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Introduction

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Introduction

This document was written for students - LDS students. The subject is evolution. My guess is that conversations on this topic usually begin with some variation of the uneasy question, "Do you believe in evolution?" I have also concluded that the chance for positive dialogue to take place following such a beginning is not very good. The major problem is that the word itself may have been lost (been stripped of) its ability to communicate. Evolution elicits such a wide spectrum of responses in people - the set of background experiences and mental images which it conjures up, and the feelings which it triggers are so varied - that the discussants are rarely able to focus on a common concern long enough to achieve understanding, let alone appreciation, of one another's positions. And generally sentiments run high; few people are emotionally neutral on the subject. This generates in many of us a real uneasiness if not fear. We're not very comfortable when the conversation turns to evolution and often go out of the way to avoid the subject. There's a strong inclination in many people to tune out. There are other unfortunate responses. Hostility and ill will are not uncommon.

I, for one, am not happy with this situation and would like to see it change. What follows, then, is a modest attempt to promote reasonable dialogue among committed Latter-Day Saints about evolution. Let me be candid, at the outset, about my own position. I think evolution is a correct principle. If you limited me to a one-word answer to the standard opening question I would have to reply, "Yes, I believe in evolution." Furthermore, I don't believe that evolution is incompatible with the doctrines of the Church nor is it an enemy to faith.

I have decided that the best way to proceed is to divide the larger subject into smaller, "bite-sized pieces. The first task, then, has been to try to identify the most important, discrete issues which collectively constitute the evolution controversy, and formulate these as questions. I have then attempted to answer each, first with a succinct, summary response, followed by a more lengthy explanation.

These are my own views. I am certainly not trying to represent a church position, though I have tried to put the issues in the context of LDS theology as best I understand it.



1. Q: What is the scientific status of evolution? How should I regard the idea? Is it legitimate to discount evolution as "Just a theory"?

A: Evolution stands on very secure ground. The hard data supporting it are numerous and varied. It is no less a satisfying and compelling explanation for the diversity of living things than is the notion of gravity for explaining the behavior of falling objects.

The statement, "After all, evolution is <u>just</u> a theory," is made frequently and causes lots of harm. The problem lies with the word theory - it means quite different things to different people. Most often the "just a theory" phrase is quoted in defense of the view that evolution need not be taken seriously because of the lack of evidence, that when all the facts are in it will be shown incorrect. Such arguments are based on the vernacular definition of the word theory, namely, a guess, an opinion, an unproven assumption, a mental speculation without a basis in the real world, a second class proposition near the bottom of the hierarchy between truth, at the top, and falsehood or fraud.

It is incorrect to view evolution in this way (1). The evidence is overwhelming that this earth is very old (in terms of human years) and that the life forms on the planet in their wonderful diversity are related by means of historical descent through time. The catalogue of facts supporting these conclusions is enormous. Contributions to the data which verify evolution have been made by thousands of men and women of integrity in a wide variety of fields of inquiry over many, many years. Our experience is that when diligent and open-minded students spend even a modest amount of time examining the data they become persuaded (and a useful measure for acceptance might be the legal standard of "beyond a reasonable doubt") that the basic evolutionary concept is valid.

To a scientist the word theory carries a very different meaning than it does in the vernacular. Yes, evolution <u>is</u> a theory, meaning a broad proposition based on facts and observations, which has undergone testing, which has stood the test of time, which best explains and gives meaning to the phenomena under study, and (true enough) is tentative (could be replaced if a more adequate, more valid explanation comes along). In what company does evolution travel - what other propositions with which we are acquainted also bear the title "theory"? Gravity, electricity, and atomic energy - to cite a few familiar examples - are also notions which have demonstrable consequences (are based on evidence), but are understood, explained and applied in practical circumstances because of theories. In short, if after scientific investigation an idea is granted the title "theory," this is high praise indeed. In this sense, if a person persists in undervaluing evolution as "only a theory," he or she, to be consistent, must also be willing to state, "After all, LDS theology is only a theory."

A scientific theory like evolution, then, is not to be distrusted as incorrect or inaccurate because it is open to modification. Scientific theory and religious theory are both true. By our commitment to the principle of continuous revelation, we acknowledge that our understanding of religious principles is also imperfect, and we must remain open-minded and receptive to new information. in the mature LDS investigator, both science and religion generate humility, as one recognizes the limitation of human understanding and continues to seek a clearer vision of the whole truth.



2. Q: At present there is considerable debate and difference of opinion among evolutionary biologists. Doesn't this mean uncertainty about the truthfulness of evolution, and provide a reason why I should reject the idea?

A: No.

It is true that there is debate and there are differences of opinion, but not about whether or not evolution occurred. There is agreement on the fact of evolution; the differences focus on how it took place. it is the mechanism of the process that is under scrutiny. The recent reinvestigation of evolutionary mechanisms has revitalized the field, and the vigorous exchange between scientists with different points of view is seen as very healthy and a necessary part of the process for arriving at a clearer understanding of the process.



3. Q: Who is a creationist? Is it correct to identify Latter-day Saints as creationists?

A: Though this may seem to be a straight-forward question, the work "creationist" - like so many used in conversations about evolution needs careful definition. As generally used in the context of the controversy over teaching creationism in the public schools, Latterday Saints are <u>not</u> creationists.

Putting one-word labels on people to categorize their positions on a certain issue is nearly always an unfair and inaccurate practice. Often the term creationist is used carelessly, based on the assumption that its meaning is self-evident. Thus a creationist is thought to be one who believes in a divine creator, and creationism the acceptable general label for the position of religious faith. This notion is reinforced by the fact that creationism is nearly always used in tandem with, and presumably the antithesis of evolution. In this way a false dichotomy is born, and creationism/evolution joins the ranks of white/black, good/evil, and faith/atheism as mutually exclusive alternatives at opposite ends of a single continuum. This is not true.

A Latter-day Saint accepts Jesus Christ as the Creator of the earth; this is a central element in our doctrine. it is my view, however, that we cannot theologically and should not politically align ourselves with "creationism" as it is generally understood in the United States today. Our beliefs about the Creator and his methods are not compatible with the tenets of the ultraconservative Protestant tradition espoused by contemporary "creationists" (2). We do not demand a literal interpretation of all scriptural passages; in our view some Biblical statements relative to the origin of the earth and man ought to be regarded as figurative. As a single example, we do not believe that "the earth was created in 6 24-hour days out of nothing." Secondly, in contrast to contemporary creationists, we do not hold a political agenda which calls for the insertion of narrow sectarian dogma into the science curriculum of the public schools.

