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Did Darwin Inspire Eugenics?

by Jerry Bergman, Ph.D.

One of the main criticisms of the movie *Expelled* (Miller and Stein, 2008) is that Ben Stein and the movie's producers link Darwinism with eugenics and Nazism. Eugenics, a nightmare of the recent past, has resulted in the death of millions of innocent people in Nazi Germany and elsewhere. Also, millions more were forcibly sterilized by governments, including the German and American governments, as a result of this teaching.

It is often claimed by modern-day Darwinists that Darwin himself did not teach eugenics, but rather it is a perversion of his teachings, a pseudoscience that Darwin never even implied in his writings. For example, Fischer (1998, p. 47) wrote that during the last quarter of the 19th century

a new form of Judeophobia emerged that not only stirred up a wave of hatred throughout Europe but also produced the soil on which the Nazi mentality would be nourished. This was the emergence of biological racism based on the pseudoscientific theories spun out by the followers of Darwin, who extended and misinterpreted his biological findings to fit their ideological agendas.

Eugenic implications

In fact, however, the eugenic implications of Darwin's ideas were very clear in his writings. For example, Darwin (1871, p. 167) wrote that the "advancement of man from a former semi-human condition to his present state" was due to survival of the

fittest, i.e., natural selection, eliminating the weak and inferior humans and leaving the superior humans to continue populating the earth.

Darwin's writings on humans reek with overgeneralizations and inaccurate claims that contributed to prejudice and racial hatred of others. He claimed (1871, p. 94), for example, that

Most savages are utterly indifferent to the sufferings of strangers, or even delight in witnessing them.... Some savages take a horrid pleasure in cruelty to animals, and humanity with them is an unknown virtue.

He then quoted approvingly a putative Span-

... continued on p. 2

Shallower and Less Catastrophic: The Ryan/Pitman "Noah's Flood Hypothesis"

by Carl R. Froede, Jr., B.S., P.G.

In 1998, naturalistic geologists William Ryan and Walter Pitman published an outlandish idea claiming that a catastrophic marine flooding of the Black Sea occurred northward through the Bosphorus Strait approximately 7,500 years ago and that this spectacular event was the source of the Genesis Flood "legend" (Ryan and Pitman, 1998).

This story made worldwide headlines and proved to be a lucrative source of funding for marine geologists working in the Black Sea (e.g., Ballard, 2001). Overlooked in the media euphoria was the earlier work proposing a slow, non-catastrophic marine filling of the Black Sea (Ross and Degens, 1974). In 2002, several marine geologists and oceanographers

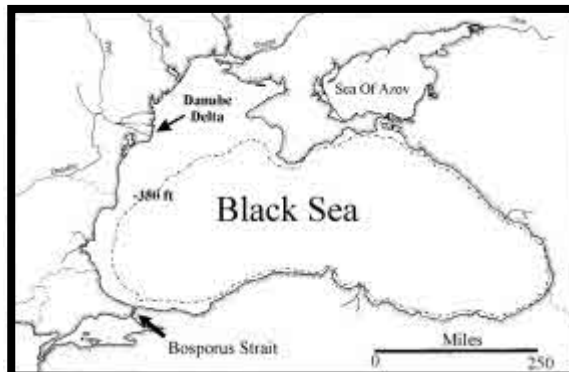


Figure 1. The Black Sea with the proposed former freshwater lake elevation (-350 ft) shown as a dotted line inside the modern lake level. At approximately 5,600 B.C., the Mediterranean Sea flowed northward across the Bosphorus Strait into the Black Sea, initiating the catastrophic flood which some naturalists (Ryan and Pitman, 1998) believe to be the Genesis Flood. The recent findings at the Danube Delta suggest that the lake level was only between 65 and 100 feet lower than at present, making the hypothetical flood area much smaller and shallower than originally proposed (Giosan et al, 2009).

seriously challenged the idea that a marine flooding of the Black Sea ever occurred or was the source of the Genesis Flood (Aksu et al., 2002).

