SOME BIOLOGICAL PROBLEMS OF NATURAL SELECTION THEORY

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Abstract

The many difficulties with the natural selection *hypothesis are reviewed, including the problem of extrapolating generalizations from limited artificial selection research to megaevolution. Using evolutionary criteria, the hierarchy found is the reverse of that expected by evolution theory; animals lower on the evolutionary scale were found to reproduce in greater numbers, and were as a whole more resistant to variations in the environment. Individual survival after birth tends to be mostly the result of chance; in most cases natural selection eliminates only the sick and the deformed. Environmental variations which cause evolution—temperature, the population of other animals, and the surrounding plant life, all of which have been fairly stable for eons—can result in only very limited degree and types of changes. The natural selection hypothesis also involves circular reasoning; an extant species survived because it was fit, and must be fit because it obviously has survived. The commonality of* overdesign, *or the existence of complex mechanisms that do not effect survival, but may add much to the quality of life, also creates a severe problem for the natural selection theory.*

Introduction

One acquainted with the biological world is keenly aware of its incredible complexities and natural wonders. As to the meaning of these observations, Macbeth (1971, p. 68) notes, "Bitter controversies rage over what the demonstrated facts signify, how they have come about, and why they are as they are." This paper focuses on the major problems of positing natural selection as the primary explanation for the complexity and diversity universally displayed in the living world. The importance attributed to natural selection as a cause of evolution varies widely. Some students of nature conclude that it is the *only* essential causative factor, others that it is of almost no importance. One reason why this divergence of views about the importance of natural selection in megaevolution exists, Macbeth (1971, p. 42) notes, is because "We are dealing with something invisible. The operations of natural selection, real or imagined, are not accessible to the human eye." By natural selection is usually meant, ". . . the belief that random variation can, when subjected to selective pressure for long periods of time, culminate in new forms, and that it therefore provides an explanation for the origins of morphological diversity, adaptation, and when extended as far as Darwin proposed, speciation" (Brady 1982, p. 79). Darwin's definition of natural selection was the preservation of favorable individual differences and variations, and the destruction of those which are injurious, and the survival of the fittest (Johnson, 1976, p. vii).

The theory that natural selection is the major driving force of evolution is based on the fact that not all conceptions result in births, and only a certain percentage of animals that are born alive survive to adulthood, and even less are able to successfully reproduce. It is also assumed that those that survive to reproduce are more likely to be better adapted to the environment, and are generally biologically superior. As a result, each generation is assumed to produce animals that are slightly better adapted to local conditions than the previous one. Slight genetic mistakes or imperfection called mutations may result in some new traits. Although most mutations are neutral or maladaptive, it is believed that a very few may aid a given population's adaption, and these may eventually change the composition of the gene pool, slowly producing more and more variety. This process of natural selection is the means of selecting the best of this variety, causing evolution. As Gould (1977, p. 22) explains, its force comes from the following logic:

> (1) Organisms vary, and these variations are likely inherited by their offspring. (2) Organisms produce more offspring than can possibly survive (many do at least). (3) On the average, offspring that vary strongly in directions favored by the environment will survive and propagate. Favorable variations will therefore accumulate in populations by natural selection.

Yet Gould admits that, although Darwin convinced much of the world that evolution has occurred, the natural selection concept never achieved much popularity during Darwin's lifetime, and did not prevail as the putative major cause of evolution until the 1940's. It now typically forms the *core* of modern evolutionary theory (Ayala, 1974). As Johnson (1976, p. vii) notes, natural selection is no minor theory, but is considered ". . . so fundamental and outwardly simple that few introductory texts assess the actual evidence and fewer still describe the methods and assumptions required of its study." The reason that some of the early evolutionists had difficulty accepting this concept varied. Ruse (1982, p. 49) notes that Huxley, the most vocal supporter of evolution in Darwin's day, "always had doubts about the overall effectiveness of natural selection." As Ruse (1982, p. 51) notes, the reasons for the resistance to natural selection include:

> It is one thing to accept selection per se, and it is quite another to agree that selection can be everything that Darwin claimed for it. There is much drawing back from selection as an all-powerful evolutionary mechanism, even by those who were turned into evolutionists by the Origin. The general feeling was that evolution had to be powered primarily by something else. Many readers felt that selection working on blind, small variations simply could not be the causes of the wonderful adaptations like the hand or the eye. Therefore, not a few of Darwin's contemporaries, primarily

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> for religious reasons, supposed that the main cause of evolutionary change are instantaneous, God-designed 'jumps' from one form to another—as from the fox to the dog. That is, they believed in an evolution powered by 'saltations.'

Ironically, the essence of Darwin's contribution lies in his contention that natural selection is the major creative force or source of evolution, not just the executioner of the unfit (Gould, 1977).

Although many researchers conclude that natural selection is the major cause of evolution, most ascribe varying degrees of importance to other factors. Some of these include chance recombination of existing genes which produce positive, negative or neutral characteristics (neutral meaning of equal survival value compared to the parent gene structure), population fluctuations due to chance factors, geographical factors such as oceans or mountains which cause breeding isolation, gene flow, and changes in the length of reproduction and fertility periods. Each of these, separately and in combination though, are totally insufficient to account for evolution (Williams, 1966).

The best-known major rivals of the gradual evolution via natural selection model are *vitalism, Lamarckism, mutationism,* the *neutralists theory* (the theory of evolution by random walk) and *Goldschmidt's hopeful monster* theory, all of which have now been largely rejected, although occasionally books surface that defend one of these theories, especially *vitalism* and *Lamarckism* (Ayala, 1974). The *hopeful monster* idea, in a revised form with a modern cover called punctuated equilibrium, has recently gained rapid acceptance in the biological world. Many feel that its acceptance is due less to the evidence supporting the view, but more because the competing theories contradict the empirical evidence.

The major concern of megaevolutionists is to explain the incredible diversity in the living world. Pandas, elephants and mice are all biologically basically similar, yet manifest many differences. Even more different are the reptile, mammal, bird and insect and fish divisions. A viable theory of origins must explain this often unexplainable diversity, and the fact that literally millions of different species of animals and plants exist. The explanation that each living type was separately created by God in the creative week described by Genesis was historically accepted by most westerners, and probably most scientists as well, until the middle 1800's (Gould, 1981). Darwin believed that he had an answer which was beguilingly simple, and this simplicity partly explained its rapid and often uncritical acceptance. His answer was that scientists had for decades misinterpreted what they found in the fossil record: they actually were examples of animals that were not survivors and from which today's more perfectly adapted life forms arose. Darwin taught that those forms that still exist today were better able to survive climatic changes and the competition for mates, food, air, and space resources, and that the predecessors of modern forms were generally weaker, smaller, and less well adapted than other contemporary animals. In short, the extinct forms were wiped out by what Darwin called *natural selection.*

Darwin (1958, p. 120) concluded after he read Malthus' work on population that, ". . . it at once struck me that under these circumstances favorable variations would tend to be preserved and unfavorable ones destroyed. The result of this would be the formation of new species." The forces of drought, wind, animal predators, cold, heat and disease all tend to kill the weaker animals, leaving the stronger to reproduce. Since most creatures produce far more offspring than can possibly survive, "natural" selection can select the best or most fit, and these then will be likelier to reproduce. Darwin stressed that only the most fit, the strongest, and the most able survived the vicious competition for life: only the fastest runners, those with hardier hearts, better eyes and other sensory organs, stronger or longer legs (enabling them to run faster), and those with the most effective means of defense—quills on a porcupine and stink on a skunk—win in the constant struggle of life. Darwin then went far beyond this truism, expounding that all life, everywhere today and in the past, was created by evolution and is still evolving by a process that results from a never ending struggle for survival.