Speaking for myself, I accept the Savior as the Creator of the earth, and believe that the process by which it and its living inhabitants came to be should properly be called creation. I

believe, however, that the scriptural accounts of creation were intended both by the Revelator and the inspired writers to convey general, spiritual aspect, not necessarily an accurate description of specifics, always to be literally interpreted in absolute terms. I am not, therefore a "creationist" as the term is generally understood today.



4. Q: Is "creationism" a science? Is "evolution" a religion?

A: "Creationism" is not science. "Creation Science" is a contemporary religious/political movement masquerading as science in order to gain public acceptance. Evolution is the central, unifying theory of biology, not a religious principle.

In an attempt to legitimize and promote acceptance of their religious views, contemporary creationists have labeled their dogma "creation science." In fact, there is neither experimental nor historical evidence for their assertions. Because it lacks a scientific methodology, and in the absence of empirical data for support, one must conclude that "Creationism" is <u>not</u> science. Among those who research or teach biological evolution there are certainly some whose enthusiasm for the subject might be likened to religious zeal. There are also some who, mistakenly, feel that the evidence supporting evolution must invalidate religious faith. Evolutionary science, however, has neither the intent nor the means to substitute for or contradict religion.

In June 1987 the United States Supreme Court upheld the ruling of a lower court that the "Balanced Treatment Act" of the state of Louisiana was unconstitutional. The Louisiana law required the teaching of "creation science" concepts alongside the teaching of evolution in the public schools. The Court ruled that because the law "advances a religious doctrine by requiring either the banishment of the theory of evolution from public school classrooms or the presentation of a religious viewpoint that rejects evolution in its entirety," it violated the First Amendment's prohibition on state promotion of religious beliefs (3).



5. Q: Is evolution an atheistic concept? (Does evolution assume the absence of a divine being acting as creator?)

A: Unfortunately, it is commonly assumed that evolutionary theory operates on the premise of the absence of a Creator. This is not true. Students of evolution do attempt to accumulate data to answer questions such as how old is the earth, when did species of plants and animals appear (and disappear) and are the organisms (including man) genealogically related to one another. Evolution, however, is not inherently atheistic. There is no data generated by chemistry, biology, the earth sciences (geology, paleontology) or other related academic disciplines which validate the conclusion that God does not exist, or that exclude God from the process that generated living creatures. Theological questions are outside of the realm in which science is able to make a direct contribution. Some evolutionary scientists are atheists, but many others in many religious

Many people oppose evolution on religious grounds, assuming that an evolutionary scenario must of necessity, exclude deity. Why? Darwin presented the case for evolution and elucidated the notion of natural selection as the mechanism for evolution at a time in the history of western civilization of increasing secularization. This was the age of the scientific revolution, and in a number of areas of human endeavor there was a trend away from religious faith. Perhaps because the subject (at least in part) was man himself, evolutionary biology was perceived by many as the most direct threat in this growing tendency to view the world without the traditional role for God. In the latter part of the 19th century there was an increasing sense that science and religion were at odds with each, irreconcilable enemies destined to fight for the souls of men. We are the recipients of this unfortunate legacy, and for many today evolution is synonymous with a rejection of deity.

The truth is that scientists, evolutionary biologists included, have neither the means nor (generally speaking) a motive to discount, invalidate, or repudiate religious faith. Consider the following statement, the concluding paragraph of an entry in a recent book about dinosaurs and other prehistoric animals.

"So, nowadays, although they argue about the details of what controls the rates or pattern of evolution, almost all biologists accept that extinction and evolution have taken place, and that Darwinian natural selection is the major mechanism underlying them. There is nothing in this that necessarily contradicts a belief in God or even in Divine intervention, for the record in the rocks could be interpreted as a testament to the way in which God chose to create the natural world." (4)



6. Q: If evolution is true (a correct principle) does that mean that life originated "by chance"?

A: Let's rephrase the question. "Could life have originated without the hand of God?" I believe the answer is no. "Could God have employed a mechanism for creation which depended on the random behavior of molecules and other probabilistic biochemical and biological events with confidence that the outcome would be as he desired (envisioned) - was it predictable?" I believe the answer is yes. It would not have been necessary for God to intervene at each stage of the creative process in order to insure the eventual appearance of living organisms on the earth.

This question is closely related to the previous one. For many whose sense of how the creation was accomplished is based on a totally literal interpretation of all the scriptural accounts, it has been difficult to understand how evolution could allow for a role for deity. In comparison to a God who by virtue of his omnipotence brought all creatures into being in an essentially unchanging form at the same point in time, the scientific scenario of billions of years, gradual change, irregular patterns of appearances and extinction, and hereditary connections between apparently diverse organisms has appeared direction-less and precarious, a chance occurrence.

This is a problem which is, at least in part, semantic. For example, when a chemist describes

the <u>random</u> behavior of molecules, his non-chemist listener may develop the sense of a haphazard, purposeless event, and by extension, perhaps, of a world in which deity is excluded. On the contrary, one comes to understand, after study, that in large samples random processes are predictable with very high precision, and that their outcome would be understood, foreseen, and might be utilized by deity. In discussions of evolutionary concepts, chance, like a number of other important terms, needs to be carefully defined.

It seems to me that as creators the Gods were under certain restraints. Even in a particularly artistic frame of mind they could not merely allow their imaginations to run wild, and having access to every and any materials, construct life forms arbitrarily. What then, were the constraints? Let's begin with the assumption that the "building blocks" available to the Creators were the chemical elements known to science (hydrogen, helium, lithium, . . . uranium), and that these elements were uncreated and unalterable. You have to take carbon atoms as you find them (they have intrinsic, discrete properties - specific bond lengths and bond angles). They will freely participate in chemistry, but only that which they are inherently capable; it is not possible to force them into reactions not in their domain.

