

## HAVE THE GENESIS KINDS EVER CROSSED?

FRANK LEWIS MARSH\*

Received 30 October, 1980

*Among special creationists today it is generally believed that basic types of organisms cannot now cross. About the past, two schools of thought exist. One holds that in the past some crossing probably occurred nearer creation week when the stocks were more "viable" and "virile" than now. The other school holds that crossing of basic types never occurred, and that our modern basic kinds have, with more or less internal variation, kept their general characteristics ever since creation week.*

*Attention is called to the opinion of geneticists, based upon laboratory findings, that crossing of basic types has never taken place. Each basic type is visibly distinguished by its unique morphology, and the morphology of every organism is in turn determined by the specific sequence of the same two pairs of nucleotides in the DNA of the chromosomes. Dobzhansky, Lagerkvist, and Levine are quoted on this point.*

*The unique sequence of the nucleotides in an organism's DNA determines the chemistry in its cells. Hybridization can occur only between individuals in which the chemistries of the body cells are quite similar. Such similarity occurs only among the members of the same Genesis kind.*

*These discoveries of geneticists have shown that "viability" and "virility" have had nothing to do with the crossability of basic types of organisms.*

*Because crossability rests wholly upon chemical compatibility (close similarity), and because such compatibility does not exist between the members of different basic types of organisms, it follows that two different basic types have never crossed. There is no known case in which two morphologically different individuals have produced a hybrid.*

*Crossing of variants within a single basic type may result in improved stocks, and again it may result in something undesirable, such as the development of poisonous substances in the hybrid. Monkshood and guayule are cited.*

*Because of their amenability to laboratory proof, in the study of origins two vitally important biological principles or laws are (1) Basic types (Genesis kinds, baramins) cannot cross; and (2) The Law of Limitation of Variation (Processes of variation can go no further than to produce additional variants with already existing basic types). Organic evolution and these two biological laws cannot exist on the same planet at the same time.*

### The State of the Question

The man in the street today, and even some modern scientists, are still influenced (perhaps unconsciously) by a belief prevalent during the Dark Ages that if sexual intercourse were mechanically possible, almost any kind of animal could and at times did cross (produce viable offspring) with other basic types.

The testimony of modern geneticists regarding the crossability of man with other mammals is unanimous and is clearly summarized by geneticist E.C. Colin in the following statement: "In ancient times various superstitious beliefs grew up around double monsters; some people even maintained that they were the hybrid offspring of man with some other mammal. As a matter of fact, there is no evidence of the origin of a hybrid between man and any other mammal."<sup>1</sup> The same might be said about other different kinds. But what about the past?

Getting down to basics, was past hybridization potential ever greater than it is today? Is the present impossibility of hybridization between basic types (such as dog and cat, horse and cow, man and chimpanzee) due to a lessening of original "virility" and/or "vitality"?

Genesis 1 and 2 make it appear that before the creative act the Creator had a plan in mind by which all living organisms were to be brought into being in separate populations (in a hierarchy of kinds?). The earth was commanded to bring forth these clusters of like individuals (kinds) (Gen. 1:11, 20, 24, 26), and the record is that the earth obediently and promptly

brought forth these groups (Gen. 1:12, 21, 25, 27). Man, of course, had special treatment. Furthermore, not only did organisms appear as kinds but also with regard to plants it is recorded that they were "yielding seed according to their own kinds (Gen. 1:12 RSV)." Modern science testifies that the same is true of animals. Only if the morphology of two individual plants or animals is closely similar are fertile offspring possible.

