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VARIATION AND THE FOURTH LAW OF CREATION

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By the fourth law of creation, is meant that living beings remain within their kinds, although limited variation is allowed. Various aspects of this, one of the most important principles of biology, are examined in this article.

The law which governs the reason why species will remain within their kinds (what I mean is that descendants do not cross the boundary into a different kind from their ancestors) I have called the fourth law of creation. There are six other laws which I have been able to name and hope to discuss. The present one, while fourth in the order of things, is of such importance that it is worth discussing immediately.

The Fourth Law

When we look at the world around us we find that the plants and animals are very well adapted to their environment. How, we may ask, did this adaptation come about? Were these animals and plants first non-adapted; and did they later gradually adapt? No, these organisms had already within themselves adaptation, to a greater or less degree, to their environment.

Now consider the fossil record. Many plants and animals, represented by fossils, have also come through the corridors of time right up to the present day as living creatures; and they have changed only within their kinds, sometimes very little indeed. How and why should this be so? After all, even organisms which are well adapted to the environment cannot stop mutations from taking place. For the main sources of mutations are radiation from the sun and from the ground, and certain gases, elements, and other chemicals in the environment. (Incidentally, is there something already strange here? For, according to the usual geological time-table, mutations seem to have taken longer in the past. But according to physics the amount of radiation from radioactive minerals should have been greater in the past.)

Now these organisms could not have said: "Would you please stop the radiation? I don't need any more mutations. I am very well adapted. Thank you very much." No, the organism undergoes mutations willy-nilly; all it can do is try to cope with them. How?

As already mentioned, organisms are (and were) adapted to their environment. So only two types of mutation can take place:

(1): Mutations with lethal, or deleterious, effects, and

(2): Mutations that do not cause lethal effects in the functions of the adapted organism, but rather add to its adaptive variation.

Both of these types of mutation occur without reference to any future adaptation (i.e., they do not anticipate future needs); so any mutation, in a given environment, can be accepted only if it helps the organism in its adaptive role; and in so doing it therefore keeps the organism within its kind.

As for any damaging mutations, they are either:

(1): Removed by enzymes which remove the damaged or mutated parts and replace them with new material, or

(2): Any which get through to cause lethal or deleterious results will in time be eliminated. For the mutated line, being in an unfavourable position, will in time die out.

What if the environment changes? When the organism comes to cope with a change in the environment,

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the mutations which occurred before, of the sort which add to the adaptive variations, and which at the time helped to keep the organism within its kind, still do just that. For they come to the forefront, and help to make those adaptive adjustments needed. And so the creature continues to live in this world, and within its kind. It might be called, in the conventional classification, a variant within the species, or maybe a new species; but still it remains within the original kind.

In other words, if a species cannot keep itself afloat within its kind it dies out, and so leads to no new kinds. If it can adapt, it will remain within its kind while doing so, and so will lead to no new kinds. So there is no evolution of new kinds.

To recapitulate, while an organism is adapted to its environment it can accept only those mutations which keep it adapted—and within its kind. Any other mutations, being lethal or deleterious, would sooner or later cause the elimination of the mutated line. The organisms which carry the adaptive mutations will survive, either as a variant or a new species (in the sense already mentioned), but will remain within the original kind.

The same remarks will apply to chromosome mutations as well as to gene duplication. All known gene duplications either have gene copies or they produce what is known as infinite affinity for each other, i.e., they produce what might be called a variation on a theme.

In summary, there are indeed many different kinds of genetic mechanism which add to the genetic variability of a species. This fact is reflected in the vast amount of variation within one species, and the numerous species within one kind.[1] These are correlated with the many adaptations which have been and indeed still are with us, as can be seen by studying living organisms and the fossil record. But throughout all of this the fourth law holds: there may be great variation within a kind, if the environment should favour that variation; but one kind does not turn into another.[2]

Genetic Mechanisms and the Fourth Law

Now we come to the second part of the subject. We must consider the various genetic mechanisms which there are, and how they have to do with the fourth law.

Marsh has pointed out that both laboratory findings and general experience show that, without exception, basic types are so different in their cellular chemistry as to make any departure from the law of each after its kind physically impossible. I suggest that the matter can be considered in this way.

Each cell in the body of an organism has only a certain range of capabilities, whether that range be large or small. There is a sort of permutation within the cellular chemistry. The genes make, or control the making of, proteins, enzymes, etc. These are pre-programmed, as it were; and with the base nucleotides they dictate the permutations to the enzymes. The enzymes, in turn, dictate back to the cellular chemistry, and make sure that permutation is kept within whatever the limits may be. This outline, I believe, applies to all known genetic mechanisms, save one to which I shall come shortly.

The genetic mechanisms include chromosome polymorphism, recombination, bi-chromosomes, cross-overs, and others. The exceptional one, which it was desired to discuss further, is the gene of the third type. It is called "third type" for the following reason.

Type 1 has to do with the case in which genes make copies of themselves. In type 2, some of the copies change to produce what has been called an infinite affinity, or a variation on a theme. In type 3 the change goes further, and the result turns into something substandard.

