Evolution or creation?

The argument from comparative anatomy

John Watts

It is often argued that similarities between species support the theory of evolution. This article shows that this argument is not sound, since we should expect such similarities in a world created as described in the Bible.

SIMILARITIES in physical appearance were the earliest evidences used to support the theory of evolution, and those between man and the apes were perhaps the most widely cited. As our knowledge of the microscopic and the molecular has increased, so in turn the argument has been applied at other levels: to embryology, to protein structures, to DNA sequences. How valuable is this class of argument? Sadly, it relies more on ignorance than on knowledge.

A recent article[1] claims to demonstrate beyond any doubt that apes and man had a common ancestor. The evidence used is drawn from cytology and molecular biology, considering similarities first in the physical structure of parts of the chromosomes of man and primates, and then in some of the base sequences of their DNA. It is another example of reasoning from comparative anatomy.

Scientists, if they are honest, know that they operate in a fog of ignorance. Advances in understanding are very slow and uncertain, and the 'theories' of today are usually little more than a consensus of opinions and never fit all the known facts. The source of power of arguments like this one, based on chromosome architecture and base sequences, is derived from ignorance; they look similar, therefore they are related, and no one knows enough to be able to offer constructive criticism. Arguments from similarities invariably lose much of their plausibility when the things being compared are better understood.

How can anyone usefully comment on an argument based on visible patterns in chromosomes, objects whose structures and purposes are poorly understood? What can we usefully say about base sequences in DNA when over ninety-nine per cent of DNA is dismissed as 'junk', in other words as of unknown significance? Apparent similarities between species will always be seized on to support evolution. Even the use of the fossil 'record' is only an extension of the argument, since no transitional stages between species have been observed. The following comments are offered, then, to introduce some element of perspective, to suggest that the existence of 'similarities' will in some degree be inevitable, imposed by the nature of the physical world and the interdependence of all forms of life.

End use determines structure

In any efficient design, the end use determines the form of the structure. Most steam, petrol and diesel engines use some sort of crank to convert the linear reciprocating movement of a piston in a cylinder to a circular motion that can turn a wheel. They share this structure because it has proved an efficient way to achieve a particular end. It may be that the 'similarities' in comparative anatomy reflect a similar constraint. The eye in the octopus is very similar to that of the human, but no evolutionist invokes the similarity to prove evolutionary relationships. In optical terms the eye is the efficient way to manipulate light. Even our photographic camera has the same design.

The bone structures of land animals have many similarities. Does this prove they are all related by a common origin in evolution? Or does it reflect a deeper underlying imperative, determined, for example, by the materials available, so that what we observe represents the best way to form a skeleton? Or, to put the question a little differently, do we know a better material than bone and a better way to make a supporting structure? Physiotherapists and others are always telling us that the human spine is badly designed, but can they explain how to make it better and still perform all its everyday functions?

Not everything is possible in this natural world. The alchemist long ago stopped trying to

---

1. G. Finlay, "*Homo divinus:* The ape that bears God's image", *Science and Christian Belief*, Vol. 15, pp. 17-39.

transmute lead into gold. There are natural laws that seem to govern this world that God has created. The dead materials in it conform to certain rules of physics and chemistry. Elements have their own unique chemistry, as do their compounds with one another. The forms of life possible are limited by these laws.

Among the elements, for example, only carbon has the ability to form the complex molecules so essential to life. Only water has the necessary properties as a solvent. They place limits on the chemical composition of living organisms and also on the range of temperatures under which life can exist. The behaviour of everything in our world, alive or dead, thus suffers from fundamental constraints. Life as we know it is based on liquid water and the chemistry of the carbon atom. It can therefore only exist in a very narrow range of temperature and composition since water freezes at 0°C and boils at 100°C, and only molecules stable in this range can be used. Whether we accept a Creator or not, the constraints remain and must limit the possibilities. The authors of science fiction may imagine other types of life, but in the real world no one, either with microscope or with telescope, has found evidence for them.