This, in short, is Darwin's theory of evolution, an idea that was by no means new to Darwin. Gould (1977, p. 23) claims that,

> Contrary to popular belief, evolution was a very common heresy during the first half of the nineteenth century. It was widely and openly discussed, opposed, to be sure, by a large majority, but admitted or at least considered by most of the great naturalists.

Darwin simply went farther than most and, importantly, was able to widely popularize the theory. According to Gould, Darwin's work consisted of uncompromising philosophical materialism in contrast to other evolution theories, most of which utilized vitalism or elements of a theistic evolution. Darwin's claim that, except possibly for the first few life forms, primarily random variation and natural selection were needed to account for the estimated over 2,000,000 species of animals and plants that now exist.

Much interest existed in Darwin's time in animal breeding and, in spite of the claim that Darwin obtained his theory primarily from his observation of the Galapagos Island finches and Malthus' work, the germ of his idea quite possibly stemmed in part from the logical deduction that, if we can breed a meatier cow, a faster horse, a fatter chicken, then we could also produce an *even more* meaty cow, a *still faster* horse, or *yet fatter* chicken. He then argued, if humans can bring about such changes in animals, could not nature itself also be constantly selecting the best by killing the less fit? Is not the bull that earns the right to breed the most powerful one, the most attractive peacock the one that has the most right to mate? The major difficulty that Darwin saw was that the changes obtained by animal husbandry were small: farmers could improve sheep's wool or make a redder rose, but obvious limits seemed to exist: Humans could not breed horses from dogs (some felt they could someday) or wings on dogs (this seemed harder to comprehend, but not impossible).

Although most biologists of the time concluded that clear limits to change existed, Darwin believed on faith that no limit existed. As he stated in his *Origin of Species*, "I can see no difference in a race that bears being rendered, by natural selection, more and more aquatic in the habits . . . [and larger and larger] until a creature was produced as monstrous as a whale." And (1962, p. 63),

> Slow though the process of selection may be, if feeble man can do so much by . . . artificial selection, I can see no limit to the amount of change, to the beauty and infinite complexity of the co-adaptations between all organic beings, one with another, and with their physical conditions of life, which may be affected in the long course of time by nature's power of selection.

Darwin reasoned that since many mammals—horses, cows, sheep, pigs, dogs, cats and goats—were all basically similar (each had a backbone, a brain and skull, four legs, hearts, kidneys, and similar reproductive systems) if we could breed faster horses, why could we not breed *any* mammal (or at least most mammals) from some common ancestor? After all, as much difference *appears* to exist between a poodle and a German shepherd as between a Pekingese and a cat. Darwin (1962, p. 82, 92) thus developed the opinion that all animals and plants could vary in any directions *to an almost unlimited degree.*

That all animals differ slightly, even from their own brothers and sisters, is obvious; in a litter of cats, some are slightly larger than others, some are solid white, others darker in color. Darwinists believed that these slight variations gradually, almost imperceptibly, could have changed a species into a new one. If in each generation the slightly faster runners, better jumpers, or stinkier stinkers were likelier to survive, the future generations of these animals would run faster and faster, or jump higher and higher. Hitching (1982, p. 12) concluded,

> The idea seem so blindingly obvious, and so satisfying complete that, in England at least, it quickly replaced the biblical account of creation, and became a new way of looking at the living world. With a few hiccups, it has held its place [throughout the scientific world] ever since.

Support for natural selection depends heavily upon the validity of its analogy with artificial selection (Tinkle, 1976). Darwin might have been justified in utilizing the animal breeding analogy to illustrate a limited process, but the use of natural selection as the *major support pillar* for macroevolution is problematic. In the first chapter of *The Origin*, Darwin discusses extensively artificial selection and extrapolates far beyond what his data warrants (Gale, 1982). The two major problems with this analogy between artificial and natural selection include:

> 1) Almost all the traits that breeders breed for have nothing to do with survival, and thus nature would not select for them; we breed dogs for certain appearance traits, horses for speed traits, cows for milk traits, and chickens for egg traits.
> 2) Animal breeders have found that select traits are often *lost* if random breeding again occurs, or if breeding for other traits is done. Few if any permanent changes in the animal usually occur, only the probability of certain traits appearing is altered.

The problem, both then and now, was going from the known to the unknown. Humans have produced many new strains of animals through breeding which have made our life easier and more pleasant. Although these strains were different in certain major ways from their predecessors, they usually soon reverted back to the previous types if allowed to interbreed with them again. Totally new major traits were never developed, but existing ones were re-arranged and favorable ones retained so that certain traits were more pronounced. This type of evolution (if it could be called such) is often termed *microevolution*, as opposed to *macroevolution*. Breeding solid black horses is microevolution, breeding winged horses is macroevolution. This dichotomy is artificial, and a *clear* distinction cannot always be made—and what is now macro may be classified as micro, meaning possible. Microevolution is what we have achieved, thus have experimentally verified, and this is probably a more realistic definition. Macro is what we hypothesize *could* be achieved, or which, according to fossil evidence and conjecture, *might* have occurred in the past, given a set of assumptions about the fossil evidence.

Now that researchers have a tremendous amount of experience in breeding animals, it is clear that it can be carried only to a very limited level, and many traits tend to revert to where we started—fruit fly traits, after eight to ten generations, tend to revert back to normal (Tinkle, 1976). The fact is, extensive breeding by millions of researchers and breeders has not produced a single undisputed new species in 400 years of experimenting (Johnson, 1991). As Eiseley (1958, p. 223) noted:

> . . . careful domestic breeding, whatever it may do to improve the quality of race horses or cabbages, is not actually in itself the road to the endless biological deviation which is evolution. There is a great irony in this situation, for more than any other single factor, domestic breeding has been used as an argument for the reality of evolution.

Deevey (1967, p. 636) concludes, "Remarkable things have been done by cross-breeding . . . but wheat is still wheat, and not, for instance, grapefruit. We can no more grow wings on pigs than hens can make cylindrical eggs." A more contemporary example is the average increase in male height that has occurred the past century. Through better health care (and perhaps also some sexual selection, as some women prefer taller men as mates) males have reached a record adult height during the last century, but the increase is rapidly disappearing, indicating that we have reached our limit.

Darwin's error was in stretching this comparison too far, sooner or later we reach limits, and no one has yet observed helpful macroevolutionary changes taking place. Since we do not have several billions of years of direct observation, we have not been able to directly test this assumption. Nevertheless, some ani-

mals such as fruit flies live a very short period of time, enabling us to observe multi-thousands of their life generations. Even with a drastically higher artificial increase in the number of mutations, which are supposedly the source of variation which gives rise to the "stuff" from which natural selection can select, no evidence exists that large changes have, or can, occur (Lester and Bohlin 1984).

Even Gould (1977, p. 39) admits, " . . . although I wear the Darwinian label with some pride, [I] am not among the most ardent defenders of natural selection." More blunt is Bethell (1976) who concludes, "Darwin's theory [of natural selection] I believe is on the verge of collapse. . . . Natural selection was quietly abandoned, even by his most ardent supporters, some years ago." Gould, in an article defending natural selection (1977, p. 40-41) admits that, "Bethell argues quite correctly that [Darwin] relied upon analogy to establish it [his definition of survival of the fittest] a dangerous and slippery strategy." Yet, many scientists are still struggling not only to define it, but also to demonstrate that it has a role in megaevolution (Maddox, 1991, p. 653).

