14 September 3 B.C. conjunction of Jupiter and Regulus with the new moon. The new moon was actually on the 9th of September, not the 14th. The dates of new moon for 3 B.C. for the months of August and September are August 10 (23:12 Jerusalem time) and September 9 (13:09). For 2 B.C. they are August 29 (19:28) and September 28 (10:21).

[21]Tuckerman, Bryant. 1962. Planetary, Lunar and Solar positions—601 B.C. to A.D. 1. *Mem. of the Am. Philosophical Soc.* 56. American Philosophical Society, Philadelphia.

[22]Luand, H. R., ed. 1869. *Ann. Monastici*, IV. London. P. 447.

[23]Martin, E L. 1978. *Op. cit.* also see Martin, 1976. The celestial pageantry dating Christ's birth. *Christianity Today*. December 3, pp. 16-22.

[24]Hughes, D. W. 1977. Matters arising. *Nature*. 268(5620):565.

[25]Bible critics often make much of the Greek *en te anatole* here, indicating thereby that this is a technical term meaning heliacal rising. They then claim that the translators of the Authorized Bible could not have known this. Yet, despite their implications to the contrary, the singular form, *anatole*, is used another time in Scripture. It appears in Luke 1:78 where it is translated as "dayspring" and where "heliacal rising" would be utter nonsense. Examination of the A.V. indicates that the criticism is groundless for the phrase "in the east" must of necessity refer to the prior noun, the star, rather than the subject of the sentence which is "we". Hence the star was seen in the eastern sky, which can only be the morning sky. I have been unable to trace the *en te anatole* criticism back any further than Keller's book, originally written in German, which was translated into English by William Neil in 1956 under the title of The Bible as History (Wm. Morrow and Co., N.Y.). P. 350. Keller's original criticism was directed against all German translations but Neil applied the criticism to the English Bible without checking on the veracity of the application. The German Bibles use *Morgenland* which literally means "morning-country". But even in the German Bible the phrase is placed so as to describe the star, not the location from which it was observed. The latter is the case for all Reformation translations so that the criticism is spurious.

[26]Num 24:17; Jg 5:20; Jb 38:7; Ps 104:4; Dn 12:[3]: He 1:7; 2Pe 1:19; Jude 13: Re 2:28; 9:1; 12:24.

(Editor's note). The following additional references may be of interest. Bouw, Gerardus D., 1980. A note on the upcoming triple conjunction of Jupiter and Saturn. *Creation Research Society Quarterly* 17(2):138-189. Comments of some planetary configurations occuring now. Maier, Paul L., 1968. Sejanus, Pilate, and the date of the Crucifixion. *Church History* (1):3-13, gives an argument, from Roman history, for 33 A.D. as the year of the Crucifixion. And Filmer, W.E., 1966 The chronology of the reign of Herod the Great. *The Journal of Theological Studies* XVII (2):283-298, re-investigates the question of the date of Herod's death.

ASA GRAY AND THEISTIC EVOLUTION

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In this article are discussed the scientific evidence which prompted Asa Gray to try to persuade Charles Darwin to adopt theistic evolution, and Darwin's reasons for rejecting theistic in favor of atheistic evolution. In their arguments, both men appealed to the fossil record. Besides their interpretations of that record, the one by Georges Cuvier is mentioned; and it is noted that yet others are possible. So various alternative interpretations of the record are considered, to see which one best fits the facts.

Proponents of theistic evolution should realize that their point of view, for good reason, was never seriously considered by the founders of evolution theory—except for Asa Gray. Theistic evolution, if not originated, was at least avidly promoted by the Harvard professor of botany, Asa Gray. Theistic evolution or the design principle (evidence of intelligent design in nature) attempts to include theism while not excluding evolution. it is an attempt to incorporate both *a priori* systems.