The basic constraints of physical laws are so severe, and consequently life itself with its incredible complexity and fragility is so improbable, that man instinctively looks for a creative God. The probability of life emerging spontaneously and evolving is vanishingly small, even in the enormous period of time for which the earth is supposed to have existed. This has even led some to take refuge in the idea that life came from outer space and then evolved, almost, as it were, invoking a Creator!

The interdependence of life

There are, however, other and related constraints to life that bear directly on arguments about similarities. The myriad forms of life around us are all interdependent, ultimately dependent on plants which harvest the energy of the sun and, with some help from bacteria and fungi, are able to make all they need to grow and reproduce. All higher life depends directly or indirectly on plants, whether as herbivores or as carnivores. Energy is therefore valuable and not to be squandered. As a consequence, efficient life conserves energy by reusing material derived from other organisms. This interdependence is evident in the way all living things at the molecular level share very similar components, classes of material such as proteins, fats and nucleic acids that are made from essentially the same subunits throughout all living things.

Thus all the nucleic acids are based on two sugars, phosphate and half a dozen or so similar pyrimidine or purine bases. The amino acids in proteins are almost identical across the whole range of life. Living organisms are modular in construction, based on a limited range of molecules, so much so that many animals are unable to make some of the compounds essential for their existence—for example, the essential amino acids, the vitamins and so on in the case of man. These have to be obtained in food from plants or other animals.

The very structures of the molecules that make, manipulate and modify living organisms, that turn food into ‘us’, are also restricted in composition. For example, enzymes are molecules that accomplish at room temperature chemical changes that otherwise either require high temperatures and pressures, or that simply cannot exist apart from living things because the products are too complex and unstable. These enzymes have ‘active centres’ that accomplish this remarkable feat; but in order to have the requisite activity, these centres are very restricted in their chemical structure. Thus an enzyme in a snail performing the same reaction found in a dog will almost certainly have a very similar active centre, and we may suspect that the differences are more to do with optimising the performance of the molecule for activity in snail and dog than with chance. The constraint here is imposed by necessity; both snail and dog depend, in the end, on material obtained from plants.

There will be other constraints we are not aware of, but when we take only the ones listed above into consideration it is perhaps easier to appreciate that *similarities* will occur without any need to invoke evolution. A similar activity or function is likely to have the same solution in different organisms. The Creator has shown us a bewildering range of creatures. Perhaps we should also consider that the underlying pattern of similarity and of constraints on form and function may be His way of telling us that in this world He has made there is not an unlimited number of ways of doing things well. Thus fish and marine mammals, such as whales, have very similar shapes for similar functions. The size of a land animal is constrained by the fundamental strength of bone and the problem of supporting

weight on legs. The coat is cut to suit the cloth. Just as we may suspect that the development process in the embryo is constrained by structural considerations, so we know that proteins will be constrained in structure and function by the chemistry of the carbon atom and the functions they are to perform.

Chance or design?

The evolutionist will argue that the less efficient forms and processes of life have been eliminated by evolution, resulting in similarities in the survivors. The creationist knows that God originally created life 'good', well adjusted to the environment in which it was intended to live. We may still anticipate that the constraints inherent in nature will lead to similarities between organisms, and it is not unreasonable to suppose that many of the features used in comparative anatomies derive from this, so that the argument of evolution versus creation cannot be resolved in this way.

The actual forms of life that exist are either by the design and purpose of the Creator or by chance. The believer recognises God as the Creator and sees in life evidence of a unity of form and purpose. The apes and man are in physical structure very similar; why then should we not expect to find some similarities at the molecular level? We certainly find similarities between all living creatures at the molecular level.

In sum, then, within the world of living things all closely dependent on one another, using the same basic building blocks and chemistry, it is hardly surprising to see similarities as well as great variations.