The assumption that all life and all of its traits owe their existence primarily to natural selection, thus these traits must be adaptive, is still supported primarily by thought demonstrations. Natural selection explanations are often similar to dream interpretations: the explanation may be logical and fully understandable, yet there is no way to empirically document it. The logic that any particular character was or might be adaptive was regarded by many as sufficient proof that it owes its origin to natural selection, but this evolutionary speculation has few connections with the concrete facts of cytology and heredity or with actual experimentation.

The Fossils and Natural Selection

The fossil record does not support the case for natural selection. One excellent summary (Gliedman, 1982, p. 90-91) reflects the current opinion well:

> No fossil or other physical evidence directly connects, man to ape. . . . The problem for gradualists [those who support gradual evolution or orthodox Darwinian evolution] is that . . . these ancestral species remain essentially unchanged throughout their million-year life spans, yet each of them differs substantially from its immediate predecessor. . . . Sudden-change theorists find plenty of support for their point of view in the glaring list of critical evolutionary events that no gradualist, including Darwin, has ever explained satisfactorily. In addition to the lack of a missing link to explain the relatively sudden appearance of modern man, gradualists cannot easily explain the mysterious 'Cambrian explosion' 600 million years ago. This was an evolutionary leap that transformed the earth . . . from a mess of simple microscopic bacteria and blue-green algae to a planet bursting at the seams with primitive representatives of every type of multicellular plant and invertebrate animal-from the lowly protozoans to such complex creatures as the trilobites, . . . the best that gradualists can do is point to the ground beneath their feet; the fossils buried in the earth somewhere, they say, and may someday be discovered.

The lack of transitional forms is a serious problem that can no longer be attributed to hypothesized undiscovered fossils (Johnson, 1990; Gould, 1989). All of the multi-millions of fossils so far discovered fit quite well into existing groups and rarely is it even argued that a fossil type fits between two orders or even families. Animals have come and gone, but very few of them meet even the minimal requirements necessary to claim that their fossil type is one of the many billions of different transitional forms that must have existed if the gradualist view is correct. To explain this difficulty, believers in the punctuated equilibrist's view of Gould postulate that relatively few links exist, and very few fossils can be found because the rate of evolution during the gaps was geologically rapid. The theory also argues that the transitional forms were highly unstable, thus rapidly died off, leaving behind very few fossils. But once an animal was in a stable slot in the environment, though, it existed for long periods of time consequently leaving behind many more fossils during this stage.

The major problems with the punctuated equilibrium view is that it is based on almost a total lack of transitional forms; consequently one might ask, "How do we know that these creatures existed and were unstable if we have no evidence of them?" The reason that this is concluded is if they were stable and survived for long periods of time, we would have abundant evidence of them. Since we do not have this evidence, given evolution is true, they must have existed, but only for a short while and this is why no evidence of them now exists. This argument from lack of evidence is, at best, misleading and, at worst, involves the circular reasoning fallacy. In the punctuated equilibrium view, multi-millions or more transitional forms must also exist, just fewer than in the old view. Arguing primarily from lack of evidence is also true of the gradualist model: none of these links have been discovered for certain. Hitching (1982, p. 40) concludes that:

> Today most museums and textbooks accept gradualism as readily as they accept natural selection. Logically, then, the fossil record ought to show this stately progression. If we find fossils, and if Darwin's theory was right, we can predict what the rock should contain; finely graduated fossils leading from one group of creatures to another group of creatures at a higher level of complexity. The 'minor improvements' in successive generations should be as readily preserved as the species themselves. But this is hardly ever the case. In fact, the opposite holds true, as Darwin himself complained; "innumerable transitional forms must have existed, but why do we not find them embedded in countless numbers in the crust of the earth?" Darwin felt though that the "extreme imperfection" of the fossil record was simply a matter of digging up more fossils. But as more and more fossils were dug up, it was found that almost all of them, without exception, were very close to current living animals. Size and shape may have varied, such as the woolly mammoth compared to elephants today, but the variations were small.

Fossil intermediates are consistently missing in virtually all of the most important places, and some paleontologists argue that no true, major transitional forms have been shown to exist, and that all claimed transitional forms are, at best debatable. Macroevolutionists generally concede that, although the evidence for intermediates is at present limited, they have faith that they will be found in the future if we just keep digging. The limited evidence, such as the few hypothesized transitional form claims as *Archaeopteryx*, often do not stand under examination. *Archaeopteryx* is probably the best-known and oldest example of a supposed intermediate, and the creature's traits, as well as where it fits in the fossil record, are still being hotly debated. Benton (1983, p. 99) concluded that "no consensus on *Archaeopteryx"* exists, and that scientists are still debating even such basic questions as, "can the bird fly, is it ancestral to birds, did it originate from dinosaurs or from some earlier stock and, indeed, is it even a bird?" He (1983, p. 99) quotes a detailed study on the brain case of *Archaeopteryx* that concludes that the "details of the brain case and associated bones at the back of the skull seem to suggest that *Archaeopteryx* is not the ancestral bird, but an offshoot from the early avian stem." The relationship of *Archaeopteryx* in the origins of bird controversy is so controversial that Thulborn and Hamley in an extensive review identified seven hypotheses concerning the affinities of *Archaeopteryx* (Benton, 1983, p. 100).

This notorious lack of transitional forms is not due to any shortage of fossils. Billions have now been unearthed, so many that quality specimens are often sold to collectors for as little as a quarter. Petroleum, oil, natural gas, chalk, cement and many other petrochemicals and minerals are claimed to be products of fossils, thus are called fossil fuels or minerals. Over 250,000 different species of fossil plants and animals are known to exist, and almost all of them are extremely similar to the 1.5 million species now known to be living on earth (and about one million of these are insects) while the rest fit into known extinct types (Day, 1989). When a fossil is unearthed, it most always is known type. Discovery of a new species, whether extant or extinct, is a once in a lifetime event for many zoologists that is often rewarded by naming the species after the discoverer.

Rensch (1959) admitted that few, if any, examples of micro changes (which he calls *transpecific* evolution) exist in the fossil record. He added hopefully that finding intermediates in the future should not yet be regarded as impossible. Most research areas along this line have turned out to be dead-end roads which have diverted biologists from other far more promising areas of research. Darwin's explanation for the lack of transitional forms, the alleged extreme imperfection of the geological record due to our poor search efforts, can no longer be used to explain away the evidence. We now have enough fossils to be assured that we have a fairly good idea of the variety of past animal life, especially those types with hard parts. We can even make some reasonable conclusions about the extinct forms and variety of animals, such as jelly fish and bacteria, which are not preserved either as well or as often as animals with hard parts. Our good knowledge of many ancient insects is partly due to the many types that are preserved in amber or other substances which prevent the decay of the soft, fragile parts (Reid, 1985). These were described eloquently by Zahl (1978, p. 237):

> Recently, in a laboratory at Harvard's Museum of Comparative Zoology, I focused a magnifying glass on a clear marble-sized sphere in which a tiny fossil fly hung suspended. . . . This elegant piece of tea-hued amber, along with its elfin inclusion, was only one of several thousand stored in drawers stacked from floor to ceiling in the Museum's Department of Fossil Insects. . . . In each was a fly, ant, grasshopper, beetle, or spider, all perfectly lifelike as though some magic wand had cast the spell of frozen sleep upon them. . . . embalmed you might say, fifty million years earlier; yet its tenants looked singularly like the fly, ant, grasshopper, beetle, or spider in my own garden. Had evolution overlooked such genera during the intervening fifty thousand millennia?