Type 1 is common, and needs no comment.

Type 2 includes the following examples:

In the brain of the rainbow trout there may be two versions of the vital brain enzyme acetylcholinesterase. One of them functions in warm water, the other in cold. This is an example of a variation on a theme.

Bacteria, fed on foreign material, produce, among many copies of certain enzymes, some which have changed, again so as to produce a variation on a theme. In this way the bacteria can adapt to a variety of circumstances.

In man, variations on a theme may occur in the hemoglobin chain. One of these leads to the well-known sickle-cell anemia.

As for the third type, if it does exist among related species, chromosome differences may lead us to it.

In *Bos* (cattle), for instance, the chromosome number is large, and there is a difference of 53 chromosomes: 16 on the one hand and 60 on the other. In general, the greater the difference the better the prospect of finding this kind of thing, if it does exist; the smaller the difference the poorer the prospect. But however this may turn out, it is plain that differences between related species do not indicate evolution across the boundaries of the kinds.

It may well be that one instance of the sort of thing being considered is that certain areas or sites of the genetic material break down, in much the same way as chemicals may break down into simpler ones upon e.g. heating. Of course, heating is not involved here, but rather some biochemical change. In a hemoglobin chain, e.g., it might be that some of the amino acids change, others do not. Or, rather, if the latter should change, the changes would be lethal, and hence quickly removed from circulation. Here again is why the enzymes must stand guard, so to speak, to protect these vital regions. It may be, then, that in practice changes in most of the chain cannot be tolerated. In that case, only minor changes (i.e., continuing ones) are possible. Similar things might be said about many other molecules, amino acids, and genetic material; so again major changes, leading to evolution out of the kind, are impossible.

So this third mechanism, if it occurs, can only produce variations within the kinds, i.e. within the Fourth Law of Creation.

As a matter of fact, the third type, while a hypothetical possibility, has never, to the best of my knowledge, been detected in any related organisms. So about all that anyone wishing to use the third type as a cause of evolution can say is that it happened very quickly at some time in the past, but can no longer be detected. This seems to be getting very close to the hopeful monster. Some have suggested, indeed, that maybe radiation from the sun, or some other source, was greater in the past, and so gave rise to large changes and to evolution. Yet today our shield against such radiation, the Earth's magnetic field, screens out only about fourteen per cent of the total background radiation. Again, some have said that the cosmic rays, and the radiation from radioactive minerals, etc., account for only about one out of twenty of the genetic mutations in human bones. From such a viewpoint, a possible increase of fourteen per cent would not seem to be enough to cause any significant evolution, although it must be said that any increase is not good news as far as life on Earth is concerned.

Recapitulation. Contrast with the Evolutionary View

Most evolutionists have believed that small changes over long periods of time could bring about a change from one basic kind to another. That claim, however, becomes implausible in the light of the discussion already completed, and the following further considerations.

There are only so many amino acids in a cell, many of them of similar composition. The allowable changes in them will be small, in most cases. The all-over change, it is true, might be considerable, but still it would not result in the formation of a new basic type or kind.

For all of the genetic material is pooled in the genotype, and the characteristics of the phenotype are sorted out thence. Now as for large effects, as already noted they may be classified as: useful, deleterious, lethal. If deleterious or lethal, they will show themselves in the phenotype. They can also be made evident in the genotype, when through experiments they are seen to be in what is called a balanced lethal state.

Now evolutionists suggest that while, as things are, these changes are deleterious or lethal, in another environment they might possibly be useful. It is hard to think of a possible case; the standard one seems to be a mutation of the fruit fly which is more tolerant of high temperatures. But surely that would be of little consequence in the state of nature.

Indeed, suppose that the environment should change, what then? All that we should have is more or less of what we already see; there would be no different basic type or kind. For instance, the mutations of *Drosophila* with odd wings are still very much flies—certainly not spiders or lobsters!

So if these kinds of change are what evolution is about, we see what it can and can not do. If a large change which is of some use it would be brought out into the phenotype through real need. Or, it might be shown through experiment, to be in the genotype.

Now in the state of nature such large changes are not seen in the phenotype. So if they exist at all it is in the genotype. Now something useful and not harmful in this present environment (it may be questioned whether there are any absolutely neutral mutations) if in the genotype should show up in the phenotype. If, on the other hand, it should be useful in some other environment, in this present environment it would be deleterious or lethal in the genotype or phenotype, and would be seen or detected. It would be detected, in fact, by the elimination of the line carrying it.

Now in nature even such variations as the odd wings of fruit flies are not seen, or do not spread in the phenotype. Even if they did, the case would be nothing more than another variation within the basic kind.

What evolution is about, then, is this: as an experimental study it is about minute variations within the kinds. As a body of talk, it is, as Paley remarked[3], about changes as wide as those in Ovid's Metamorphoses—and about as plausible! The Fourth Law: no variation outside the kinds, holds true.

