could expect this to happen, necessitates being given enough time. Two, three, four, or five billion years is but the "blink of an eye" compared to the amount of time that would be needed for evolution to occur. As William J. Tinkle put it: "No mutation is on record which would make an animal or plant better organized or place it in a higher category than its ancestors" (as quoted in *Bible-Science Newsletter*, 1969, p. 7).

Since the only genetic changes that occur do so by mutations that have no correlation to environmental needs, and since by the most radical estimates of the age of the Earth there has not been enough time for all possible arrangements to have occurred, then the evolutionist is asking us to believe that we are the result of an incredible number of incredible accidents, which, of course, makes his theory incredible!

REFERENCES

Ayala, Francisco J. (1970), "Teleological Explanations in Evolutionary Biology," *Philosophy of Science*, March.

Bible-Science Newsletter (1969), (Minneapolis, MN: Bible-Science Association).

Burns, George W. (1976), *The Science of Genetics: An Introduction to Heredity* (New York: Macmillan), third edition.

deVries, Hugo (1905), *Species and Varieties, Their Origin by Mutation*.

Dobzhansky, Theodosius (1955), *Evolution, Genetics and Man* (New York: John Wiley & Sons).

Dobzhansky, Theodosius (1957a), "On the Methods of Evolutionary Biology and Anthropology: Part I. Biology," *American Scientist*, December.

Dobzhansky, Theodosius (1957b), *Plant Life*, ed. Dennis Flannagan, et al. (New York: Simon & Schuster).

Davidheiser, Bolton (1969), *Evolution and Christian Faith* (Grand Rapids, MI: Baker).

Goldschmidt, Richard (1940), *The Material Basis for Evolution* (New Haven, CT: Yale University Press).

Goldschmidt, Richard (1952), *American Scientist*, January.

Gould, Stephen J. (1977), "The Return of Hopeful Monsters," *Natural History*, 86[6]:22-30, June/July.

Hall, Thomas and F. Moog (1955), *Life Science* (New York: John Wiley & Sons).

Hooton, Ernest A. (1937), *Apes, Men and Morons* (New York: George Allen and Unwin).

Huxley, Julian (1953), *Religion Without Revelation* (New York: New American Library).

Jackson, Wayne (1974), *Fortify your Faith in an Age of Doubt* (Stockton, CA: Courier Publications).

Martin, C.P. (1953), "A Non-Geneticist Looks at Evolution," *American Scientist*, January.

Mavor, J.W. (1952), *General Biology* (New York: Macmillan), fourth edition.

Moore, John N. and Harold S. Slusher (1974), *Biology: A Search for Order in Complexity* (Grand Rapids, MI: Zondervan).

Morris, Henry M., ed. (1974), *Scientific Creationism* (San Diego, CA: Creation-Life Publishers).

Muller, H.J. (1950), "Radiation Damage to the Genetic Material," *American Scientist*, January.

Muller, H.J. (1946), *Time*, November.

Parker, George H. (1926), *What Evolution Is* (Boston, MA: Harvard University Press).

Quiring, Daniel P. (1950), *Functional Anatomy of the Vertebrates* (New York: McGraw-Hill).

Sears, Jack Wood (1969), *Conflict and Harmony in Science and the Bible* (Grand Rapids, MI: Baker).

Simpson, George G. (1944), *Tempo and Mode in Evolution* (New York: Columbia University Press).

Simpson, George G. (1949), *The Meaning of Evolution* (New Haven, CT: Yale University Press).

Simpson, George G., C.S. Pittendrigh, and L.H. Tiffany (1957), *Life: An Introduction to Biology* (New York: Harcourt, Brace).

Simpson, George G. and William S. Beck (1965), *Life: An Introduction to Biology* (New York: Harcourt, Brace and World).

Sinnot, Edmund W., L.C. Dunn, and T. Dobzhansky (1950), *Principles of Genetics* (New York: MacMillan), fourth edition.

Snyder, L.H. and Paul R. David (1957), *The Principles of Heredity* (Boston, MA: D.C. Heath).

Sturtevant, A.H. and G.W. Beadle (1962), *An Introduction to Genetics* (New York: Dover).

Ward, Rita R. (1965), *In the Beginning* (Grand Rapids, MI: Baker).

Waddington, C.H. (1962), *The Nature of Life* (New York: Atheneum).

Wasserman, A.O. (1973), *Biology* (New York: Appleton-Century-Crofts).

Wills, Christopher (1970), "Genetic Load," *Scientific American*, March.