Trilobites, although long extinct, have been studied extensively and we now know a great deal about the morphology, growth, molting, appendages and internal anatomy of the 60 known species. We even have good insight into how their holochroalic eyes work. Enough is known about the past living world to produce a fairly good picture of it. And, this picture precludes macroevolution.

Natural selection, although it "explains" minute changes, is far less viable in explaining the events called for by the theory of punctuated equilibria. Many of the challenges to Darwinian evolution are specifically challenges to natural selection. And these are such that the theory at the very least requires severe modification (Leigh, 1971). As Hitching (1982) stated, "Darwin's explanation of evolution is being challenged [today] as never before, not just by creationists, but by his fellow scientists." The fact is that: ". . . for all its acceptance as the great unifying principle of biology, Darwinism, after a century and a quarter, is in a surprising amount of trouble." The reason is because Darwinism or its modern version, neoDarwinism, ". . . has not, contrary to general belief, and despite very great efforts, been proved." Given the above, why then is natural selection accepted? Macbeth (1971, p. 77) attempts an answer:

> [Does] the evidence mean that Darwinism is correct? No. Sir Julian Huxley said, once the hypothesis of special creation is ruled out, adaptation can only be ascribed to natural selection, but this is utterly unjustified. He should say only that Darwinism is better than the other. But when the others are no good, this is faint praise. Is there any glory in outrunning a cripple in a foot race? Being best-in-field means nothing if the field is made up of fumblers."

That changes have occurred in nature and in animals, no informed person doubts. Nor does anyone deny that species have arisen and disappeared—the dinosaurs and trilobites are the most prominent of thousands of good examples. Many creatures that once roamed the earth no longer exist today, and some species around today evidently did not exist a

long time ago. The concern is that *microevolution* is labeled *evolution,* then based on the evidence for microevolution the claim is made that *evolution* has occurred. Microevolution has been well documented and creationists have no difficulty with this fact; they stress that we should go only as far as the empirical data carries us (Johnson, 1991). The fact is, the documented changes are minor and fully explainable by innate variation laws. Most creatures that are around now are close to identical to their ancestors who lived far back in time—some even from almost the very beginning of the fossil record, such as many types of bacteria, insects, jelly fish, reptiles and fish.

Natural Selection and the Origin of Cells

A long standing major difficulty with the selection hypothesis relates to the hypothetical earliest levels of evolutionary development. For selection to occur, a living organism must exist that is capable of successfully reproducing, and also of ingesting, assimilating, and processing food. Secondly, a stable supply of food must be available which it can use to manufacture the various complex elements and also produce the chemical reactions necessary to obtain the energy needed to insure the organism's survival. Although many have tried, explanations of the origin of single cells by selection theory are still wanting. For selection to take place, even at the cellular level—a structure consisting of dozens of complex interrelated, functioning organelles must *first exist.* Many complex subcellular structures must somehow spontaneously form in conditions much different from today, and then resist the push toward entropy. Most all would disintegrate, but evolutionists must assume that some did not. These few must also have had a means to prevent destruction by too rapid atrophy, and also, among other things, must be able to ingest, to respirate, and also to effectively reproduce. Only when all of this has occurred could selection select the animal which survived best and produced more offspring.

Reproduction Rates and Bacterial Evolution

The organism which had a highly effective reproductive system and a *longer* reproductive life span to produce *more* of its offspring would be favored. A major result of the survival of the fittest force would be the *length* of the reproduction period, an effect that Darwin called *differential mortality* and today is often called *differential reproduction.* No selection advantage exists in living *after* one can no longer reproduce:

> We must keep always in mind that by the 'fittest' Darwin meant the one with the largest surviving progeny. This can be and often is a comparatively weak individual. In this sense rabbits are 'fitter' than lions, since they have been able to reproduce and occupy a larger area, in spite of man, than lions, which are fighting a losing battle against man. (Solbrig, 1966, p. 9)

Differential reproduction is so important that, in Simpson's (1967, p. 138) words:

> Suppose all the individuals in the population lived for precisely the same length of time, with no elimination of the unfit . . . hence no Darwinian selection. . . . Suppose further that [one species had] a hereditary fondness for apples [and] had twice as many offspring as those without this characteristic. Then there would be very strong, clearly non-Darwinian selection.

Given the fact that small mammals tend to have different survival rates, it would seem the one that consistently had the largest litter would eventually dominate the others. Put another way, given two identical animals except that animal A has an average of 10 litters of four animals each during its reproductive lifetime, and the other an average of six litters with three animals each, this trend would eventually result in animal A predominating and the demise of animal B. Evolution would therefore seem to consistently select for longer reproductive lengths—first years, then centuries, etc.—presumably without limit, although increases could well be smaller and smaller as time progressed, similar to the half-life phenomena. Obviously, this has not happened.

Natural selection would, in short, favor primarily those animals that 1) produce more offspring, 2) have longer fertility periods, 3) and live longer, thus having more time and opportunity to reproduce their kind. Those that on the average live longer but have *shorter* fertility periods are, according to evolution, at a disadvantage in the long run. These three factors all facilitate the events which fit the standard definition of "survival of the fittest." The data as a whole also reveal that natural selection is not functioning to any significant degree anywhere so as to change these features. According to the current evidence, the number of offspring, longevity, and length of the fertility period of most animals have been remarkably stable for the past several thousand years (Prince, 1980; Tributsch, 1984; Johnson, 1991). Since natural selection has evidently not changed even these three simple characteristics very much, all of which would seem to be highly influenced by it, the mechanism would not be expected to select in the direction of developing extremely complex mechanisms for animals, such as those found in the bombardier beetle or the archer fish. Conversely, it would select structures which *directly or indirectly facilitate* that which is defined as evolutionary success, namely the number of offspring living at any given time. As Miller and Van Loon note:

> it gradually became apparent . . . that the influence [of natural selection] was much more subtle, and that it was more a question of differential reproduction rather than differential survival and that what counted was not so much the life or death of certain individuals, but the extent to which any particular type could outbreed its competitors. (1982, p. 169)

Measured by this standard, because some insects give birth daily to thousands of offspring, they are for this reason *far more* successful evolutionarily speaking than mammals, most who give birth to only a few offspring annually.

Actually, a major problem with the survival of the fittest theory is that reproductive rates often are the opposite of what evolutionary theory predicts. Animals that have supposedly evolved to the *highest* rungs on

the evolutionary ladder in terms of the number of changes from the original hypothesized *unicellular ancestor* often have the *lowest* reproduction rates (Ortner, 1983). Most mammals give birth to one or two litters for only a few mating seasons. Many female mammals, if impregnated, have only one or two offspring per mating season. The creatures on the bottom of the so-called "evolutionary scale," such as bacterium and viruses, have by far the *highest* reproduction rates.

If reproduction fecundity is a main criterion of evolutionary "success," bacteria and viruses are without question among the most successful living organisms. Cholera bacteria reproduce at such a rate that a single pair can produce an estimated 700,000,000,000,-000,000,000 (700 quintillion) offspring in a mere 24 hours, fully 3,000 tons worth. Further, an offspring reproduction rate such as this would seem to provide an almost inexhaustible gene pool for mutations. Thus, if so many mutations occur per 1,000,000 organisms, the higher the number of organisms, all other factors being equal, the greater the total amount of mutations (and the more mutations, the greater the probability of a orable ones). The far higher reproduction rate of bacteria coupled with their short life span would result in more offspring and more total generations per year. Given this, they would produce far more mutations than the majority of animal types and, therefore, have the greatest chances for the occurrence of a favorable one, thus evolution.