In a private letter, Gray explains his position as follows: "Since atheistic doctrines of evolution are prevailing and likely to prevail, more or less, among scientific men, I have thought it important and have taken considerable pain to show that they may be held theistically."[1] And in an anonymously written article, Gray explains his position similarly: "It would not be dealing fairly by our readers, and, especially, it would be unmindful of the apologetic value of natural theology, were we to look at this theory from any other point of view, than the twofold one of science and theology."[2]

Gray was not without influence, and he used it to try to persuade Darwin to adopt theistic evolution. Briefly stated, his argument for design goes like this: Did Darwin mean to exclude theism entirely? Gray had been comforting Americans by pointing out how Darwin recognized Divine purpose, citing, for example, the three quotations that Darwin had posted in the front of the *Origin*—two from theologians and one from Bacon—which emphasized "Divine power," "intelligent agent," and "book of God's word."[3]

If Darwin does not mean to exclude theism, why not assume that the Creator directed the evolutionary process? Gray described his concept of theistic evolution metaphorically as "streams flowing over a sloping plain (here the counterpart of natural selection) may have worn their actual channels as they flowed; yet their particular course may have been assigned; and where we see them forming definite and useful lines of variation, after a manner unaccountable in the laws of gravitation and dynamics, we should believe that the distribution was designed."[4] John Dewey, one of the founders of the progressive education movement, aptly described Gray's theistic evolution as "design on the installment plan. If we conceive the 'streams of variations' to be itself intended, we may suppose that each successive variation was designed from the first to be selected."[5]

Needless to say, as the textbooks will verify, Gray's "design on the installment plan" was rejected by Darwin. In a private letter, Darwin informs Gray of the re-

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jection: "If the right variation occurred, and no others, natural selection would be superfluous." Himmelfarb describes Darwin's rejection in more detail: "For if each variation was predetermined so as to conduce to a proper end, there was no need for natural selection at all. The whole point of his theory being that, out of undesigned and random variations, selection created an evolution pattern."[6] Publicly, Darwin rejected Gray's argument for theistic evolution, when on the last page of *Variation of Plants and Animals Under Domestication*, he concluded, "However much we may wish, we can hardly follow Professor Asa Gray in his belief in lines of beneficient variation."[7]

Darwin, of course, (whether or not he was right) could not admit supernatural intervention, if he was to have natural selection the great thing which he wanted it to be. If the Creator, periodically, introduced streams of beneficent variations, that is, useful variations which were preordained to accumulate into new kinds, in a miraculous way, this was really a slowed-down version of special creation. Dupree reports that Gray had to pay for his insistence on the design principle: "With Darwin's decision against the design argument, Gray lost his place as a shaper of strategy within the inner circle of friends."[8]

It mattered little to Gray if theistic evolution made natural selection superfluous; he thought the mechanism was overrated anyway:

> We believe that species vary, and that "Natural Selection" works; but we suspect that its operation, like every analogous natural operation, may be limited by something else. Just as every species by its natural rate of reproduction would soon completely fill any country it could live in, but does not, being checked by some other species or some other condition—so it may be supposed that variation and natural selection have their struggle and consequent check, or are limited by something inherent in the constitution of organic beings.[9]

Similarly, Gray states that:

> The organs being given, natural selection may account for some improvement; if given of a variety of sorts or grades, natural selection might determine which should survive and where it should prevail.[10]

Continuing the same line of thought, Gray again states that:

> If it be true that no species can vary beyond defined limits, it matters little whether natural selection would be efficent in producing definite variations.[11]

Gray felt that Darwin's theory was inadequate to explain the origin of life. Even if one were to concede that the natural selection mechanism works, the theory would still require a mechanism to provide correlated variations for selection. Natural selection does not create variations.