Ways, Means, and Mechanisms

Thus far the fourth law has been discussed as something which is observed to happen. Now it is time to go a little behind the scenes, so to speak. The situation is rather as in physics. One may say, on grounds of conservation of energy, that a proposed perpetual motion will not work. But it is also possible to point to some principle of mechanics, for instance, maybe some force which has been overlooked, to see a more particular reason.

One may go yet further back, and recall that, as Paley pointed out, a law is only the mode according to which an agent proceeds.[4] So back of it all we can see the hand of God.

As was remarked, all living things undergo mutations. But they are not necessarily changed much thereby. The relect groups, the so-called living fossils, undergo mutations, but they come through practically unchanged. Why is this so?

The body has an elaborate repair mechanism which works on the DNA. When mutations, i.e. errors, occur, some, which may be useful to allow adaptation to different environments, are tolerated. Others, if not lethal, are removed by the enzymes, or the situation is repaired.

For instance, the base nucleotides in the DNA helix are as follows: G, guanine, connects with C, cytosine; and A adenine, with T, thymine.[5] The restriction on the manner of base pairing is due to the limited ability of the hydrogen bonding on the helix itself. If the G should break from the C through some damage, the enzyme will repair the G base. If a wrong base should appear, the enzymes remove it and put in the right one. If a base pair should be lost, change within the type, possibly deleterious, may occur.

The enzymes, of course, can be considered chemicals, albeit complicated ones. Yet there seems to be more than a chemical reaction here. The selective action of the enzymes is not a thing which is found in simple chemical activity. Rather, we must look upon this as a physio-chemical action; and, as remarked earlier, back of it we may see the hand of God.

Incidentally, the arguments considered here tell against saltation, which Goldschmidt and others have suggested has occurred. For it seems very likely that a major mutation, of the kind envisaged, if not immediately lethal, would be removed. So again the boundaries of the kinds would not be crossed.

Neither do these considerations lead to any hope for the automatic, mechanistic, origin of life, which some have alleged to have happened. For the processes of life are more than just chemical reactions. There is this ordering and keeping in order. Such an activity would never be brought about by a broth of chemicals, brought together at random.

It might be argued, incidentally, that the last two points are maybe not all that much different. For to say that one kind of life originated, i.e. created, another, e.g. the reptiles the birds, is, in effect, to say that life created itself. And is that so much different from saying that it arose spontaneously? In each case the problem is the same. There are hundreds of adaptations and correlations needed for the simplest living thing of which we know; and other hundreds of new adaptations and correlations would be needed to go e.g., from reptile to bird. But we simply do not see such a correlation of changes coming about by chance.

Nor would the enzymes help here. For their new forms, in order to carry out the new duties which would fall upon them, would be precisely one of the things needing explanation.

Summary and Conclusion

It has been shown that, while the enzymes, amino acids, etc., in the genetic material have an important function, they are not by themselves enough to explain heredity, and the stability of the kinds. For mere chemical activity is not enough; back of it there must be an ordering and guiding. And this fact, that thus organisms are kept within their kinds, but allowed room for limited variation which may be required by the environment, I have called the fourth law.

Natural selection has been put forward as accomplishing the same purpose by some. But I urge that there is a great difference. The fourth law has a much more personal and specific role to play, so to speak. It has to steer a middle course between excessive rigidity and excessive variability; to keep creatures within their kind while allowing them some room for variation. Natural selection, on the other hand, which is really differential elimination, merely acts to eliminate those which are grossly unfit. (Blyth noted natural selection as a conservative and stabilizing force, before Darwin persuaded people that it worked the other way.)[6]

To use a pedagogical analogy, natural selection is an examiner who expels undesirable pupils; the fourth law is a teacher who instructs.

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FOSSIL SUCCESSION

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Received 1 September, 1981

The problem with the order in which different fossil groups appear in the geologic record has always been a difficult one for Creationists. Many facts are left untouched by the usual paleoecological explanation of the fossil record; and these are noted. An explanation of the fossil succession as a partial capturing of the repopulation of the world following the flood is presented.

Creationists have always had a difficult time explaining why there is a succession of different species vertically in the fossil record. Why are the mammals only found in the uppermost or later part of the stratigraphic column? Why are the protozoans the first to appear in the Precambrian followed by soft-bodied, multicellular invertebrates in the late Precambrian and hard shelled invertebrates in the Early Cambrian? Why is man the last to appear? The evolutionary explanation of this order, it must be admitted, is perfectly logical given their assumptions.

This paper will present a view that the fossil succession represents neither evolution nor the order that the habitats were inundated by the flood, as has previously been proposed by creationists, but instead represents "snapshots" of the repopulation of the earth following the flood. This view would require that the majority of the post-Precambrian strata were deposited after Noah, his family, and the animals left the ark. It is envisioned that Noah was safely aboard the ark during the most turbulent period of the flood and emerged from it when the worst was over. The earth's surface would have remained in turmoil for several centuries more.

The impetus for this view arises from this author's attempt to explain the non-existence of certain short-lived

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