It would also seem, given evolutionary assumptions, that a state of equilibrium would never occur among bacteria. A few bacteria out of the multitrillions living at any one time are bound to be blessed with a difference that produces a slight selection advantage which could in turn gradually alter the entire gene pool. The result would seem to be a greater likelihood of improving their adaption state, and thus should have caused it to evolve to a "higher" evolutionary level. The weaker bacteria forms would eventually become extinct, and only if new bacteria were somehow "spontaneously generated," or life at an even "lower" level was occasionally formed and able to evolve to the higher bacteria level, could this type continue to exist. If so, the bacteria existing today would have to be a recent result of this progress. Research on natural selection and mutations as a variation source has recently found that frequencies of genes that control certain traits of some microorganisms can be influenced. We have by this means, though, *not yet* produced a single major beneficial change in the physical structure of any organism, only weeded out undesirable one (Lester and Bohlin, 1984).

Although bacteria should have evolved at a much faster rate then the "higher" animals, no evidence exists that they have undergone evolutionary change in recent (or even ancient) history. The so-called *Archae bacteria* are not a pre- or primitive bacteria such as their name implies, but only ". . . a distinct and separate group of prokaryotes," and even this claim is a matter of definition and debate. The earliest bacteria thus far discovered, estimated to be two billion years old, ". . . closely resemble the microcolonies of certain modern soil bacteria" (Schopf, 1965, pp. 1365-1366). Borchgrave (1988, p. 62) noted that an Oberlin College team of biologists concluded that the evidences which they found:

> . . . indicate that the single-celled organism without nuclear membranes has changed little since it originated 2 billion years ago. The organism . . . has several of the same characteristics as today's myxobacterium, found in abundance in soil. The size of the slime's cells, its spores and the cysts that house the spores appear to be similar . . . [to] the myxobacterium of 2 billion years ago, like its present-day counterpart, was not photosynthetic but instead derived its energy from organic compounds of decomposed materials in the stromatolites.

The enormous reproduction level of bacteria noted above does not occur due to a rapid depletion of available food and moisture, and also an accumulation of toxic metabolic waste products in the animal's environment. Yet, the sheer number of bacteria produced should eventually result in mutations that will enable them to overcome even these problems. Evolution predicts that the organisms will eventually evolve so that their own waste products were *not* toxic. They might be expected to evolve selective membranes, toxic neutralizers or another means to protect themselves against the poisons. If bacteria have existed on earth for two-billion or more years—longer than most every other living thing—plenty of time should have been available for the necessary mutations to have occurred. As zoologist Grasse (1977, p. 87) notes, the question of *why* they did not evolve these innovations poses a major problem for evolution:

> Bacteria, . . . are the organisms which, because of their huge numbers, produce the most mutants. This is why they give rise to an infinite variety of species, called strains, which can be revealed by breeding or tests. Like *Erophila verna,* bacteria . . . exhibit a great fidelity to their species. The bacillus *Escherichia coli,* whose mutants have been studied very carefully, is the best example. The reader will agree that it is surprising, to say the least, to want to prove evolution and to discover its mechanisms and then to choose as a material for this study a being which practically stabilized a billion years ago! What is the use of their unceasing mutations, if they do not [produce evolutionary] change? In sum, the mutations of bacteria and viruses are merely hereditary fluctuations around a median position; a swing to the right, a swing to the left, but no final evolutionary effect. Cockroaches, which are one of the most venerable living insect groups, have remained more or less unchanged since the Permian, yet they have undergone as many mutations as *Drosophila,* a Tertiary insect.

Another of the thousands of examples that illustrate why mutations have been unable to bring about major changes is illustrated by yeast cells. The process needed to manufacture many alcoholic beverages involves using yeast to produce carbon dioxide, alcohol (both yeast cell waste products) and the energy necessary for its own growth, all from the fruit on which it parasitically lives. But when the alcohol content reaches about 14%, the yeast's own waste product

begins to kill the yeast. The many millions of years that evolutionists believe is available has *not* been able to overcome this simple problem. Similar examples of this inability of evolution by mutations to overcome limitations abound in the worlds of viruses, mycoplasms, rickettsia, fungi, nematodes and even class insecta.

Mutations and Evolution

Mutations are usually viewed as the major source of the variation that natural selection selects to cause evolution. It is universally recognized that the vast majority are clearly neutral or harmful, most always resulting in no change or a weakened or even deformed creature (Williams, 1977). Goldschmidt (1942) who postulated an early *punctuated equilibrium* theory, observed mutations in fruit flies for many years. The changes, he lamented, were almost all small so that if a thousand mutations were combined in a single fruit fly, a new species would not result but, at most, only a weird fruit fly which probably would not survive birth (Goldschmidt, 1952, p. 94). Extremely few examples exist for which any case can be made for a major favorable result from a mutation, and even these few examples are debatable. Even the assumption that weakened or deformed creatures are far more apt to be eliminated by natural selection is not valid; weaker creatures are often eliminated only if they are so *severely* deformed that they cannot live. Many spontaneous abortions and early infant deaths are due to this factor. Inferior creatures, especially among the higher mammals such as the primates are often protected by the group and, consequently, not uncommonly survive. Medicine has improved tremendously the infant mortality rate, and consequently many of the "weak" humans who would normally not survive are now living as long or beyond the normal life expectancy. A defect in humans, to be of selection value often must be so great that it causes the individual with it to be highly *unlikely* to survive the child bearing years, let alone compete in the natural selection game.

The discovery of the mechanism of heredity by Gregor Mendel in 1866, and the extant research on mutations, gives clear evidence mostly for *deevolution.* If the creature survives a mutation which is not harmful enough to impede early survival, it will likely be passed on to one's offspring. In this way, all species slowly accumulate mutations with each passing generation. Some evidence exists that the number of natural mutations has been increasing in humans, causing more diseases such as hemophilia (bleeding disease). Over 4,000 diseases are now known that are caused by past mutations, most of which were not in the human family several thousand years ago. Their victims have survived long enough to reproduce and pass on what was likely a mutation to their offspring. This is evidence, though, for deevolution, the opposite of evolution. As Mayer (1964, p. 296) admits, it

> . . . is a considerable strain on one's credulity to assume that finely balanced systems such as certain sense organs (the eye of vertebrates, or the bird's feathers) could be improved by random mutation. This is even more true for some of the ecological chain relationships (the famous yucca moth case, and so forth). However, the objections of random mutations have so far been unable to advance any alternative explanation that was supported by substantial evidence.

The inadequacy of arguing from reasoning that an idea is valid because it is a "better explanation" compared to competing ones, Macbeth (1971, p. 78) explains as follows:

> If such a theorist makes a suggestion that is better than other suggestions, or better than nothing, he feels that he has accomplished something even if his suggestion will obviously not hold water. He does not believe that he must meet any objective standards of logic, reason or probability. This is a curious state of affairs, but if the reader. . . can view it as a possibility he will feel less surprised in the frequent cases where he finds the theorists propounding ideas of striking frailty.