The theory advanced by Ryan and Pitman (1998) was answered by young-earth creation scientists (Byers, 2001; Froede, 2001, 2002; Walker, 2000; 2002). They noted that Ryan and Pitman (1998) violated evidentiary rules by dismissing without reason the historical account in the Bible in favor of a questionable geologic interpretation. It was a curious case of scientific schizophrenia; the authors tried to acknowledge the historical reality of a Genesis Flood, but ignored the primary historical source.

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ish maxim “Never, never trust an Indian” (1871, p. 95), and noted that, in the case of “savages, the weak in body or mind are soon eliminated; and those that survive commonly exhibit a vigorous state of health” (1871, p. 168).

Darwin next detailed how natural selection of the weak could not work in modern society, as it did with savages, because natural selection was impeded by civilization. Darwin made the implications of this idea for eugenics crystal clear, noting (1871, p. 168) that civilization does its

...utmost to check the process of elimination; we build asylums for the imbecile, the maimed, and the sick; we institute poor-laws; and our medical men exert their utmost skill to save the life of every one to the last moment. There is reason to believe that vaccination has preserved thousands, who from a weak constitution would formerly have succumbed to small-pox. Thus the weak members of civilised societies propagate their kind. No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man. It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but excepting in the case of man himself, hardly any one

is so ignorant as to allow his worst animals to breed.

The reason we aid the helpless, Darwin opined, was not because humans were made in the image of God, but rather it was an incidental result of the survival instincts that we acquired by evolution. Nonetheless, Darwin realized it is unlikely that civilized society would intentionally cause the weak and helpless to die and, therefore, he concluded (1871, p. 169), “we must bear with-

...Darwin's hope as expressed in his writings was rapidly translated into governmental policy throughout the world, including America.

out complaining the undoubtedly bad effects of the weak surviving and propagating their kind.”

Seriousness of the implications

Some, such as Adolf Hitler, took the implications of Darwinism seriously and decided that we should *not* bear “the undoubtedly bad effects of the weak surviving and propagating their kind.” Darwin added that there was, fortunately, at least one check that did operate in modern society, “namely the weaker and inferior members of society” did not marry as often as others, and it “is more to be hoped for than expected,” that the “weak in body or mind” would refrain from marriage (1871, p. 169).

This approach by Darwin is called *pas-*

sive eugenics, and Darwin's hope as expressed in his writings was rapidly translated into governmental policy throughout the world, including America. Darwin wrote that eugenics has solved many social problems for another reason: namely, through force “the civilised races have extended, and are now everywhere extending, their range, *so as to take the place of the lower races*” which he believed would eventually lose in the survival of the fittest struggle (1871, p. 169, emphasis mine).

This latter approach is called *active eugenics*, and it is the method that Hitler and others used in their attempt to produce a superior race by Darwinian methods. Yale University Professor Nancy Stepan concluded (1982, p. 50) that to

...Darwin, man was no longer a created being, but arose by the natural process of evolution from an animal ancestor. Man was fully part of nature, shaped by the same evolutionary laws shaping animal life. Man differed from animals only in degree, not kind.

This fact was critical in the development of racism in not only German science, but also in German government policy. As to why Darwinism caused a Holocaust in Germany but not in the United States, Caplan (2004, p. 1742) opined that a major reason was because the “innocuous rise of eugenics in Weimar Germany” was

...an adjunct to efforts at public-health reform. Germans eager for a rebirth after the disaster of the First World War eagerly seized on the hope extended by physicians, geneticists, psychiatrists, and anthropolo-

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gists that using social Darwinism to guide public health was the vehicle for German regeneration.

Darwin scholar Janet Browne wrote that Darwin's belief in "God had virtually disappeared" after he developed his theory of evolution, which he called the theory of transmutation. After his belief in God had "virtually disappeared," she continued, man became "nothing to him now except a more developed animal" (Browne, 1995, p. 513). The Darwinian view of man as "nothing more" than an animal was critical in allowing eugenic policy to thrive. And this view was widely accepted in Europe and America, especially in Germany (Stepan, 1982).

It is clear from these few quotes that Darwin's own writings could be, and often were, used widely to not only condone, but actively encourage both passive and active eugenics. Darwin's cousin Francis Galton — the man who coined the term eugenics — was much more open and direct about advocating eugenics. Galton's views were an important foundation of the eugenics movement, and Darwin openly admired and supported his eugenic ideas. Darwin was not naïve about eugenics as some argue but studied in detail — and even carefully annotated — Galton's eugenic writings (Stepan, 1982, p. 51). Darwin was so impressed with eugenics that he wrote that Galton's eugenic bible "*Hereditary Genius* was a 'great work'" (1871, p. 168).