The next proposition is that the finite number of discrete elements will, in combination, form a finite number of discrete functional groups which in the aggregate will lead to a finite number of classes of discrete molecules. An even smaller number of these molecules form the biochemical basis for the anatomy and physiology of plants and animals, and we should therefore expect to see among living things a repetition of a relatively small number of a particular structural and functional themes, not an infinite variety in a continuum. This seems to be borne out by the results of current biochemical research. For example, the most recent literature of molecular biology contains frequent references to consensus sequences of information in genes, and to the specific structural motifs and functional domains of the proteins whose synthesis is programmed by those genes. In the course of the earth's history some natural experiments in evolutionary biochemistry have worked - and persist today, and some have not. Rules have been followed during the production of nucleic acids and proteins, and attempts to assemble motifs which violate what the elements are capable of have of necessity failed.

The idea is that if during the early stages on the primeval earth the Creators left matter to act for itself, its activity, though random, would still be predictable, and its outcome foreseeable, at least in general outline. Viewed in this way evolution is not a process which is accidental, not fortuitous but inevitable. Given a set of elements from which to construct molecules, cells, tissues and organisms, and given air, water and rock as environments in which they can live, evolution will fashion lungs and gills - wings, fins and feet. Living things reflect both the properties of the matter from which they are constructed and their environment, and the assembly of life, even a self-assembly, could not be totally capricious. I expect that if one were able to go elsewhere in the universe, and study the history of life on other planets whose conditions are similar to earth, one would find evidence for sets of organisms remarkably similar to those that have inhabited this planet. Evolution will have achieved there what it has achieved here.

It is clear that randomness operates in the chemistry of living cells today (after creation has been accomplished); molecules move and react in a non-directed fashion, subject to somewhat arbitrary forces in the environment. Nevertheless, the maintenance of life is not at risk. God does not have to follow the path of each molecule of glucose or check each enzyme catalyzed reaction or monitor the replication of chromosomes in order to insure that they will behave predictably. He can trust these objects to follow the laws governing life processes. At the same

time, it is clear that the history of life on the earth has been characterized by false starts and abortive trials and imperfections. Each branch family on the evolutionary bush is what it is as a result of its unique history [this is a good LDS concept: the 4th estate is contingent on what happened in estates 1-3; (5)]. What then is the role of Deity in such a view of creation? What does God do if he is not the designer of perfect organisms who insures that perfection by inexorably leading each plant and animal toward a predestined end during the manufacturing process? We explore these questions in more detail in the next section.

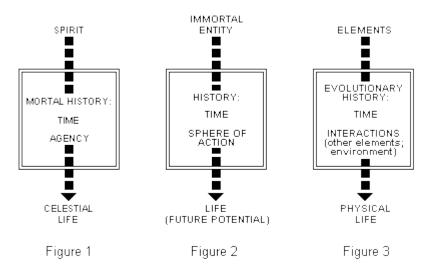


7. Q: Based on LDS theology, is it reasonable that the Savior would have employed evolution as a mechanism for effecting the creation?

A: Given my understanding of the divine strategy employed to elevate the spirit offspring of God to a celestial state, I believe that creation by the Savior of the physical diversity of life through evolutionary processes is a much more satisfactory explanation (more compatible with the means God uses to achieve his ends) than creation by fiat.

For Latter-day Saints, the earth and its living inhabitants came into existence through acts performed by Deity which we call creation. This fundamental principle of our religious faith is not in question. We are inquiring, instead, whether evolution as a <u>modus operandi</u> for creation is compatible with what God has revealed about the strategies he employs to bring about his divine purposes.

An attempt to understand the theological implications of an evolutionary mechanism might begin with an examination of the LDS concept of the Plan of Salvation. This is a vision of the eternal nature and possibilities of man. In broad outline, a pre-existent spirit - the literal offspring of Deity - experiences mortal life in preparation, and to qualify for a continuing future of unlimited potential. It is very useful, I think, to distinguish between the role performed by God as "Creator" in this enterprise, and the program he requires as his children as "createes". For we who are attempting to achieve godliness through this program there are two essentials for success (Figure 1):



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time (life is a probationary period, Alma 42:10), and a chance to exercise, and a chance to exercise agency (thus proving worthiness, Abraham 3:25-26). The important point is that we are active, not passive participants in the enterprise. What we know of the kingdoms of glory and their inhabitants suggests that this program will result in diversity - a very wide range in the quality of that preparation and hence in the potential for ultimate accomplishment.

And what is God's part in this plan? Can we envision Christ and the Father laying their hands on the head of a human being, even a very good one, or raising their arms to the square, and in a priesthood-mediated act, proclaiming, "Be Ye a god!" I believe our answer to this question must be no; they would not, in fact they could not. Between the two they act as author of the plan, executor, mentor, confidant, Savior, Revelator, friend - all these and other indispensable functions if we are to obtain godhood, but they cannot bring gods into existence by fiat, solely by an act of their will and power. In the words of the hymn, "He will call, persuade, direct aright, . . . but never force the human mind" (6). God knows what the end result ought to be, he knows what is required to achieve it, he provides the circumstances under which it is possible he may or may not need to engage in trial and error as "Creator" - but for the would-be gods, trial and error (sin and repentance) are, in fact, indispensable in "implementing their own creation" (working out their own salvation).

Next let's assume that what we have just described is a specific example (call it the "spiritual case") of a general model, and attempt to derive its generic elements (Figure 2). These appear to be as follows. There is an <u>immortal entity</u> (or at least an entity with an immortal component) with the potential for progression - an eternal destiny. The achievement of the fulness of that potential requires a preparatory <u>history</u>. The prerequisite conditions for the developmental period are <u>time</u> and a <u>sphere of action</u>. A statement from the <u>Doctrine and Covenants</u> seems to capture the fundamental principle upon which such a program operates: "All truth is independent in that sphere in which God has placed it, to act for itself, as all intelligence also; <u>otherwise there is no existence</u> (D&C 93:20). Our first inclination may be to assume that an omnipotent God, acting as Creator, would act quickly and directly to being his creations into existence. I believe it likely that this same principle governed the process which generated physical life in its wonderful variety.