Attempts to Rank Animals by an Evolutionary Scale

The "higher" or "lower" (or more or less evolved) classification used by evolutionists is a distortion of reality and for this reason is avoided by informed biologists. Animals clearly appear to be designed for a certain type of life, and each one "fits" quite well into its own habitat. The severe difficulties in "ranking" animals in an evolutionary hierarchy, given the limitations of molecules and the built in flexibility found in all living structures, from cells to organs (plus the fact that all of them are perfectly designed and every organ perfect if not diseased) has resulted in a new taxonomy system called **cladistics** (Duncan and Stuessy, 1984). All organisms face the same needs, and all are normally capable of doing what is necessary to meet these needs. A luxury airplane is not necessarily more fit or better able to fly than a small Lear jet; both are well designed for their respective purposes.

Comparisons made between humans and animals show that many of the so-called "lower" animals are *more* "highly" developed in some areas than humans. A 170 pound man expending energy at the rate equivalent to that of a ruby throated hummingbird would burn about 300 thousand calories daily, requiring consuming 285 pounds of hamburger, about double his weight, daily. He would also need to evaporate about 100 pounds of sweat each hour just to keep his skin temperature slightly below the boiling point of water. Hummingbirds, famous for their speed, can fly about 60 miles an hour. They also can effectively "hover" like a helicopter, a feat which requires a wing movement of over 200 beats per second (a speed which cameras could not freeze until the advent of high speed film). For this reason, their wings appeared blurred in most older photos. The extremely fast wing movement also enables them to fly backwards, sideways or in any direction that they wish (Gause, 1969).

Although it is well-known that the "simplest" living things are actually extremely complex, the supposedly oldest living things are also as fully "developed" as their modern counterparts. These microfossils of cell chains that resemble a string of beads were discovered in rocks collected from a desolate corner of Western Australia. Paleobiologist Schopf (1965, p. 1365) noted

that these bacteria-like organisms that lived at the bottom of the shallow sea were ". . . surprisingly complex." In his words, ". . . these microfossils tell us that life was a whole lot more complex at that time [three and a half billion years ago, only about a billion years after the earth was supposedly formed] than any of us had really guessed." At least five fossil varieties of this type of bacteria were identified by the team of scientists which gathered at UCLA to argue about their origins of life views. They further concluded that this discovery also indicates that life existed a ". . . billion years older than expected." This leaves much less time available for life to have arisen after the earth began. Over 80 percent of the four and a half billion years of the earth's assumed existence (at least three and a half billion years) contained life, an assumption which creates serious problems for evolution.

The Case of Insects

Insects are also near the bottom of the evolutionary scale, but are likewise extremely successful according to evolutionary criteria. Almost a million species are now known, and hundreds of new ones are being discovered each year—this compares to less than 36,000 types of mammals, fish, and birds. Farb (1962, p. 11) estimates that the total number of insect species may reach

> upward of one million, and one authority believes the number may be as high as ten million. But even now the total already known is about three times the number of all other animal species on the Earth combined. There are reasons for the high level of success of insects.

Some of the many reasons for their obvious success, including their incredible ability to live in a wide variety of inhospitable environments include:

> There is scarcely a place on the planet Earth that is not home to least one kind of insect. Some 40 kinds of insects live in the bleak Antarctica. . . . Wherever they live, insects . . . endure with a unique kind of indestructibility. Some of them have been frozen solid at temperatures more than 30 degrees below zero F and still lived; other kinds inhabit hot springs where temperatures reach 120 degrees F. Still others survive in as great a vacuum as man has the power to create. . . . many insects can endure long periods without water; they possess fuel reserves and can get the water they need by burning these reserves. This is so-called metabolic water; it is produced by the burning of carbohydrates in the body, where they are broken down into water and carbon dioxide. (Farb, 1962, p. 11)

The flea is an excellent example which illustrates how many insects, in contrast to most vertebrates, can tolerate drastic environmental changes. Fleas can typically survive for as long as 17 months without blood, their main diet, until they find a host. One flea type which preys on humans can exist as long as 500 days without nourishment. Of the 1,200 species of fleas that exist (only about 200 make their home in North America) some types can exist in a frozen state for months and, after thawing out, are usually as healthy as before. After being buried under thick layers of snow in the frigid Antarctic for as long as nine months or more, as soon as they are freed they look for a "host" on which to survive parasitically.

After the infant fleas hatch, they spin cocoons in which to grow and mature. Then, after becoming fully developed, they lie dormant within their cocoons patiently waiting for a person or animal to pass by. When one is discerned, usually by smell, the flea bursts rapidly from its cocoon and "jumps" onto the host if it is within 36 inches (proportionate to a human jumping about 550 feet). The flea, known for its great strength, can pull 400 times its own weight. Farb (1962, p. 22) notes that fleas are remarkable, but no living creature matches the beetle, the most successful order of animals on earth:

> . . . the total number of beetle species may be as high as 250,000. . . . By comparison, all the species of vertebrate animal—fish, amphibians, reptiles, birds and mammals—total fewer than 36,000. At least three characteristics contribute to this unparalleled success. . . . Complete metamorphose . . . an effective shield, protecting the soft body underneath and the beetles have kept their primitive mouth parts, designed for chewing abundant soft foods.

These examples vividly illustrate the difficulty in developing an evolutionary hierarchy as required by the theory. Rather than a classical tree relationship as among animals, we find a variety that defies any overall ranking system.

Intelligence and Survival

The brain becomes more and more complicated as we go up the animal kingdom scale. Vertebrates, animals with spines, have more nerves than spineless creatures, and their brain is larger and more complex. This enables vertebrates to effectively carry more messages from its more complex body to its brain, which in turn must be more complex to deal with this quantity and quality of information. The brain and most of the body structures in "higher" animals are far more complex, requiring many more neurons and their supportive neuroglia cells. This complexity does not necessarily increase the animals survival advantage, but it often actually makes survival more precarious because more structures exist to break down. Animals with more complex brains are also often less able than lower forms to withstand some of the major environmental pressures that supposedly originally caused their evolution, especially temperature and food supply pressures (Colinvaux, 1978).

Contrary to what is often assumed, intelligence does not necessarily facilitate survival, at least in the animals below humankind (Colinvaux, 1978). The term intelligence is used here in the classical sense, and does not refer to inherited instincts, without which almost no animal could survive. Many animals which have almost no intelligence survive quite well, including bacteria, insects, coelenterata, platyhelminthes (flatworms), aschelminthes (roundworms), mollusca, and crustaceans. Conversely, any animals which possess a comparatively much higher level of intelligence, such as whales, dolphins and many primates, are now threatened with extinction. With the exception

of humans, a reverse *correlation* often exists between the ability to survive and intelligence.

One of the most successful animals from an evolutionary standpoint, the turkey, is considered one of the more inept members of the animal kingdom. When frightened by thunder or other loud noises, they sometimes pile up on top of other turkeys along their coop fence and smother. They will even drown in their own water trough or stare up at the sky during the rain storm with their mouths agape until they suffocate! Although mankind is partly responsible for this condition because turkey breeders are concerned primarily with size, and certainly not with intelligence, those in the wild also exhibit most of these traits. Turkeys may have survived until today partly because the stiff horny spurs on the back of their legs are a fairly effective defense against predators, and their mating process is very efficient. In addition, they display unique behaviors such as creating small "dust storms" which kill lice, mites, and other parasites that are prone to live in their feathers. The dust blocks the breathing organs of the parasites, killing them. Regardless of the reason, in spite of being dangerously stupid, turkeys actually live longer and are hardier than many other birds (Masckenzie, 1977).