### The Genetic Code

In recent years science (genetics and molecular biology) has progressed a long way in the understanding of heredity (with particular attention on the hereditary substance, DNA), and associated discontinuity (gaps between types) among living things. Theodosius Dobzhansky wrote: "The diversity of living things is evidently based not on the proportion but on the arrangements of the genetic 'letters.'<sup>2</sup> Writes Lagerkvist (1980): "The genetic code, as we know it today, is a highly degenerate (i.e., not in the sense of the second law but in a chemical sense,—all amino acids have more than one codon) code made up of 64 three-letter codons in which four nucleotides—containing the bases thymine (T) (uracil in RNA), cytosine (C), adenine (A), and guanine (G), respectively—are used."<sup>3</sup> Writes Levine: "Diversity of genetic information is found in DNA as the only letters in an alphabet for a code or language that depends upon the *sequence* of pairs of A-U and G-C nucleotides."<sup>4</sup>

It is almost an overwhelming concept that *different arrangements* of only two pairs (the same two pairs for all organisms) of countless nucleotides in a linear sequence within each individual of a cluster of

\*Frank Lewis Marsh, M.S., Ph.D., is Emeritus Professor of Biology at Andrews University. His address is 216 Hillcrest Drive, Berrien Springs, Michigan 49103.

chromosomes determines the chemical stage setting which produces a man or a mouse. This specific internal chemistry orders the detailed morphology of each individual. It would appear that this individualistic chemical picture of each basic type was established at creation, and has determined that down to our day dogs can reproduce only with dogs, and cats only with cats.

The simplicity with complexity in the plan is profound, and reveals in the resulting cosmos the handiwork of an omniscient Creator Who is an Honest Workman. As we study the natural world in an endeavor to follow the thoughts of God after Him, our gaping wonder becomes rational worship.

### Virility and Vitality are not in Question

It is important that we observe that it is the *specific sequence* of the nucleotides, and *not* the greater or lesser *virility* and/or *viability* of the entire organism which determines the chemistry in the cells composing the individual. Individuals of the same basic type of organism obviously have closely similar nucleotide sequences, and consequently similar chemistry in their sex cells. Such chemically compatible sex cells can achieve true fertilization followed by normal development to an adult F<sub>2</sub> which in turn will be chemically similar to its parental basic type. Sex cells from individuals which belong to *different* basic morphological types (Genesis kinds) are chemically incompatible and consequently cannot unit in true fertilization or produce viable zygotes.

Greater or lesser "virility" and/or "vitality" could never change the linear order of the nucleotides, and therefore would never have any effect on the crossability of two different basic (Genesis) types. *Degrees of "virility" and "vitality" have nothing to do with the linear order of the nucleotides in the DNA.* For instance, Abraham had six sons by his second wife Keturah (Gen. 25:1, 2) after he was about 140 years old—an example of great *vitality* and *virility*. But Abraham could not form a hybrid with a different basic type, any more than any other man could.

It seems reasonable to conclude that at Creation Week all individuals of any given Genesis kind had the same nucleotide sequence in the DNA. The members of each Genesis kind, because of the chemical compatibility of their sex cells, could breed freely together, "yielding seed according to their own kind" (Gen. 1:12 RSV). This would be true irrespective of the vitality of the individuals.

A second strong argument for absence of hybridization (amalgamation) of basic types before Noah's flood is furnished by the fossil record of antediluvian organisms. Among those fossils an impressive fact is the presence of discontinuity between basic types. Commenting on this phenomenon George Gaylord Simpson said: "The facts are that many species and genera, indeed the majority, do appear suddenly in the fossil record, differing sharply and in many ways from earlier groups, and that this appearance of discontinuity becomes more common the higher the level, until it is virtually universal as regards orders and all higher steps . . . The face of the record thus does really suggest

discontinuity at all levels . . ."<sup>5</sup> If crossing of Genesis kinds had been a *chief* factor among reasons for the Flood, as some have suggested, certainly this existing, clear-cut discontinuity between types would not exist among the fossil remains of the antediluvian organisms.

### Antediluvian Crossing Within Kinds

In Genesis 6:7, 12 it is recorded that (apparently in somewhat over a millenium and a half after creation) "man and beast" had followed a way of living which caused the Lord to be "sorry" that He had made them. ". . . all flesh had corrupted their way upon the earth," and God "determined to make an end of all flesh." We are told in some detail how man had sinned, but what had the animals done to deserve destruction?

In studying this problem we do well to bear in mind the thought that it may be innocent to speculate beyond what God's word has revealed, if our hypotheses do not contradict facts found in the Scriptures. It is also required of Bible-believing scientists that they keep in mind what careful laboratory research has revealed to be true in the natural world.