It did not take much of a leap of thought to go from Darwin's and Galton's ideas to the Nazi views as taught by Richard Wagner, Ernst Haeckel, Houston Chamberlain, and others. From them Hitler gleaned the ideas that ended up producing the Holocaust (Weikart, 2004). As I have documented elsewhere, Joseph Stalin and Chairman Mao were also openly influenced by Darwin's ideas. To confirm this, one needs only to read the works of Hitler, Stalin, Lenin, and Mao (Bergman, 2001).

Hitler's associates

The association of the Holocaust with Darwinism has been well documented by scholars. One of the most authoritative histories of the Holocaust, *The Complete History of the Holocaust* edited by Mitchell Geoffrey Bard (2001, p. 34), concluded, "The Nazis combined their racial theories with the evolutionary theories of Charles Darwin to justify their treatment of the Jews." Reading *Mein Kampf* (especially in German) makes this both obvious and very clear.

Hitler was also called (Bard, 2001, p. 37)

...one of the most honest politicians of our time, doing in most instances precisely what he said he would do. This is particularly evident in his treatment of the Jews.

And Hitler made it clear what he was going to do to "evolutionarily inferior people" and why. Poliakov (1996, p. 298) observed that Darwinism was directly used to support militarists such as Hitler:

While scientists were trying to unravel the future of the human race, in the light of natural selection, ... a number of politicians were looking to Darwinism to support their polit-

Darwin was not alone in developing the new biological racism that flourished in the last century, but those persons who influenced Hitler were influenced by Darwin.

ical philosophy. It is true that the "survival of the fittest" looked much the same as the rule that "might is right" ... but nevertheless the theory of natural selection, as popularly understood, did seem to endow aggressive instincts and imperialistic ambitions with all the dignity of scientific truth. As early as 1889 Max Nordua observed that Darwin was well on the way to becoming the supreme authority for militarists in all European countries. "Since the theory of evolution has been promulgated, they can cover their natural barbarism with the name of Darwin and proclaim the sanguinary instincts of their inmost hearts as the last word of science."

It is also true (Stepan, 1982, p. 52) that racism, even racial science, existed before Darwin, but Darwin

...carried out the task of accommodating the new evolutionary science to the old racial science. As a result, many aspects of the old racial science passed more or less intact into the post-Darwinian decades.

Darwin was not alone in developing the new biological racism that flourished in the last century, but those persons who influenced Hitler were influenced by Darwin. Stepan (1982, p. 51) wrote:

Darwin read widely in the biological literature on man — Prichard, Lawrence, Latham, Chambers, Nott and Gliddon, Hamilton Smith. Darwin's annotations of these works indicate that he took to his readings a commitment to the idea of human races as discrete, biological units with distinct moral and mental traits. He searched the available literature on man for evidence that all the elements of his evolutionary scheme — variation, struggle, migration and extinction — were found at the human, racial level.

We have no evidence that Hitler ever read Darwin's writings, but probably a far more important influence on Hitler were the many Darwinists in Germany. The level of support in Nazi Germany was so strong (Caplan, 2004, p. 1742) that

...there were so many doctors and scientists involved in the Nazi crimes that to weed them all out would have left post war Germany with hardly any at all, an intolerable situation in a nation reeling from starvation and decimation.

A stimulus to Darwin's own ideas on race were his colleagues' writings on evolution and their contribution to racism. Stepan (1982, p. 51) noted that "in the first rush of evolutionary speculation in the 1860s" a particularly important influence on Darwin was the work of evolutionist

...Alfred Russel Wallace, who first appeared in print on the subject of evolution, man and race in 1864. Lyell's book on the antiquity of man in 1863 contained considerable material on the cranial capacities of ancient and modern races, while Huxley's provocative *Man's Place in Nature*, which also appeared in 1863, emphasized the smallness of the distance separating man from his nearest animal neighbours, the primates. Between 1866 and 1868 Darwin also corresponded frequently with Wallace on the subject of sexual selection, which Darwin believed played a role in differentiating the races of mankind.