Claims that temperature and similar environmental factors caused the evolution of human intelligence, which in turn has aided in our survival, are common in the literature, but are often nothing more than speculation. Pendell (1977, p. 76) for example, proposed that: "The population of *Homo erectus* in Europe must have been thinned to almost zero by the Mindel Glaciation. Only the few who boasted an almost *Homo sapiens* intelligence could have survived." This conclusion is largely guesswork which lacks empirical evidence and is also poorly conceived intellectually. Those specimens that survived this ice age did not need intelligence nearly as much as a good supply of food, firewood and animal skins, plus access to warm caves and the insight to huddle together under thick blankets by the fire. If a few of them possessed reasonable intelligence, they could likely have directed the process of locating food and the other necessary things for the whole tribe, or better yet had known to move south as the climate changed. Humankind has most always lived in groups and, with some notorious exceptions, has always taken care of the weaker among them. The children must be cared for by adults and, except in extreme cases, rarely perish because of their lack of intelligence. If lack of intelligence impedes survival, it is often the group's or the tribe's leaders' lack that causes most of the problems. The high level of group and social support systems that are typical of primates makes it unlikely that much winnowing out of the less intelligent generally occurs.

We would also expect that the lower forms of life would display a low level of tolerance for variations in such factors as temperature or lack of regular food and water, and would need only certain kinds of food to survive. Darwinian natural selection would also cause us to expect that those organisms at the *higher* end would possess better, often more complex organs which would help them to survive by blessing them with a greater ability to:

1. live for longer periods of time without food.
2. live on a wider variety and types of food (animals that metabolize most anything are ideal).
3. live on food types that are abundant (as cellulose).
4. live in large temperature variances (such as from 0 to 300 degrees Celsius, or close to these extremes.)
5. resist or develop tolerance to many poisons, ions, acids and bases from a pH of 2 to 12 or wider, etc.
6. effectively escape or defend themselves against predators of all types and sizes.

According to these criteria, the so-called simpler forms of life tend to be *more evolved.* As the law of parsimony (Occam's razor) predicts, if two structures equally achieve the same results, the simpler structure (or simpler explanation) is preferable. A simpler structure has fewer parts to wear out or malfunction, and thus cause a breakdown. A clear technology advance is the development of a machine which does the same job with fewer parts, especially fewer moving parts, or with a less complicated design.

An example is the so-called simpler eyes of insects or ears of certain animals which are more effective than the same structure in humans. This fact questions *the purpose* from an evolutionary standpoint of *more complex structures.* If a motorcycle will transport one to the next town as effectively and quickly as a Cadillac, natural selection will not evolve a Cadillac, even though this mode of transport may be much more comfortable and luxurious. The functions of life, growth, survival, and reproduction *are all carried out as effectively* if not more *so in bacteria, insects and worms as in humans.* The major difference is that humans travel through life with more luxuries. This concept, called "over-design," supports for the creation world view (Bergman and Howe, 1990).

Greater and greater ability to survive in spite of food deprivation would seem to be a major thrust of Darwinian natural selection. Presumably, the only limits are the ability to survive total deprivation, and to stop and start one's total biological system at will. That it is possible is proven in that some animals can evidently survive for centuries in a state of extreme hibernation without food or water. DeGarmo (1982, p. 19) reported that bacteria brought by ship from earth, *Streptococcus mitis,* apparently survived on the moon surface between April 1967 and November 1969. The organisms were discovered in a piece of insulating foam in a television camera retrieved from Surveyor III by the *Apollo* astronauts. The ability to withstand greater and greater temperature and other environmental changes, which would be determined by the general ranges which exist in an area, also would evolve. Thus, no need exists to evolve the tremendously complex organisms with the endless variety of sense organs, communication and systems of locomotion that are found everywhere in the real world, both today and far back in the past. Selection would seem to *eventually* cause the evolution of the most possibly fit animal (likely a single-celled organism) which would eventually *literally cover the earth,* impeded only by space and the availability of food-both which would affect only its ability to reproduce. Even here, though, selection would *increase* its food

flexibility requirements to the extent that the cell could exist on only oxygen, carbon, nitrogen, and trace amounts of a few other elements. The fact that this logical outcome of evolution is not found argues against megaevolution by natural selection.

The Limits of Variation

Empirical research has verified that animals and plants can be bred only to a certain point. Important economic reasons exist behind attempts to breed prettier flowers and meatier cows, but nowhere are small improvements as critical as the breeding of faster race horses. At stake is many millions of dollars which can be gained even if the breeding produces only a very small advantage. Hill (1988) in a study of horse breeding concluded that, in spite of enormous efforts by the leading geneticists, race horses today do not run much faster than their great-great-grandsires did, and many of the improvements "cannot be attributed to genetic change, but to better training, health, tracks, and wider screening of the population." He notes that "despite the efforts of breeders," the winning times of thoroughbreds in the English classic horse races "have not fallen substantially over the past fifty years" (1988, p. 678). This is not due to lack of effort, but "the lack of improvement is disturbing because the horse-breeding industry is a large and competitive business, with much attention being paid to performance and to pedigree . . . we need to explain the apparent selection limit . . ." (1988, p. 678). While it would be premature to conclude, especially in view of genetic engineering progress, that the industry has exhausted all possibilities of breeding a faster horse, it is clear that there are definite limits which are fairly narrow. Breeding a slightly faster horse does not argue against this, only that the limits may be slightly wider than we currently assume (Gaffney and Cunningham, 1988, p. 722). The Gaffney and Cunningham study found that the best horses were not getting faster, but the pack's arithmetic mean was higher. Although the gene pool was improving, the top horses had reached their physical limit.

Drosophila melanogaster research has found that excessive breeding of some traits often produced sterility, thus we could expect that intense natural selection, as repeatedly confirmed in the laboratory, would result in sterility or other problems, not a new and better species however it is defined.

Selection as Counter-Evolution

Numerous other problems exist with the claim that the animals which supposedly had a longer evolutionary history and are more complex are the *higher* forms, such as the mammals, birds, dinosaurs, etc. and that the lower forms—insects to bacteria—are "primitive" and have historically experienced little change. Intensive selection would logically eventually cause the organism's extinction for the reason that it results in a higher and higher level of adaption, thus a narrower and narrower level of specialization, making it increasingly difficult to survive environmental changes. Flexibility and a low level of adaption to a specific niche appears to be far more important for survival than a high level of fitness. Natural selection would then "select" animals into a slowly narrowing ecological niche in which extinction would be inevitable. The data cited above support the conclusion that animals which are "higher" on the evolutionary scale are more likely to become extinct—inferring that Darwinian "selection" tends to evolve animals into a position in which they are more likely to be selected out of existence. In other words, Darwinian selection, as presently understood, almost invariably leads to extinction.

An example of Darwinian natural selection theory carried to its limits and selecting an animal out of existence, is the saber-tooth tiger. Its demise is attributed to its large teeth which evolutionists also claim were originally produced by selection. Their teeth evolved so large that the cats evidently could not open their jaws wide enough to allow entry of their normal food. This contradiction exists, it is argued, because the environmental changes may produce a structure which is advantageous in one situation but a handicap in another, and new traits are actively selected for or against if the environment changes. No known changes in the environment of the sabre-toothed tiger have occurred to cause this, and both those factors for and those against the trait would be operating at the same time. Selection must explain both the existence of these gigantic teeth and the ultimate demise of the animal (and it is not even clear if they caused the animal's extinction). It cannot explain these factors for the reason that it can cause only a fine-tuning of tooth size, not an extreme and, in this case, non-functional development as Darwinian natural selection teaches.