Laboratory research has shown that *without exception* basic types of organisms (morphologically different populations of plants and animals) cannot hybridize. We may therefore speculate that before the Flood if crossing occurred then cross-fertile races, breeds, or varieties must have been present within the basic (Genesis) kinds. We may assume therefore that in the Edenic state the Creator produced varieties within some kinds. The varieties were possibly distributed in a mosaic pattern over the surface of the earth. In the settled Edenic climate these geographically scattered (but reproductively cross-fertile) populations would not meet. However, the fact that God gave Adam and Eve "coats of skins" (Gen. 3:21) soon after they sinned suggests climatic changes. Under such changes it is possible that organisms would wander, and upon meeting "related" forms, hybridize. Among animals such a basic type may be illustrated today by the rabbits, cottontails, jack rabbits, marsh rabbits, snowshoe rabbits, and Arctic hares. Each breed prefers a different habitat from the other breeds, but they are all cross-fertile.

We may assume that for some very good reason the omniscient Creator did not intend that varieties of a basic kind should cross—or at least not *some* varieties within *some* basic types. If that were true we may catch a glimpse of the reason in the following interesting statement. May I quote Ellen G. White, who in 1899 in a remarkable anticipation of modern discoveries, wrote: "Not one poisonous plant was placed in the Lord's great garden, but after Adam sinned, poisonous herbs sprang up . . . All tares are sown by the evil one. Every noxious herb is of his sowing, and by his ingenious methods of amalgamation he has corrupted the earth with tares."<sup>6</sup>

In Gen. 6:12 we read: "And God saw the earth, and behold, it was corrupt; for all flesh had corrupted their way upon the earth." We know this corruption could not be produced by the crossing of basic kinds, but could it not be true that particular hybridizations between certain races, breeds, and varieties *within* kinds

was the cause? Whether the cross was a blessing or a curse would be judged by the results. Possibly Satan knew how to predict good results and bad results.

### Hybrids—Good and Bad

It is common knowledge that today the very best among our domesticated plants and animals have been developed by hybridization. Everything in our beautiful and productive gardens is hybrid this and hybrid that. It may not be common knowledge that through the years many more inferior breeds and even definitely undesirable hybrids than desirable have resulted from the numberless experiments in crossing (amalgamating) variants within a single basic type. These undesirable results have been catalogued—and then destroyed.

Interestingly, today the fact is quite well known among plant scientists that offspring (the hybrids) of normal, nonpoisonous strains of the same basic type may contain poisonous substances in their tissues. One illustration is the fact that two nonpoisonous strains of the garden flower Monkshood (*Aconitum*) when crossed will produce a hybrid which contains the extremely poisonous cardiac and respiratory sedative aconite in its juices.

A recent second illustration is recorded in *Science*, 1979. We read: "Two scientists at ANS (Academy of Natural Science, Philadelphia), however, say that careless hybridization of guayule (*Parthenium*, a shrubby herb of northern Mexico and adjacent Texas from which rubber can be obtained) with any of the plant's relatives is likely to introduce plant toxins that produce severe skin rash in humans. The problem . . . is that people have been looking only at the rubber these plants produce, not at their potentially toxic side effects when hybridized."<sup>7</sup>

Animals likewise suffer pronounced changes in temperament in certain crosses within basic types as revealed today in the hybridization withing basic kinds of domesticated animals exemplified by certain unfriendly (to man) strains of honey bees, cats, laboratory rats, cattle, and horses (horse × zebra). The devil (we assume) can develop undesirable and dangerous varieties of plants and animals just as surely as the plant and stock breeders develop improved stocks.

The antediluvian corruption of the earth was probably abetted by the departure of man from the vegetarian diet that was assigned to him in Eden (Gen. 1:29). The antediluvian bestial corruption of the earth was likewise intensified by some animals leaving their assigned vegetarian diet (Gen. 1:30) and becoming carnivores. We would infer this from the fact that when Noah and the animals left the ark God told him (Gen. 9:2) that "the fear of you and the dread of you shall be upon every beast of the earth . . ." This would suggest to us that many vegetarians had become dangerous carnivores. It seems possible that some changes in diet may have occurred as, under assumed changes in climate animals wandered from their original homes and concomitantly from original foods.