Conclusion

It is well documented that Darwin's ideas had a major influence on nineteenth century biological racism as well as on Nazism. The end result was the Holocaust, in which 11 million perished — and the loss of over 200

million lives in World War II. Darwin, though, did more than all of his mentors to establish evolutionism in science and society, and, for this reason, his work was the most important influence on eugenics and Nazism in collusion with Darwin's disciples in Germany.

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Because the data used by Ryan and Pitman were ambiguous, another team of marine geoscientists set out to test the rate and magnitude of the filling of the Black Sea from the Mediterranean Sea by using data derived from a core on the Danube River Delta. A single core was drilled to 138 feet near the front of the delta, and fully-articulated mollusk shells were age-dated by radiocarbon methods to determine the sedimentary development of the Danube Delta and the implied rate of rise of the Black Sea (Giosan et al., 2009).

Based on the new data, the team determined that the marine flooding of the Black Sea occurred approximately 9,400 years ago (note the new older date) at a depth estimated between 65 and 100 feet (Giosan et al., 2009). In a follow-up interview regarding their conclusions, Giosan stated (Gramling, 2009, p. 11, brackets mine):

...whether the sea level increased by five meters [16.4 ft] or 50 meters [164.0 ft], such a flood event still would have had a significant impact on the early civilizations on the shores of the Black Sea — certainly enough of an impact to become the stuff of legend.

It is amazing the lengths to which secular scientists will go to refute the Flood. They recognize the power of the idea, but refuse to examine it impartially. One wonders if the continued interest in debunking the Flood has anything to do with a desire for research funds. It certainly hasn't hurt the fortunes of the scientists involved.

We must remain ready to give an answer when naturalists seek to deny the Bible by implying its stories are myths with "natural" explanations. We see it in everything from miracles to the plagues of the Exodus. But the heavy artillery seems to be

constantly aimed at the Flood. Amazingly, the geologists who want to use the Flood for their professional advancement never seem to have really considered that the biblical text is the *primary* historical evidence. Of course that would leave them with less justification for their research. Why should this minor flooding event be relegated to Noah's Flood at all, when all the evidence is contrary to the biblical account?

Which is the real myth: the straightforward narrative of Genesis or the convoluted attempts of geologists like Ryan and Pitman (1998) to mythologize the Flood? As more data are collected and analyzed, it will be the Ryan/Pitman "Noah's Flood Hypothesis" that will slide into mythology.

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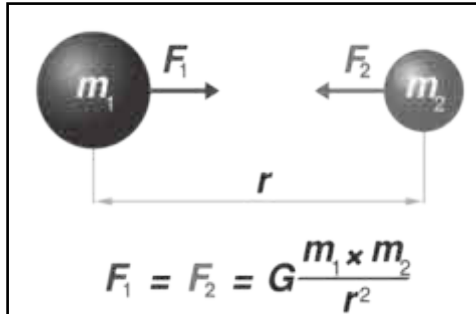


What Was John Craig's Theory of Christianity?

John Craig (c.1675–1731) was a Scottish mathematician who lived at the time of Isaac Newton. Craig studied gravitation, and he explored the way in which the gravity attraction between objects diminishes as the square of their separation distance. That is, if the distance between two objects doubles, their mutual gravity attraction decreases by four times. Craig applied this “inverse square rule” to entirely different areas of thought (DeMorgan, 1956).

For example, he suggested that belief in specific historical events decreases as the square of elapsed time. If valid, this means that doubts about the truth of historic details increase greatly with the passing of centuries.

On this basis, Craig went on to estimate how many years would pass before Christianity would die out completely. He concluded that if Christian faith had been orally transmitted only, it would already have been eliminated by A.D. 800. However, because of the permanence of written Scripture, Craig estimated the demise of Christianity by A.D. 3150. A godly man himself, Craig



This diagram describes the mechanisms of Newton's law of universal gravitation.

The force (F) is proportional to the product of the two masses (m_1 and m_2) and inversely proportional to the square of the distance (r) between the point masses. Regardless of masses or distance, the magnitudes of the two forces, $|F_1|$ and $|F_2|$ (absolute values), will always be equal. $G \approx 6.67428(67) \times 10^{-11} \text{ m}^3/(\text{kg} \cdot \text{s}^2)$.