It is likewise hypothesized that the Irish Elks became extinct about 10,000 years ago, largely because of their enormous antlers—a trait that is claimed was originally formed due to selection. The Irish Elk (not an elk, but the largest deer known today) lived in Ireland and also as far east as Siberia and China, and as far south as Northern Africa. Its antlers were probably the largest of any animal, ever—up to 12 feet long, sometimes longer than the elk's own body length and weighed about 90 pounds (Gould, 1977, p. 79). It is assumed that the antlers developed from selection, and nature continued to select until the animal with them grossly lacked functional body proportions.

Darwin's Concerns

Even Darwin recognized that the natural selection theory had serious problems. For example, Gould (1980, p. 32) noted, "Darwin lived to see his name appropriated for an extreme view that he never held—for Darwinism has often been defined, both in his day and in our own, as the belief that virtually all evolutionary change is the product of natural selection." According to Gould, Darwin openly objected to this "misunderstanding" of his position. In the introduction of the 1872 edition of his *Origins of the Species*, Darwin stated:

> As my conclusions have lately been much misrepresented, and it has been stated that I attribute the modification of species exclusively to natural selection, . . . in the first edition of this work, and subsequently, I placed in a most conspicuous

> at the close of the introduction—the following words: 'I am convinced that natural selection has been the main but not the exclusive means of modification.' This has been of no avail. (Quoted in Gould, 1980, p. 32)

A major reason that Darwin took this position, Gould (1980, p. 32) concludes, was because ". . . organisms display an array of features that are not adaptations and do not promote survival directly." Darwin attempted to explain away, or in some way account for these mechanisms, but largely failed and he knew this. In respect to *Homo sapiens*, Grasse (1977, p. 85-86) pointed out that, although the *source* of selection, namely mutations, differentiate individuals, yet

> . . . the human species, despite the magnitude of its population and the diversity of its habitats, both of which are conditions favorable for the evolution of the human species, exhibits anatomical and physiological stability. In wealthy western societies natural selection is thwarted by medical care, good hygiene, and abundant food, but it was not always so. Today in underdeveloped countries, where birth and death rates are equally high (tropical Africa, Amazon, Pakistan, India, Patagonia, some Polynesian islands), natural selection can exert its pressure freely; yet the human type hardly changes. In the population of the Yucatan, which since the Spanish conquest has been subjected to terrible vicissitudes, one can find Mayan men and women who are the exact replicas of their pre-Colombian ancestors from Palanque of Chicken Itza. For several millennia the Chinese have numbered hundreds of millions. The conditions of their physical and social environment have favored intensive selection. To what result? None. They simply remain Chinese. Within each population, men differ by their genotype, and yet the species *Homo sapiens* has not modified its plan or structure or functions. To the common base are added a variety of diversifying and personifying ornaments, totally lacking evolutionary value.

Some Conclusions

For many, a key impediment to the acceptance of evolution, according to Gould, is that Darwin argued that evolution has *no purpose*, but is merely a process which both happens to result in increased numbers of animal types in the future and improves their survival chances, and nothing more. Numbers were assumed to be the only measure of success. The more successful species would have more of its offspring around; more would be reproduced, and more would survive. From this vantage point, bacteria are far more successful than elephants, thus more evolved. In the selectionist's view, any harmony and order in the world arises solely from an incidental and accidental result of individuals universally selfishly seeking their own advantage—see Wilson (1975). In contrast to this view, it is obvious that purpose is everywhere, and one who asks why in the natural world can usually find empirically supported, logical answers. As Darwin stressed, evolution has no direction, nor does it inevitably lead to higher or more complex life, although most evolutionists have written and argued as if it causes only movement upward, from amoeba to humans. Selection selects only for adaptation to local environments, and in their view this adaptation is achieved only by cold cruel selection—some die, others live. Its "goal" is survival only, and those who are more likely to survive are better adapted, and thus are more likely to pass on their traits to their better offspring (Gould, 1989).

Natural selection would not evolve upward, for example, bacteria into humans, but at best would evolve simple bacteria into better adapted bacteria, or flies into better adapted flies. The fossil record shows no evidence of anything beyond this. No clear example has ever been found of a lower clearly less adapted animal in the fossil record which can be shown to be evolutionarily related to similar, more advanced type of an animal living today. There exist hypothetical cases and examples of differences for which reasons for assumed changes are speculated, but no example exists of an animal that lacks wings, and evolves such step by step because these wings are clearly an advantage for it in escaping predators. Not one wingless fly has ever been uncovered, although millions of modern type flies preserved in amber have been uncovered. The many examples we have, such as flies trapped in amber or animals preserved in other ways, finds that, aside from the introduction of a few mutations producing deevolution, there is virtually no difference between the fossils and modern examples.

The easy-to-grasp and compelling natural selection argument is used to help explain all biological data, but it may actually explain very little. Human life consists of many activities which are mentally pleasurable. Walking in forests, listening to music, creating poems, doing scientific research, aesthetic enjoyment of nature, and myriads of other activities are often not related in the least to survival or adaptation in the Darwinian sense. Some writers have struggled in vain to "explain" by natural selection the existence of creations like music and art, all of which involve extremely complex body structures to accomplish. Music in its many variations is loved the world over, and yet certain music preferences have not been shown to increase reproduction rates or to facilitate survival. Many, if not almost all of our most rewarding activities and "peak experience producers" are not only unexplainable by this theory, but contradict it.

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BOOK REVIEWS

A Living Dinosaur? by Roy P. Mackal. 1987. E. J. Brill. Leiden, Netherlands. 340 pages. $30. The book is available from the author at 9027 S. Oakley Ave., Chicago, IL 60620-6131.

Reviewed by Don DeYoung*

Dinosaur sightings have been reported from Africa for centuries. Although most scientists scoff at the idea, author Roy Mackal takes seriously the topic of cryptozoology, the study of "hidden" creatures. He has had a distinguished academic career at the University of Chicago in both biochemistry and engineering, and is now retired.

Mackal directed official investigations of Loch Ness phenomena in the 1960s and 1970s. Next, his attention turned to the Likouala region of the Republic of the Congo. This frontier contains more than 55,000 square miles of remote jungle, swamps, and lakes—an area the size of Georgia. Sparsely inhabited by pygmies, the region is largely unknown to outsiders. See Linden (1992) for a geographic description.

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This book especially interests me because a creationist missionary friend, Eugene Thomas, has ministered in the Congo for nearly 40 years. He has told me personally of near encounters with large, unknown creatures during his African ministry. Gene accompanied Ray Mackal as guide on expeditions in 1980 and 1983 (Anon., 1981). These searches were partially funded by the National Geographic Society. However, the society later refused to publish the story because it wanted "more than fresh footprints" (private communication from author Mackal). The expertise of Gene Thomas is referred to frequently in the book. This is a special compliment since Roy Mackal is not a creationist.

The Africans describe a large aquatic reptile which they call *Mokele-mbembe* (mo-KAY-lee em-BEM-bee); their drawings resemble a small aquatic brontosaurus. Numerous eyewitness reports extend from the 1940s through at least 1990. The beasts are rare, retiring, and regarded as somewhat mythical by the natives. The main location centers on Lake Tele, 400 miles north of Brazzaville, in the heart of the equa-