In 1979 the American Dairy Council stated: "The impact of nutrition relevant to behavior ranges from biochemical and structural changes in the central ner-

vous system to psychological changes."<sup>8</sup> However, whatever the contributing factors were that caused the corruption among man and beast which made the destruction of the antediluvian world necessary, we can be assured that crossing of basic types was not one of them.

### Conclusion

In connection with the problem of the Genesis kinds of organisms, there are among special creationists two points of view regarding the crossability of kinds: (1) At times in the past, particularly during the antediluvian period, it was possible for basic types to cross and produce viable offspring; and (2) At no time, from Creation Week to our day, has it been possible for Genesis kinds to cross.

Opinion No. 1 has been nourished and supported by

- (a) The belief held during the superstitious Dark Ages that crossing of basic types could at times occur if intercourse was mechanically possible.
- (b) The belief that greater "vitality" and "virility" in man and beast in earlier days would make crossing of kinds possible.
- (c) The belief that the appearance of the fossil archaopteryx (bird-reptile), or the wildebeest (horse-antelope), of the platypus (mole-bird), etc., might be due to a cross of two basic types.
- (d) The belief that the occurrence of sexual intercourse of man with beast in connection with certain Middle Eastern worship of images and rites of fertility, or otherwise, gave opportunity for production of man-beast hybrids.
- (e) A lackadaisical (listless), laissez faire (not really concerned) attitude today about the study of the original Genesis kinds.

Opinion No. 2, the opinion that at no time in the past or present has it been possible for basic types to cross, has the full support of all pertinent laboratory data and common experience. In not even one case has hybridization (cohabitation is *not* hybridization) been known, much experimental work notwithstanding, where sexual partners were sufficiently different, morphologically, to constitute two different basic types. With this "without exception" substantiation, the hypothesis of "basic types cannot cross" moves up to the level of a natural law or principle. It is as true and equally binding as the biological law or principle of "Life only from life;" of the chemical principle of "Periodic Table which states that 'the properties of the elements are periodic functions of their atomic numbers;'" or as the physical law or principle of "Universal Gravitation."

We have noticed that Gen. 1:12 RSV states that at close of Day Three of Creation Week as plants reproduced they were "yielding seed according to their own kind." If one basic type could successfully cross with another basic kind neither would bring forth after its own kind.

The animals of Day Six also were made after God's plan. Because they were likewise made after their kinds, we reasonably may infer they also so reproduced, and ever since science has kept records no exception has been found to this primal biological law. It would be a

strange act of an all-wise Creator if He were to go to the great care of bringing the hundreds of thousands of unique basic types into existence but make them physiologically capable of crossing with one another and thus quite immediately confuse the original beautiful order and pattern His handiwork had produced.

Confusion did come eventually but how pleasing to think that our modern basic types are essentially the same as they were in the original creation—even though the populations today may show within their respective kinds considerable limited variation from the original patterns. For example, originally one man-pair was created. Today men occur in at least 160 distinct breeds.<sup>9</sup> But they are still *all man*. Acts 17:26 RSV: “And he made from one every nation of men to live on all the face of the earth . . .”

Some of my creationist friends have said that I am a “uniformitarian”.<sup>10</sup> They must be joking, except that philosophically I do believe our world is subject to law. I do sincerely believe in the uniformity of nature—the regularity of nature according to which “identical antecedent states or causes are uniformly followed by identical effects.” That is a requirement in a cosmos. It is a requirement in God’s great Universe. They say of me that I have a “firm belief in the reality and integrity of the ‘created kind’.”<sup>10</sup> That is exactly correct. What kind of a natural world would we have if basic processes were this way a little while then that way? That sounds like a chaos to me.

Before Creation Week apparently God had a plan for animate nature already in mind—different kinds, obviously arranged in a hierarchy (unique groups classified in ranks or orders). He spoke this plan into existence as a law or principle; and the record states that the plant groups immediately began to reproduce according to their own kinds (Gen. 1:12 RSV). Both plant and animal types still follow that plan today according to “natural law” (God’s power manifested in natural ways). The result is not an uninhabitable, lawless chaos but instead a beautiful and wonderfully habitable law-bound cosmos.