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<http://en.wikipedia.org/wiki/File:NewtonsLawOfUniversalGravitation.svg>

predicted that the Lord would then return, based loosely on Luke 18:8, “When the Son of man cometh, shall he find faith on the

earth?” Apparently Craig assumed a negative answer to this question.

There are several serious problems with John Craig's theory. First, historical evidence does *not* disappear with the square of time elapsed. Some events are indeed doubted or forgotten, but many others leave a permanent mark on the world.

Second, Craig's theory reveals a low view of scripture preservation. In truth, the Lord has protected and preserved his Word through the centuries. Fourteen centuries passed between the original writing of scripture and the invention of the printing press. During this long period, the Bible was neither lost nor corrupted.

There is a third problem with Craig's theory: The Bible warns against the setting of a particular date for the Second Coming of the Lord, as Craig and many others have unsuccessfully attempted (Matthew 24:36).

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What Are Creationists Thinking about ...?

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Participation is limited to CRS members in good standing.

...without excuse!

by Timothy R. Stout

The Testimony of a Giraffe's Tail

In the sixth chapter of *The Origin of Species*, Charles Darwin discusses a number of problem issues. These were issues which either bothered him or which he anticipated might bother his readers. One of these issues concerned how things of relatively little consequence, such as the tail of a giraffe, could be accounted for by his theory (Darwin, 1859, p. 162):

Organs of little apparent importance. ... I have sometimes felt much difficulty in understanding the origin of simple parts... The tail of the giraffe looks like an artificially constructed fly-flapper...

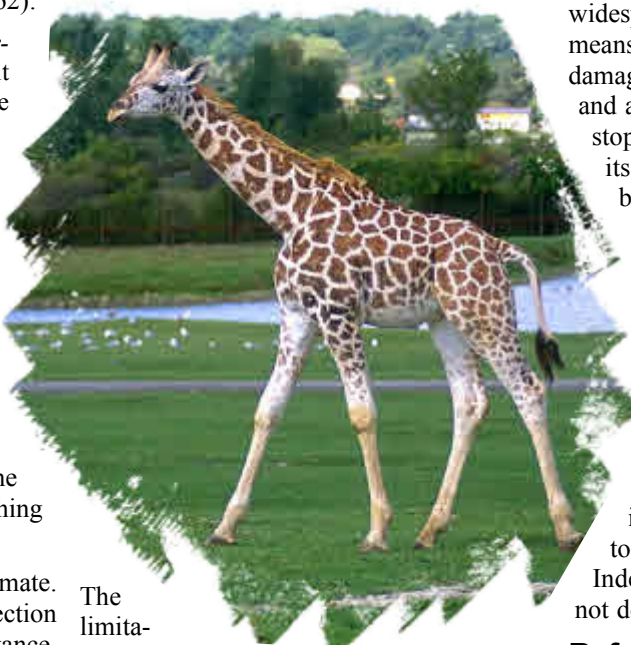
As we can see from the illustration, a giraffe's tail is thin with a tuft of hair at its tip. It is relatively short and as such it does not appear to be even a very good fly-flapper. Yet, this tail is unique to giraffes and is similar for all giraffes. It is easy to understand Darwin's concern about whether natural selection truly had the capacity to produce gradually something so unique yet so trivial.

Darwin's concern was legitimate. Within a given population, natural selection has a limited capacity to work. For instance, it is intuitively obvious that in a population of 10,000 interbreeding individuals, it would be difficult for natural selection to deal simultaneously with 20,000 different issues, each trying to make its own impact for good or for bad. The ability of any one trait to make an impact would be diluted by competition from the others.

Since Darwin's time, we have come to learn that observed traits are actually the expression of information stored in an organism's genes. So, although Darwin was concerned with observed characteristics, the actual problem is at the genetic level. For a giraffe to develop a certain kind of tail, it must acquire the genes to express that tail. This is important, because making even something as simple as a giraffe's tail requires the cooperative effects of many, many enzymes as well as their genetic control mechanisms.