Gray's theistic evolution was more than an effect to save the creation concept while including evolution; it was also an hypothesis based upon the data from geology and paleontology. It was an effort to explain the fossil record which to him was inexplicable in terms of special creation or atheistic evolution. The stringing-out of the fossils from "simple" to "complex" indicated, contrary to special creation, a coming into existence of new life forms at successive periods in the earth's history. On the other hand, the absence of intermediate fossils, although compatible with special creation, contradicts atheistic evolution. Gray describes it this way:

> Why it is asked, do we not find in the earth's crust any traces of transitional forms? The lame answer is, that "extinction and natural selection go hand in hand." In other words, traces of the higher forms exist, but the transitional ones, having served their ends, are lost! You might as well say that, when in after ages the site of a battle between the Caffres and British shall be disturbed, there will be found only the traces of the superior, conquering race. But it will not do to plead imperfection of the geological record. If any data may be relied on in this question, those supplied to us by the paleontologist may be so.
>
> The truth is, that if the author has wholly and signally failed to produce even one unquestioned corroborative proof of true transitional variety among present forms of life, he cannot discover material in the geological record for a chapter on transitional varieties in paleontology. But while we shall not ask our readers to survey the fossiliferous deposits, there are two subjects we wish to refer to ere we close. These are the question of breaks in the introduction of life, and the question of miraculous action.[12]

From the very outset, even before the publication of the *Origin*, Gray, aware of its contents, could not reconcile the lack of intermediate forms with Darwin's development hypothesis. To Joseph Hooker, later director of Kew Gardens and close friend of Darwin, he writes: "Assume the extinction of any quantity of intermediate forms and you can then imagine the development of the present vegetable kingdom by excessive variation. But just consider what an enormous amount of sheer, gratuitous assumption this requires!"[13]

Even T. H. Huxley, "Darwin's bulldog," was compelled to agree with Gray about the fossil record:

> What, does an impartial survey of the positively ascertained truths of paleontology testify in relation to the common doctrine of progressive modification? It negatives these doctrines; for it either shows us no evidence of such modification, or demonstrates such modification as has occurred to have been very slight; and, as to the nature of that modification, it yields no evidence whatsoever that the earlier members of any long-continued group were more generalized in structure than the later ones.[14]

For Gray, then, the breaks in the introduction of life can be explained by miraculous action:

> The question of the presence of miracle, at various points in the history of the earth, is one which has been, with a strange want of logic, almost universally regarded by eminent men with suspicion. Why? We suppose very few, if any, not even excepting Mr. Darwin, would be willing to deny that there has been the exercise, at some period of the

earth's history, of creative power—in a word, miracle. But if you acknowledge its presence at any one point, why be suspicious of it, or deny its probability, at any after-point in the history? If in every respect you find that what demanded a miracle at A, is again found existing at E, after having ceased to be before it again made its appearance, first at B, second at C, and third at D, is there anything to forbid the conclusion, that at every one of these stages there was miraculous action?[15]

Cuvier's Views Contrasted with Gray's

It would be well to digress for a moment and consider Georges Cuvier's attempt to solve the riddle of the fossil record. The reader should be aware that Cuvier, one of the most influential men in science in his day and the founder of paleontology, was writing prior to the publication of the *Origin*, yet at a time when the idea of evolution or the transformation of life preoccupied many men in science, and while Sir Charles Lyell's uniformitarian geology was gaining wide acceptance over catastrophic geology. Cuvier, like Gray, could not reconcile the absence of intermediate fossils with evolution theory:

He based his entire refutation upon the incompleteness of the fossil record. If the fossils could not show us the course of the supposed transmutations, what reason was there to believe that these unusual events had actually occurred? The fossils were our only record of life in the remote past, and their lesson was obvious and not at all, Cuvier believed, what the transformists would have liked it to be. Not a continuous series of almost similar creatures but rather an interrupted sequence of dissimilar forms was what was dicovered. "We may," said Cuvier, "respond to them (transformists) in their own system that, if the species have changed by degrees, we should find some traces of these gradual modifications; between the paleotherium and today's species we should find some intermediary forms: This has not yet happened."[16]

Whereas Gray's attempt to solve the riddle of the fossil record was "progressive," Cuvier's was "extinctive." As Coleman describes it:

His system was, if anything, "extinctive," eliminating by catastrophe, and not "progressive," creating (through God) new and higher creatures as an aftermath of catastrophe. There had been a succession of discrete populations, each more or less complete, and each neatly perishing by the action of some remote catastrophe.[17]

Nordenskiold makes this clarification about Cuvier's catastrophic geology:

The assertion that so often occurs in literature that, in his view, life had been created anew after each catastrophe is utterly incorrect; on the contrary, he points out that isolated parts of the earth may have been spared on each occasion when it was laid waste, and that living creatures have propagated their species anew from these cases, which indeed he expressly applies to the human race.[18]

As the reader may have gathered, Cuvier's explanation of the fossil record required the rejection of uniformitarian geology which Coleman describes as follows:

Rain, snow, and ice, Cuvier admitted, do attack and wear away the mountains and hills, but this argument assumed "the pre-existence of mountains, valleys, and plains, in a word, all the inequalities of the world, and consequently could not have given rise to these inequalities." Sedimentation could produce no major changes in the level of the sea, whatever minor changes were known being either still in question or purely local phenomena. Volcanos, the principle factor in the Huttonian (James Hutton, who preceded Lyell in advancing the idea of uniformitarian geology) system, generated curious and extensive local upheavals profoundly changing the surrounding countryside but not, Cuvier believed, disturbing the adjacent strata. Astronomical causes such as comets or precession were equally rejected. Cuvier concluded that all of these forces lack the strength and generality which, judged by the effects, are required and that "it is in vain that one seeks, in the forces presently acting on the surface of the earth, causes sufficient to produce the revolutions and the catastrophes the traces of which its surface discloses to us."[19]

Nordenskiold describes Cuvier's catastrophic geology this way:

He at once takes it for granted that these changes had the character of violent catastrophes; that they were violent he considers to be established by the fact of stratifications which, judging from the nature of the fossils, have demonstrably taken place in the sea, are now found on the one hand elevated to enormous heights and on the other hand overthrown and inverted. That all this took place with great rapidity is obvious to his mind, not only from the sharp lines of demarcation shown by the various strata, but also from the fact that many of them contain such extraordinarily numerous animal remains that it can only be assumed that they died a sudden death as the result of upheavals which obliterated all life (in some areas?) for the time being.[20] (Parentheses mine.)

Needless to say, Cuvier's series of catastrophes is not the brand of geology preferred by either the atheistic evolutionists or the special creationists.

The Various Theories Contrasted

What all of this condenses down to is that Gray had made the fossil record explicable at the high cost of destroying the natural selection mechanism, that which made Darwin's theory unique from all previously formulated evolution theories. Gray's "design on the installment plan," as Dewey described it, was, more specifically, "creation on the installment plan." Theistic evolution is not really evolution at all. Cuvier had made the fossil record explicable at the expense of both the evolutionist's uniformitarian geology and the special creationist's flood geology, meaning a single, world-wide catastrophe.

From Gray's, Cuvier's and Huxley's point of view, the

atheistic evolutionists, if their theory was to be credible, would have to produce large numbers of intermediate fossil forms as predicted by the theory or formulate an hypothesis based upon facts to explain their absence; otherwise, it is in violation of a well established axiom in science which states that, "A single absolute conflict between fact and hypothesis is fatal to the hypothesis; *falsa in uno, falsa in omnibus.*"[21]

Likewise, the special creationists are obliged to explain the stringing-out of the fossils from "simple" to "complex" compatibly with their point of view.

Let us review briefly what has been learned concerning the fossil record: It is not possible for the same evidence to at once refute and support an hypothesis. The absence of intermediate fossils is prime evidence against evolution theory; and it is the responsibility of evolutionists to prove the existence of such forms or formulate a credible hypothesis based upon facts to explain their absence. It is not the critic's responsibility, to try to prove a negative. Evolutionists have failed in this responsibility, yet the theory which they defend has not had to bear the full weight of this conflicting fact, because the stringing-out of the fossils from "simple" to "complex" is "as it should be." The net result is that the conflicting fact appears not to be as serious as it should be. Nevertheless, we are still left in the impossible situation of having the same evidence at once both support and refute an hypothesis.