Figure 3 suggests that the general model just described might also be appropriately applied in the biochemical biological world for generating physical life. The proposition begins with the assumption that the chemical elements of the earth are eternal (D&C 93:33). Mormon theology clearly rejects creation ex nihilo. For us the creative act is best described as organization, not the production of something from nothing (7). Placed by God in a sphere of action, under circumstances in which they would interact, and given time, what sorts of organization might the elements be expected to produce? It seems to me that the answer is biochemical and biological diversity, the generation of life in varying degrees of complexity as envisioned in the evolutionary scenario. Because the spirits of men possess agency they may be given stewardships with attendant accountability for the outcome of behavior. Though agency probably doesn't apply in the physical realm - the chemical behavior of molecules is not subject to their "will" - the range of reactions into which they can enter (defined by their intrinsic attributes: atomic organization, bond lengths and angles, etc.) might be properly considered a sphere of action, an estate which they can keep (Abraham 3:26). Just as God does not force his will upon men's spirits in their quest for godliness (but instead holds their agency inviolate), would he not also preserve the opportunity for the elements to "fill the measure of [their] creation" (D&C 88: 19, 25) without coercion? After all, it is contrary to the priesthood, which is the creative power, to operate by control, compulsion or unrighteous dominion (D&C

How does this view of the creative mechanism compare to the scriptural accounts of the events? My reading of <u>Abraham</u> in its description of how the world and its living organisms came into existence suggests indeed that the elements (earth, water) were allowed to "act for themselves" under the creative direction and oversight of Deity - a scenario not inconsistent with the evolutionary process. The key concepts, repeated at the various stages of creation are that the Gods <u>organized</u> the inorganic components and <u>prepared them to bring forth</u> the living creatures (Abraham 4:1-31).

- 12. And the Gods organized the earth to bring forth grass from its own seed, and the herb to bring forth herb from its own seed, yielding seed after his kind; and the earth to bring forth the tree from its own seed, yielding fruit, whose seed could only bring forth the same in itself, after his kind; and the Gods saw that they were obeyed.
- 21. And the Gods prepared the waters that they might bring forth great whales, and every living creature that moveth, which the waters were to bring forth abundantly after their kind; and every winged fowl after their kind. And the Gods saw that they would be obeyed, and that their plan was good.

Verse 18 of Chapter 4 is an especially intriguing description of the Creators during an interim stage: "And the Gods watched those things which they had ordered until they obeyed." There is here a clear suggestion of periods of time during which those objects undergoing creation, as agents, were left to themselves to follow the divinely instigated program.

At the conclusion of several stages of His work the Creator proclaimed the achievements up to that point as "good." What does "good" in this context signify? Was this self praise - "Michael and I did a good job."? Was this an assessment that the creations turned out the way they should have, that they were now in excellent condition? Was this a description of the moral excellence of the creations, their being good as opposed to evil (are land or waters or herb or tree or sun or moon or beasts - any except man - possessed of a spirit capable of choosing good from evil)? At least one other interpretation is suggested from a prominent Book of Mormon theme.

Nephi, Abinadi and Alma, among others, explored the notion that an event or idea or behavior is good if it leads to or promotes <u>life</u>. "He hath given unto you that ye might know good from evil, and he hath given unto you that ye might choose life or death." (Helaman 15:31); See also 2 Ne. 23, 26-27, 3 Ne. 26:5). Often, or course, life in these references is used in a spiritual not biological sense. But isn't it possible, when at the end of the 3rd day while viewing the dry land and the waters, that the statement "I God, saw that all things which I had made were good," was a recognition that conditions now existed that would give rise to physical life?

I feel more comfortable with a scenario in which the Creator permits the elements in the sphere in which He has placed them to participate in an evolutionary process which in 4 1/2 billion years produces a horse, than one in which the Creator, by virtue of his omnipotence, stretches forth his hand and achieves a complex creature instantaneously with the proclamation, "Let there be horse!" He certainly could do it this latter way if he wanted to, but would he? Would that be in keeping with his mandate to let "truth act for itself"?



8. Q: Is evolution a concept which demeans and degrades mankind?

A: Though some people may feel this way, such a conclusion is certainly not necessary. For many, the notion of man's physical kinship with the organisms of the world is an ennobling and uplifting concept that gives meaning to our stewardship of the earth.

Whether an individual has a positive or a negative reaction to an idea depends on his or her conceptual framework (one's personal view of the world which is the complex outgrowth of many experiences and attitudes). Man is the center of that framework for many individuals. For these people, the attributes of human beings may constitute a superiority that does not permit comparison with other animals, and the suggestion of a physical relatedness between ourselves and "lower forms" is unthinkable. it is quite correct to identify humans as unique, but that is not because we are singular or dominant in a strictly biological sense. Even a quick comparison will readily demonstrate that many animals perform specific biological functions better than humans do. Instead, it is the capacity of humans for language and reasoning that sets us apart, and these traits, though they certainly have some physical basis in anatomy and biochemistry, we would attribute primarily to the spirit.

For Latter-day Saints, the spirits of men and women are unique and distinguish humans from all other organisms. We maintain a strong faith in the reality of our heritage as the spiritual offspring of our Heavenly Father. At the same time, our understanding of the relationship of the spirit to the physical body is limited. The manner in which the unique spirits of human individuals are introduced into their physical bodies is unknown to us. This began to happen at a particular time in evolutionary history, however, as humans joined the ranks of the living creatures of the earth. To be part of the living community of the world, not above and outside of that community, is the important insight of evolution.

We have received a divine commission to be stewards of the earth, to take care of it and its inhabitants (Genesis 1:26-28; <u>D&C</u> 59:16-20). For myself, the understanding that I am physically related to other organisms gives that stewardship added meaning, compelling me to be sensitive to all living things to use the earth's resources moderately without waste, and to avoid polluting and promote replenishing. Sadly, there are countless examples of exploitation, extinction and devastation by humans who suppose that man's uniqueness among the animals grants license for such acts.



9. Q: How does the Garden of Eden fit it? Where did Adam come from? (What are the possible models to explain the creation of man?)

A: The scriptural accounts of the creation of man are beautiful, inspiring, and provide indispensable doctrinal insights about the purpose of life and our relationship with God. It is not appropriate, however, to interpret them as a scientific description of the creative process. Several of the concepts are stated figuratively, and are important for the spiritual truths they covey symbolically. The truth is, we don't know the details of how Adam was introduced into mortality. In spite of our ignorance, the religious principles and the scientific evidence are not mutually exclusive and can be reconciled. Accepting

Let's begin by attempting to describe a broad overview of what may have happened. The earth was formed nearly 5 billion years ago, and chemical and biological events proceeded as proposed in the evolutionary scenario. A great diversity of plant and animal life was the result. Organisms were born and died. New species arose, and many became extinct. Observing the process God asked, "Is man found on the earth"? The answer was no, but at the appropriate moment in time, when "the earth had brought forth" creatures - hominids - whose physical characteristics were compatible with the spirits who are the offspring of Heavenly Father, the decision was made to introduce that lineage, beginning with the man Adam.