John Sanford, in his book *Genetic Entropy & the Mystery of the Genome*, discusses this problem (as well as many others) in great detail. If there are more than roughly 700 simultaneous issues affect-

ing the survival of members of a population, and if these items are only moderately or slightly deleterious, natural selection effectively does not "see" them or sense them (Sanford, 2005, p. 77). Random statistical fluctuations in the various causes of death override any impact due to normal selection advantages or disadvantages.



The limitation of a mere 700 issues presents a severe limitation on the effectiveness of natural selection. As an illustration, each human being has over 100,000 different kinds of enzymes in his body. Each of these enzymes has its own control mechanism that determines where, when, and how the enzyme is used. All of the enzymes and associated control mechanisms are capable of being altered by a random mutation. This means that each human being has hundreds of thousands of sites capable of being mutated. The expectation is that with enough time, every enzyme and every associated control mechanism will acquire a slightly deleterious mutation by at least one member of the population. Yet, natural selection is helpless to sense the presence of these mutations in order to remove them.

Sanford also points out that in each succeeding generation, each human being introduces multiple mutations that his parents did not have (Sanford, 2005, pp. 33-34). Most of these mutations fall into the slightly deleterious category (Sanford, 2005, pp. 32, 84). This means that the entire genome of

a population is gradually being degraded by slightly deleterious mutations and that natural selection is powerless to stop it (Sanford, 2005, pp. 65, 121, 143).

We can forget about an upward evolutionary advancement such as evolutionists like to present. Basic genetic theory indicates that we are gradually accumulating widespread genetic decay and we have no means to stop the process or to undo its damage. The Bible speaks of these things, and also of the time when God steps in to stop the decay: "...because the creation itself also will be delivered from the bondage of corruption ..." (Romans 8:21 NKJ).

So, when Darwin was bothered about how natural selection could create something as insignificant as a giraffe's tail, his concern was legitimate. The only rational explanation for physical life is that it is the handiwork of a Living, Creator God, not natural selection working on random mutations. We need to recognize this and seek the Creator. Indeed, we are "...without excuse" for not doing so.

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NKJ, New King James Version

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F.A.C.T. Announces Opening of Museum

April 3, 2009 — Glendive, MT

The Glendive Dinosaur & Fossil Museum in eastern Montana promises to be the premier facility presenting fossil evidence from a creationist perspective in the world. This first-class facility, a project of the Foundation Advancing Creation Truth (FACT), is dedicated to telling “the rest of the story” about the history of life on earth. Along with real bones and fossils, it features fantastic displays of monstrous marine reptiles, the mighty dinosaurs, and giant Ice Age mega-faunas, and offers a host of compelling, scientific evidence for divine creation.

With most of its major displays in place, the Glendive Dinosaur & Fossil Museum, located in Glendive, Montana, will open “quietly” on May 14, 2009, with a more public Grand Opening slated for late May or June. Along with displaying many real

bones and fossils excavated locally, FACT’s museum will also feature full-scale skeletal casts of Tyrannosaurus rex, Acrocanthosaurus, Triceratops, a 40-ft.-long Tylosaur, giant sea turtle Protostega,

science heros, and a “Biblical History Room” with ancient scrolls and Bibles. The museum also possesses a 90-seat theater for showing creation films, a gift shop, and a well-equipped lab for cleaning and prepping dinosaur bones — and it’s all paid for.



“It’s been amazing to see how faithful God has been in providing exactly what we’ve needed, every step of the way,” says FACT’s founder Otis Kline. “God has a story to tell with this museum. It is so exciting to be a part of His work.”

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298 pages, \$17.99 (hardcover).

Editor's note: This review is based on an advanced reading copy, not the final publication.

In *More than a Theory*..., Hugh Ross,¹ founder of Reasons to Believe (RTB), offers an introduction to what he refers to as his organization's testable creation model, referencing other of his publications for greater detail. Ross views the history of the universe in created time as an orchestrated, long-ages development by God to achieve an environment suitable for the introduction and sustaining of humankind. He has developed general predictions by which he says his and other models may be tested according to future scientific discoveries. He has put forth a template that I believe can be extended and tailored for a cooperative effort among the various origins-investigation communities. I recommend this book to others regardless of his or her creation/evolution persuasion.