It seems to me, I must add, that we creationists are ourselves not the paragons of objectivity that we should try to be when we dwell on the lack of intermediate forms and ignore the stringing-out from "simple" to "complex." We must find a way to bring the stringing-out of the fossils into conformity with special creation, so that the full weight of the conflicting fact of no intermediate forms will fall upon the theory of evolution. Therefore, with this historical information in mind, I wish to again offer the concept of Relative Fossil Production Potential (RFPP) as a possible explanation for the stringing-out of the fossils from "simple" to "complex."[22]

Relative Fossil Production Potential

The qualitative equation goes like this: Quantity of Fossils Produced = Habitat + Population Size + Size and Structure. Ostensibly, the fossil record reveals the sequence in which organisms evolved into existence, but, in reality, according to RFPP, it reveals an ecological-geological fossilization phenomenon. Generally speaking, the so-called "simple" kinds have greater likelihood of producing more fossils than the so-called "complex" kinds. Consider, if you will, the fossilization potential of clams as compared to camels, which represent opposite ends of the fossil record.

The factors that determine fossil production cannot be applied to the various kinds of plants and animals in any mechanical law-bound sense; but it is obvious nevertheless that variations in fossil production potential must exist. For example, fishes must have a greater RFPP than most reptiles and the RFPP of algae must be greater than most land plants. Whereas RFPP predicts a tendency for fossils to be strung-out, the evolutionary interpretation of the fossil record is a law-bound prediction; it is obliged to reveal a stringing-out of the fossils from "simple" to "complex," as well as intermediate kinds of fossil. Contrary to the prediction, the fossil record has revealed many anomalies from the viewpoint of evolutionary progression, which, on the other hand, are predictable according to RFPP. The Lewis "overthrust" in Montana is frequently cited as an example. In this area "Pre-cambrian" rocks (rocks that are characterized by an absence of distinguishable fossils, making them even older than the "Cambrian" rocks which contain invertebrate fossils) are lying above "Cretaceous" rocks which allegedly are of the period when reptiles evolved.

Another example that contradicts the evolution interpretation of the fossil record, but serves to demonstrate RFPP, is the discovery of pollen grains from Angiosperm and Gymnosperm trees in "Pre-Cambrian" rocks. Flower-producing plants and cone-producing trees were not supposed to have evolved for hundreds of millions of years after the "Pre-Cambrian" rocks were laid down. Which has the greatest RFPP, pollen grains or the trees that produce them? Applying the factors in the qualitative equation, the pollen grains, which are produced like dust in the air, must have a population size millions of times greater than the parent trees; and their tiny size, with a covering that is somewhat resistant to decomposition, lends itself to deposition and preservation in sediment. Couple these two factors to a wide-spread wind-blown habitat, and it is conceivable that the pollen would be discovered in "Pre-Cambrian rocks while the contemporaneous parent plants may have become part of the "Carboniferous" coal strata which evolutionists believe to be millions of years younger.

Many more out-of-sequence anomalies have been reported which may be considered evidence for flood geology rather than uniformitarian geology. For this reason, the RFPP concept originally was based upon flood geology, yet I would be committing an error common to the natural philosophers, that is, overloading the theory, if I were to insist that RFPP, in itself, is proof of flood geology and can only be considered in reference to flood geology. RFPP is a fact about our environment and must be considered regardless of what one's brand of geology may be. RFPP is applicable to either uniformitarian or catastrophic geology. Evolutionists, it would seem are obligated to incorporate RFPP, a relevant fact, into their interpretation of the fossil record. If they would, my thinking is that it would be sufficient, especially when also considering the conflicting fact of the absence of intermediate fossils, to account for the stringing-out of fossils and make the evolution interpretation superfluous.