It is a fact that there were living organisms that closely resemble modern men and woman on the earth several million years ago. The evidence is indisputable. What should we call these creatures? The designation man or human or protohuman seems appropriate because of their obvious physical similarity to ourselves. From the viewpoint of LDS theology, however, there is a critical distinction which can be made: the spirits which animated "Lucy" (a famous African fossil of the species <u>Australopithecus afarensis</u>) and other prehistoric "humans" were the <u>creations</u> of God, while the spirits possessed by Adam and Eve and their posterity were his literal <u>offspring</u>. One in an artistic production, the other is a child. Only the latter can exercise agency and be held accountable, only the latter can attain godhood. Although the fossil record clearly shows a temporal connection between early prehistoric "humans" and the subsequent appearance of modern man, the question is whether or not there was a genealogical connection or some other type of relationship. It is about the events at the historical interface between these two types of beings that we are particularly ignorant.

It seems to me that there is a very modest requirement if one is to reconcile "Lucy" and Adam: permit Adam and Eve to inhabit a very special place or state as inhabitants in an immortal Eden which is located on an otherwise mortal planet where evolutionary processes have previously been going on for many years. It is true that some LDS writers have insisted that before Adam the whole earth exhibited the death-less state of Eden (8). However, the one scriptural statement always marshaled in defense of this view, 2 Nephi 2.22, seems to refer specifically to the conditions in Eden. It is the things in the Garden which would have remained in an unchanged state if Adam had not transgressed. In addition, one has to ask why, if the earth was uniformly immortal and paradisiacal, was Adam placed in one particular portion of it; why was Eden needed in the first place? And again, why after the fall did our first parents have to leave Eden (there were sentinels guarding the Tree Of Life) if conditions in and out of Eden were the same? And why was the earth outside of Eden designated as the "lone and dreary world" if there were not an important difference between the two places?

What, then, was the mechanism through which Adam came? Was he born to prehistoric parents? Was he transported with a body to this planet from some other sphere (9). Did God fashion his body in a one of a kind, miraculous, creative act? What other possibilities can we imagine? We have neither memory nor experience with the immortal; it would not be surprising if the actual process were incomprehensible to us. Perhaps this is why the scriptural language is figurative: "God formed man of the dust of the ground and breathed into his nostrils the breath of life"; "And the rib, which the Lord God had taken from man, made he a woman (Genesis 2:7,22)." But no matter which of the alternative explanations may be appealing or unlikely to us, none of them invalidates evolution. As long as we recognize Adam's unique position as a spiritual son of God there is no violation of a fundamental

religious principle.

Some have seen in evolution a threat to the doctrine of the Fall of man. I an unable, however, to understand a logical line of reasoning leading to the conclusion that evolution invalidates the principles of the fall and the atonement. Neither Adam and Eve nor any of us who have followed them can be saved or exalted without divine help. The problem is sin. If we wish to benefit from the Savior's atoning sacrifice, we are required to repent - of violating the commandments, but not to repent of the fact that we have physical bodies or repent because of the mechanism through which we obtained them, regardless of how it was arranged. Moreover, the only beings capable of repentance, and of becoming gods, are those who are spirit offspring of the Father, a principle which is not in question. It seems to me that concerns that biology will undo these true religious principles are easily removed (or at least suspended) by simply allowing for God to introduce man into the special conditions of the Garden of Eden (or for Adam's transition to mortality) following a lengthy prior period of life, death and evolution. Likewise the principle of priesthood sealing of the generations into eternal families remains intact. This blessing is only available to those in the lineage of the Father's spiritual offspring; the spirits of the animals (including "Lucy"?) are qualitatively different - no matter what actually transpired during the transition from "Homo erectus, etc. to Homo sapiens".

I believe there is a very important point to be made here. One strategy which has frequently been used in searching for truth between religion and science is inappropriate and harmful. One ought not to hold up a spiritual principle such as the reality of God, Christ as Creator, or the Fall and test its validity against an observation of science. These principles are true, affirmed to individuals by a witness of the Spirit of God. Scientists do not have at their disposal a special technology to investigate these principles; they must rely on faith, the same as any other people. When a principle of science is also confirmed as true it will not be in conflict with such religious doctrines. All that it needed is sufficient humility to acknowledge one's relative ignorance in both fields of endeavor, and the patience to wait for a clearer understanding. With respect to the creation of man, failure to do this has unfortunate consequences. Those who claim that a reconciliation between theology and science is impossible or who are unwilling to suspend judgment are left to ignore the scientific evidence, argue that it is invalid (or selectively choose only that part of science which confirms one's prejudices) or ridicule it. All of these inappropriate responses to science are unworthy of people committed to exercising "heart, might, mind, and strength" in pursuit of truth.



10. Q: Does acceptance of evolution lead to a loss of faith, religious skepticism, an inclination to sin, or the adoption of immoral behavior?

A: The answer is no. Though it is common for sinners and skeptics to find reasons to explain or excuse their behavior, it is incorrect to view evolution as a pathway leading to immorality. There are thousands of faithful, active Latter-day Saints who accept evolution as a true principle.

In the pages above we have argued that evolutionary biology is not atheistic; there are no scientific data suggesting the absence of God, and no theoretical considerations excluding deity from the processes which generated living things. Likewise, the fundamental religious doctrines of the fall of man and redemption through the atonement of the Savior flow from our faith in man as the literal spirit offspring of God, and are not jeopardized by the evolutionary model for the generation of the physical components of life. If one accepts these premises, there is among evolutionary ideas no justification for abandoning religious faith no one's code of moral conduct.

Nevertheless there is a strong sentiment among some members of the Church to the contrary. "I cannot effectively answer the evolutionist on scientific ground . . . but I can see [that] evolutionary theory . . . is capable of eroding men's faith because it undercuts what God has revealed about the doctrine of Christ. . . . Although theistic evolution may be a compromise in an attempt to harmonize a belief in God with the claims of a scientific world, and may be comforting to some, such a position is . . . an unconscionable courtship, a shotgun marriage, a type of unlawful doctrinal cohabitation . . ." (10) Notice that this unfortunate attitude withdraws from an assessment of the scientific evidence, and resorts to the metaphor of adultery to discredit evolutionary ideas and suggest their potential harmful consequences.