I vividly recall a letter received in 1945 from the late Theodosius Dobzhansky in which he said: “You speak of a creation of basic types in a beginning; of a continuation of those kinds to the present time; and of an impossibility of these kinds to cross. Now you should

## THE ANNUAL IS ALIVE AND WELL

There have been inquiries as to what has become of the Annual issue of the *Quarterly*. The fact is, that for a long time we have considered the June *Quarterly* as the Annual, and still do. That issue used to have “Annual Issue”, or words to that effect, on the front; but for two or three years now that has been omitted. Maybe it was hard to fit the words in with the picture which was used; maybe they were just overlooked. Anyway, as remarked, we still consider the June issue the Annual; and we shall try to put something to that effect onto it in the future.

either point out these kinds in nature, or keep still about them.” The evidence for special creation which Dobzhansky rightfully demanded is actually spread clearly before our eyes today. (See Marsh’s 1976 discussion of the baramin, the causes of variation, and the natural Law of Limitation of Variation.<sup>11</sup>)

When the special creationist bestirs himself and observes (a) that basic types cannot cross, and (b) that there are natural limitations to how far variation can go, he will find in his hands the very material necessary to demonstrate the invalidity of the evolutionist hypothesis. The beautifully satisfactory part of this situation is that this double roadblock to organic evolutionism consists wholly of coercive, demonstrable natural facts.

## References

- <sup>1</sup>Colin, E.C. 1946. Elements of genetics. Blakiston, Philadelphia. Pp. 222, 223.
- <sup>2</sup>Dobzhansky, Theodosius. 1970. Genetics of the evolutionary process. Columbia University Press, New York, N.Y. P. 17.
- <sup>3</sup>Lagerkvist, Ulf. 1980. Codon misreading: Restriction operative in the evolution of the genetic code. *American Scientist*, 68 (2): 192-198.
- <sup>4</sup>Levine, Robert Paul. 1968. Genetics, 2nd Edition. Holt, Rinehart and Winston, Inc. New York, N.Y. P. 28
- <sup>5</sup>Simpson, George Gaylord. 1944. Tempo and mode in evolution. Columbia University Press. New York, N.Y. P. 99.
- <sup>6</sup>White, Ellen G. 1958. Selected messages, Book Two. Review and Herald Publishing Assn., Washington, D.C. p. 288.
- <sup>7</sup>Mears, James. 1979 (Quoted in) U.S. rubber shrub may have hidden thorn. *Science* 205 (4406):564.
- <sup>8</sup>American Dairy Council. 1979. *Dairy Council Digest*, Vol. 50, No. 5, September-October. Nutrition and behavior. P. 1.
- <sup>9</sup>Taylor, Griffith, 1926. Environment and race. London: Oxford University.
- <sup>10</sup>Coffin, Harold. 1980. Created kind or limitless change: Marsh versus Darwin. *Andrews University Record*. Andrews University, Berrien Springs, Mich. Vol. 1, p. 6.
- <sup>11</sup>Marsh, Frank L., 1976. Variation and fixity in nature. Creation Research Society Books, 50933 WilliamSPORT Drive, Norcross, Georgia 30071. (Originally published by Pacific Press Publishing Association.)

## Intelligence Rather Than Struggle

(Continued from page 163)

### A New Day

Some sixty years ago creationists were saying; “It is better to know the Rock of Ages than to know the ages of the rocks.” This is true; but it seems to say that we have to choose between science and religion when we can choose both if we do it wisely. We live in a day when true science is published in many places. Thus we should study rather than become captives of status seeking, of the Zeitgeist, or of keeping up with the Joneses.

When we consider the complexity of living things and the remarkable way in which the world fits their needs it is evident that chance and struggle do not account for the harmony. We must give the credit to Intelligence.

## References

- <sup>1</sup>Nymeyer, Frederick, 1964. Minimal religion. Libertarian Press. P.4.
- <sup>2</sup>Dillenberger, John, 1960. Protestant thought and natural science. Doubleday. Pp. 112 et seq..