Summary: The Hypotheses Compared

Let us summarize, as I see them, the merits and weaknesses of the various hypotheses that pertain to the fossil record. Asa Gray's theistic evolution hypothesis, that life came into existence at consecutive periods in the earth's history, has the virtue of explaining the stringing-out of fossils and predicts no intermediates. Its drawback seems to be that the stringing-out from "simple" to "complex" is law-bound, consequently, it does

not explain the anomalies where fossils are found out of sequence, with no evidence of overthrust.

Georges Cuvier's hypothesis based, apparently, upon special creation and a series of catastrophes, might explain the stringing-out and certainly predicts no intermediate fossils. Out-of-sequence fossils are not an anomaly to his hypothesis; it is predictable that they could occur.

Charles Darwin's evolution hypothesis accounts for the stringing-out of fossils, but is contradicted by the lack of numerous intermediate fossils which it predicts should be found. Also, it is hampered by the law-bound prediction that fossil remains will be found in sequence from "simple" to "complex" as they supposedly evolved into existence.

The final hypothesis, based upon special creation and relative fossil production potential, explains the stringing-out and predicts no intermediate fossils. The stringing-out is not law-bound; therefore, out-of-sequence anomalies are predicted, or at least allowed. Its advantage, though, is that it takes into consideration a fact of life that the other hypotheses do not incorporate, namely, that some kinds of organisms have a greater potential for leaving a greater quantity of fossil remains than others.

Of the four hypotheses, Darwin's evolution hypothesis seems to be the least likely candidate, even though it is the only hypothesis presently in the textbooks.

The quotes contained in this article reveal how the history of evolution theory has been distorted and unwanted parts suppressed, in the popular textbooks. As a result, over the years, evolution theory has become scientific dogma, consequently, the mind-set for most people is to think of it philosophically, when, in reality, it is a scientific statement about our environment that does not agree with the facts.

Footnote

I quoted from two articles anonymously published in the *North British Review* in 1860 and 1867; Darwin attributes the authorship of the 1860 article to a Rev. Mr. Dunns and identifies Fleeming Jenkin, a British engineer and inventor, as the author of the 1867 article. He also refers to the article in the sixth edition of the *Origin*, but does not venture publicly to name Jenkin.

I located the articles in Poole's *Index to Periodical Literature*, Vol. I, 1802-1881, listed under the name of Asa Gray. In the preface to the index, Poole testifies to having reliably identified the authors of anonymous articles published in the *North British Review*. I find Gray's essays on evolution theory in *Darwiniana* (T. H. Huxley also wrote a book of essays entitled *Darwiniana*) compatible with the anonymous articles in the *North British Review*.

Also, in a letter to the editor in *Nature* magazine, we see the similarity of thought between it and those published in the *North British Review*, regarding limited variability. The article was published under Gray's name in 1883; this was about one year after Darwin's death. The gist of it reads as follows:

> Fairly is it said that "the theory merely supposes" this. For omnifarious variations is no fact of observation, nor a demonstrable or, in my opinion, even a warrantable inference from observed facts. It is merely an hypothesis to be tried by observation and experiment.

He concludes:

> The upshot is, that, so far as observation extends, it does not warrant the supposition of onmifarious and aimless variation; and the speculative assumption of it appears to have no scientific value.

Darwin's position on the question of limited variability or unlimited variability (alleged useful-for-survival mutations being the sources of variability) was diametrically opposed to Gray's position: "That a limit to variation does exist in nature is assumed by most authors, though I am unable to discover a single fact on which this belief is grounded."

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PANORAMA OF SCIENCE

Horned Beetles

Recently in the Scientific American William G. Eberhard discussed five beetles in the family Scarabaeidae.[1] In each of these beetles the arrangement of the horns is very distinctive, yet for a long time none seemed to be of any particular use to the beetle. In fact Darwin never did understand their function, and concluded they must serve to impress females. Gilbert J. Arrow wrote a whole book arguing that beetle horns are functionless, their evolution having run wild, free of the restraints of natural selection.

Only lately have actual studies of the life histories of these beetles been made; and Eberhard shows that their horns do indeed have vital functions. Though he makes