I believe that, instead of providing a basis or stimulus for sinful behavior, evolution is supportive of faith to those who have a spiritual foundation for faith. A person cannot find in evolution a reason to cease activity in the Church nor disclaim its teachings, thus "Apostates will be punished for their own sins and not for Darwin's transgression." There is a quite serious point to be made here. A testimony of the truth of religious principles, particularly of the divinity of Jesus Christ, comes through the witness of the Holy Ghost. "No man can say that Jesus is the Lord, but by the Holy Ghost" (I Cor. 12:3). This being true, how does one explain that there are individuals who cannot say that of Jesus, or who may say that He is not the Christ? The answer to this question, and a corollary to the scripture, is that the witness of the Holy Ghost is lacking; it is the absence of that testimony, <u>not</u> the presence of some competing idea with the alleged power to overcome faith.

Consider the following personal expressions by two university students written at the conclusion of their study of evolutionary biology:

"I have, for the most part, resolved the conflict I had with evolution and my religious beliefs. I believe God could and may have used evolutionary means to develop the organisms on the earth. I do not believe He would make the earth appear in a "zap", but rather would use scientific devices. The same goes for the organisms he created. I believe the evidence for the evolution of other creatures is valid and do not believe He would change His method to make man. The thing He did differently is to give man a soul and the ability to use free agency in order to return back to Him."

"I find the theory of evolution to be a beautiful explanation of the creative process. The idea that the organisms here on the earth, including man, have evolved from "lower forms" and are genetically related, is to me a remarkable concept - a concept that increases my belief in a Supreme Being who has governed this

wonderful process. Indeed, I feel there need be no conflict between the theory of evolution and LDS theology."

Thousands of active, faithful Latter-day Saints find the evidence validating evolution to be compelling, accept it as a true principle, and view it as a support and confirmation for their religious commitment.



11. Q: Is there an official position of the Church with respect to evolution?

A: No. There is considerable evidence that the Church has not taken an official position on the subject of evolution; statements by LDS authorities and members past and present reflect a wide diversity of viewpoints.

There are several studies which document in detail the views of LDS leaders regarding evolution, to which the reader is referred (11). It may be useful, nevertheless, to offer here a very brief outline of the most relevant 20th century statements.

In 1909 the First Presidency issued a statement entitled "The Origin of Man" (12). Written amidst the widespread discussion of evolution prompted by the centennial of Darwin's birth and the 50th anniversary of the publication of The Origin of Species, this pronouncement is often cited as evidence of a formal anti-evolutionary LDS position. A more accurate appraisal, I believe, is that the document reaffirms fundamental theological principles (God created man in His own image, the reality of spiritual and physical creation, the Father and Son have bodies, and Adam is the parent of our race), and suggests that evolution will be in error if it repudiates these concepts. Shortly thereafter a remarkably liberal editorial (13), President Joseph F. Smith, Editor) left open [these "questions are not fully answered in the revealed word of God"] the possibilities that the bodies of Adam and Eve: a) "evolved in natural processes to present perfection", b) were "transplanted [to earth] from another sphere", or c) were "born here . . . as other mortals have been." In addition, President Smith later stated that "the Church itself has no philosophy about the modus operandi employed by the Lord in His creation of the world (14).

Controversy over evolution was revived in 1925 during the famous Scopes trial in Tennessee. After the trail the First Presidency (Heber J. Grant) published "'Mormon' View of Evolution", a version of the 1909 document shortened by excluding the paragraphs with the strongest anti-evolutionary tone (15). It was in 1930, however, when a dispute over evolutionary concepts aroused between Joseph Fielding Smith and B.H. Roberts. After lengthy debate between the two and discussion with the Quorum of the Twelve and the First Presidency, the latter announced that the Church had no doctrinal position one way or the other on "pre-Adamites" or whether there was death on the earth prior to Adam's fall. The brethren also declared a moratorium on further debate of these issues.

When, in 1954, Joseph Fielding Smith published Man His Origin and Destiny, an unqualified denunciation of evolution, many assumed that he spoke for the Church. However, President David O. McKay, who had been an active, first hand participant in the events 25 years earlier, repeatedly wrote that the Church "has made no official statement nor taken an official position on the subject of evolution, and [Elder Smith's] book contains his personal views which are neither authorized nor published by the Church" (see appendix).

It is significant, I believe, that whereas the <u>Handbook of Instructions</u>, which details principles and policies governing the Church, comments on a number of biologically-related sensitive matters (Abortion, artificial insemination, AIDS, etc.), it contains no statement whatever on evolution.

In spite of the absence of a definitive, direct statement in an authorized organ proposing that the concepts of evolutionary biology might be in direct conflict with LDS theology or religious practice, a large fraction of the contemporary Church members perceive that this is the case. Consider the following response by 1907 students at BYU enrolled during the fall semester of 1988 in Biology 100.

In your view, which statement below best represents the official position of the Church of Jesus Christ of Latter-day Saints toward the principle of biological evolution?

41% A. The official position of the Church is that evolution is incorrect. The idea is not in harmony with statements of the scriptures and church leaders, and is harmful to the spiritual growth of church members.

3% B. The official position of the Church is that evolution is correct. It is scientifically sound and compatible with the principles of the gospel.

35% C. There is no official position of the Church concerning evolution. A wide difference of opinion exists among both church leaders and members on the subject.

21% D. None of the above.

The anomolously large number who responded with option D, "None of the above," seems to reflect the general uncertainty and anxiety over this issue which persists among members of the Church. This is not surprising in view of the periodic comments of some Church leaders suggesting the doctrinal incompatibility of evolution (16). Less well known, it seems, are statements by others which reflect a spirit of openness or acceptance. For example:

"The time of creation has ever been a subject of much comment and dispute. Yet I challenge anybody to produce from the Bible itself any finite limitation whatsoever of the periods of creation. By strained inferential references and interpretations men have sought to set the time in days or periods of a thousand year, but I feel that no justification of such limitations is warranted by the scriptures themselves. If the evolutionary hypothesis of the creation of life and matter in the universe is ultimately found to be correct, I shall neither be disappointed not displeased if it will turn out so to be. In my humble opinion the Biblical account is sufficiently comprehensive to include the whole of the process. . . . If you will take the counsel of one who loves science and reveres religion, permit me to admonish you: Never close your mind or your heart; ever keep them open to the reception of both knowledge and spiritual impressions. Both true science and true religion are the exponents of truth. their fields are different, their provinces are distinct, but their purposes are identical - to enlighten man, to give him power, to make him good and bring him joy."

Stephen L. Richards <u>Improvement Era 36</u>, 451, 1933

"'And I, God, created man in mine own image, in the image of mine Only Begotten created I him: male and female created I them.' (The story of the rib, of course, is figurative.) Man became a living soul - mankind, male and female. The creators breathed into their nostrils the breath of life and man and woman became living souls. We don't know exactly how their coming into the world happened, and when we're able to understand it the Lord will tell us."

Spencer W. Kimball The Ensign, 70-73, March 1976

"'I don't think any of you teachers [faculty of Religion, BYU] know the age of the earth because I have asked four prophets and they said they don't know.' Statements on the age of the earth and other related areas given by

many including the General Authorities are their personal opinions. Many have written the subject but it should not be construed as Church doctrine."

Paul H. Dunn

Letter to Robert Miller, Oct. 14, 1982 (Appendix)

See also: Bertrand F. Harrison, "The Relatedness of Living Things", <u>The Instructor</u>, <u>100</u> (7), 272-276, July 1965; Morris S. Petersen, "Do we know how the earth's history as indicated from fossils fits with the earth's history as the scriptures present it," <u>The Ensign</u>, <u>17</u> (9), 28-29, Sept. 1987.

12. Q: How should I respond to the widely divergent views about evolution held by persons I respect, especially teachers and leaders in the Church?

A: Any important idea of consequence deserves thoughtful consideration. Our difficulty lies in giving a fair hearing to ideas we seem to disagree with. We ought to conduct such an investigation with open minds, and in a spirit of humility and kindness for those whose opinions are different from our own. Latter-day Saints can properly expect unity on fundamental doctrines. On issues for which revelation is incomplete, a diversity of opinion is natural and valuable.

This may be the most important question in this list, and perhaps the most difficult to answer satisfactorily. The issues seem to be: How can one determine the truth when there are such large differences on the subject among reputable people? What weight should the views of the Church authorities carry; because they are entitled to special inspiration, shouldn't I yield to their views?

It is likely that most Latter-day Saints troubled by evolution have not taken the time to evaluate the chemical and biological data which support it, and likewise may not have carefully examined the relevant theological issues involved. The problem is that good people (parents, Seminary teachers, Church authorities, and others) have issued unequivocal denunciations of evolution and perpetuated the view that the idea is totally irreconcilable with the principles of the gospel. "From the day of their first announcement, these theories of organic evolution found themselves in violent conflict with the principles of revealed religion as such are found recorded in the scriptures and expounded by inspired teachers. . . . There is no harmony between the truths of revealed religion and the theories of organic evolution." (17) Thus, for many the "evolution problem" is less a concern about biology and more directly an anxiety about not being in harmony with the doctrines and leaders of the Church.

It is my opinion that there are not unique anti-evolutionary arguments among Latter-day Saints. While taking some pains throughout out history to define and preserve the theological distinctions between us and other Christian faiths, the general membership of the Church has paradoxically tended to adopt wholesale the fears, antagonisms, and rhetoric against evolution which originated in conservative Protestantism. A better approach, I believe, would be to attempt to resolve the following questions.

On what issues is it reasonable for Latter-day saints to expect unity, and on what issues is diversity acceptable, even healthy? There is agreement among us on a number of aspects of religious principle and practical living (examples include the events of the Restoration, the cornerstone role of the <u>Book of Mormon</u>, the 4th Article of Faith, the Word of Wisdom, missionary work, the focus on family ideals). However, some of us are uncomfortable when that unity is incomplete, preferring that we be of one mind on all issues. As a result, we do

not tolerate differences among us very well. (My sense, also, is that we are worse in this regard than we were earlier in our history.) If the arguments expressed above are valid, then evolution is among the issues about which revelation is limited and at least partly figurative. It seems only reasonable, then, that we would generate different interpretations of some scriptural passages, and diversity in how we relate them to the scientific facts. But whatever our differences, we ought to respond to one another with thoughtful consideration of ideas, courtesy, and do our best to prevent ill will.

When is it appropriate to appeal to authority in order to resolve uncertainty, and when is it more appropriate to arrive at a conclusion through individual study and analysis of existing data? The principle of continuing revelation is fundamental for Latter-day Saints, but it is also one subject to abuse. Perhaps this was the view of Brigham Young when he said,

I am more afraid that this people have so much confidence in their leaders that they will not inquire for themselves of God whether they are led by him. I am fearful they settle down in a state of blind self-security, trusting their eternal destiny in the hands of their leaders with a reckless confidence that in itself should thwart the purposes of God in their salvation, and weaken that influence they could give to their leaders, did they know for themselves, by the revelations of Jesus, that they are led in the right way (9, p. 131).

There are many students who when confronted with evolution are so fearful of making for themselves a wrong decision that they quickly defer to the security of adopting the view of a particular Church leader as their own. Differences are thus not settled on the merits of the arguments, but in the spirit of youngsters at play who attempt to solve their problems by recourse to "My General Authority can beat up your General Authority." The wisdom, experience and spiritual guidance of Church leaders can be very helpful, and we ought to pay respectful attention to their counsel. Ultimately, however, one is responsible for one's own salvation and for making individual decisions along the way. Consider these extraordinary sentiments:

"There is not enough of the attitude of the sincere investigator among us. . . . There are altogether too many people in the world who are willing to accept as true whatever is printed in a book or delivered from a pulpit. Their faith never goes below the surface soil of authority. I plead with everyone I meet that they may drive their faith down through that soil and get hold of the solid truth, that they may be able to withstand the winds and storms of indecision and of doubt, of opposition and persecution. . . . I have been very grateful that the freedom, dignity, and integrity of the individual are basic in church doctrine. We are free to think and express our opinion in the church. Fear will not stifle thought. . . . I admire men and women who have developed the questing spirit, who are unafraid of new ideas as stepping stones to progress. We should, of course, respect the opinions of others, but we should also be unafraid to dissent - if we are informed. . . . We should be dauntless in our pursuit of truth and resist all demands for unthinking conformity. Now one would have us become mere tape recorders of other people's thoughts, . . . while I believe all that God has revealed, I am not quite sure I understand what he has revealed, and the fact that God has promised further revelation is to me a challenge to keep an open mind and be prepared to follow wherever my search for truth may lead." (18)

A Personal Point of View

I don't believe there is a conflict between my enthusiastic belief in the validity of biological evolution and my spiritual commitment to the truthfulness of the Gospel of Jesus Christ. My study of the issues leads me to conclude that there are no irreconcilable differences between Latter-day Saint theology and evolutionary theory on these issues. There are significant gaps in both the scientific and scriptural data, yet in my mind the two act in complementary fashion to paint a preliminary picture of creation which is both intellectually and spiritually satisfying. I should hasten to add, however, that the arguments or personal interpretations offered here are neither complete nor exclusive. Nor do I suggest that all questions about the origin of life are answered or potential conflicts resolved. Clearly our ignorance about these matters is large.

It is quite true that there is a fundamental difference between the methods we employ in science and in religion. The important question, however, is whether the physical data generated by the techniques of laboratory or historical science must inevitably lead to different conclusions than those supported by the spiritual data generated through faith and revelation. I believe that the answer is no; with an appreciation of the strengths and limitation of each comes the realization that the two approaches to truth are not mutually exclusive. On a following page (22) is my attempt at a personal harmony on five relevant issues: the age of the earth, my relationship to God, my relationship to the living organisms of the world, my relationship to Christ, and the origin of man. The sentences in bold-face type express the conclusions I have arrived at after comparison of the information available from both evolutionary science and LDS theology on each point.

I believe it is hypocritical for us as members of the Church to sift through the concepts of science selectively identifying friends and enemies as best fits our narrow purposes. Is radioactivity a less valid scientific principle when it is used by a paleontologist to establish that a fossil organism lived on the earth millions of years ago, than when it is used in contemporary medicine to diagnose human disease or to treat a cancerous tumor in a loved one? Moreover, this lack of understanding of science and its methods may cause us to err in the other direction, as we fail to appreciate its limitation and hold unrealistic expectations about what it may be able to accomplish.

It seems to me that Latter-day Saints are left with some clear-cut alternatives. For example, parents could decide against a visit to Dinosaur National Monument in eastern Utah in order to avoid the evolution-related issues which would certainly arise in the family. Or, they could visit the monument, but stifle discussion to side-step the questions of the children about the meaning of what had been seen. Or, they could explain that the fossils were fraudulent, placed in the earth by evil and conspiring men to destroy the faith of religious people. Or, they could suggest that the bones had been placed in the rock by Satan for the same purpose. Or, they could reason that the animals were not a legitimate part of the earth's history, but were placed there by Heavenly Father in order to test the faith and loyalty of his people. Or, they could conjecture that dinosaurs only resided elsewhere in the universe, on other worlds which had been dismantled and whose parts were recycled in the construction of our own planet. Or - they could accept with wonder and excitement the evidence of that experience as valid testimony of part of the marvelous evolutionary history of this earth, answering some of their children's questions by supplying accurate scientific information, affirming faith in creation as a divine act, and answering other questions with a candid "We don't know." - and plan a return trip a few years now to learn more.

I think the choice is clear, and vote for the last option. Hiding from an issue only invites disaster in the future. Fraud does exist in science, but it was scientists not theologians who exposed Piltdown Man. Christ is the Creator, not Satan. There are plenty of trials normally associated with working out one's salvation; the Lord doesn't have to resort to subterfuge. If the rock in which Tyrannosaurus is embedded came from another world, that just postpones our search; we have to go to other planets to study how evolution operates there. The truth is

that none of the mental gymnastics of the previous paragraph are necessary; if one begins with the judgment that evolution is not a stumbling block to faith, the rationale for such strained rationalizations disappears.

I would like at this point to express dismay at an attitude I find particularly offensive. Some members of the Church (including parents, students and a few of my faculty colleagues) suggest that biologists at BYU teach evolutionary principles only out of a professional obligation to the discipline. The line of reasoning goes something like this: "There can be no harmony between the truths of the gospel and the theory of evolution; to accept the latter is to jeopardize one's eternal life. However, we must continue to teach these (insidious) ideas, or BYU will lose its accreditation." I must take exception to this implied lack of personal integrity on the part of a Latter-day Saint teacher. We have so little time as learner/teachers, and there is so much that is important for us to consider. Speaking for myself, it would be immoral - perhaps worse- for a Latter-day Saint with a deep love for the young people of the Church to burden their souls with notions that were not valid, useful and beautiful.

William S. Bradshaw Nov. 2, 1989

What Do I Have To Do To Harmonize The Two Theories?

	LDS Theology		Evolutionary Theory
1.	Age of the Earth	1.	Age of the Earth
	The exact age of the earth can't be determined from the scriptures; parts of the scriptural accounts are best interpreted figuratively.		There is an enormous volume of convincing data demonstrating that the earth is very old (at least in terms of human years) - 4.6 billion years.
	I will accept the scientific data as valid.		
2.	My Relationship to God	2.	My Relationship to God
	I am a literal child of God; He is the Father of my spirit. This is a divinely inspired doctrine whose truth has been confirmed for me by the Holy Ghost.		No attempt is made to validate or invalidate this relationship. There are no data on this subject; the methods of science are not capable of generating this kind of information. I will defer to the epistemology of faith and accept the ennobling concept of my individual spirit and its
			divine origin.
3.	My relationship to the living organisms of the world	3.	My relationship to the living organisms of the world
	The scriptures do not disclose my physical/historical relationship to other living organisms.		The scientific data demonstrate a genealogical relationship through time for the plants and animals of the earth. The evidence is compelling.
	I will accept the scientific data as valid. This is also an ennobling concept which helps give meaning to my stewardship of the earth.		
4.	My relationship to Christ	4.	My relationship to Christ
	I accept the inspired doctrines of the fall of man and the atonement of Jesus Christ.		There are no scientific data on this subject.
			I will defer to the epistemology of faith, accepting the doctrine of the plan of salvation.
5.	The origin of man	5.	The origin of man
	The spirit of "the man Adam" is different from that of all other creatures. How Adam was introduced into the world is not specified.		I accept the data for the existence of "proto-humans" (man-like creatures) pre-dating modern man.
	I will view Eden as an immortal site in an otherwise mortal earth.		

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