By forming many starting assumptions based on both the Bible and current scientific findings, Ross has constructed the RTB model which is comprised of many predictions. He claims that some of these have been confirmed, and that he expects many others to be scientifically confirmed in the near future. As a young-earth creationist (YEC), I differ with Ross' starting assumptions and, thus, with many of his predictions and conclusions. But this still permits a cooperative effort.

I agree with his systematic approach and integration of the Bible with science. However, I have objections with the way Ross elevates natural revelation to the same level as that of biblical revelation. Regardless of such differences, one should encourage and welcome interaction and dialogue among the divergent players in origins investigation, because truth should be a valued outcome. While one can judge some of the RTB model's premises to be wrong, one can still accept the participation of those adhering to the RTB model because the more reasoned theories there are in play, the better the chance of "bringing out the best."² Whether one can also foster a collective effort among the various players, as Ross seeks, is still to be determined.

Ross places YECs at one extreme end of the divergent group of origins investigators, and the British evolutionary biologist Richard Dawkins at the other extreme. He categorizes the RTB position as that of a concordist, meaning one who sees extensive overlap between the biblical record and science, accepting nature as a revelation source equal to the Bible. While one may argue that YECs have been deficient in doing what Ross is trying to do through the RTB modeling effort, I disagree with his categorization of YECs and, in particular, his belittling tone toward YECs which he expressed in the beginning of the book. He does mitigate this tone considerably near the end of the book. Regardless of the tone, though, one should admit that some of the criticism of YECs is warranted.

The RTB model leans heavily on current, main-stream science to derive its assumptions and time scale regarding origins. The model draws from the fields of Big Bang cosmology, as well as the secularly-interpreted disciplines of paleontology, geology, and biology. Ross interprets scripture in a manner that is generally consistent with the conclusions in these aforementioned fields, but differs in the cause and execution of the developmental processes. For example, rather than seeing life stemming from a common descendant in a materialistic manner, he sees God as a conductor, carefully orchestrating the development of the world's entire eco-system, over long ages, fine-tuning the precise balances, and preparing the way for the introduction of humankind, which was God's ultimate goal. But Ross also sees these fields informing us of the timing for and the nature of events that occurred along this hypothetical developmental path.

Ross sees life starting with multiple, complex, unicellular life forms, beginning about 3.8 billion years ago. The RTB model proposes that events divinely directed at this time, in a geological "instant," began a chain of further development, resulting in the environment required for producing and sustaining the "...otherwise impossible homochirality essential for construction of life molecules."³

Ross sees vascular plants as having been introduced about 350 million years ago; forests about 300 million years ago; and flowering plants about 140 million years ago. Throughout this developmental pro-

gression of life on earth, he maintains that there are simultaneous advances in the size, complexity, and diversity of animals. There is also the regular occurrence of death and extinction as required to achieve an end best suited to humans.

It is not clear to me where Ross draws the line between macro- and micro-evolution in his progressive developmental scheme. If we assume the progression is based on initiation by God and continuation by His initiated natural law, does the progression and diversification proceed by micro-evolution only, or also by macro-evolution? Or, should we assume God intervened to accomplish what others might attribute to macro-evolution? While Ross may hold to the latter, he should clarify this apparent ambiguity. Ross does claim God's intervention to create soulful and spiritual beings nearer the end of the progression of animal life.

Along the way, Ross envisions relatively sudden, direct, miraculous intervention alongside an intelligently-directed, natural process, but the details are few. For example, Ross is clear that God intervened to bring about the first life forms, and to create soulful birds, mammals, and hominids, and human beings with a spirit, but he is vague about other interventions. YECs consider hominids as either instances of humankind or animals; Ross considers them as pre-human, but without gene-pool relation to humans. Ross does not discuss the manner in which soulful birds/animals/hominids or spirit human beings are created; he may do so in the references which he cites. He does not explicitly say that a human is formed from a hominid. If he means this is to be the case, it is not clearly stated or implied in this book because he rejects gene-pool similarity between hominid and human. The RTB model includes hominids beginning about 6.5 million years ago, and humans about 50,000 years ago.

Ross holds in high regard the supposed explanatory power of the Big Bang, but he does not hold it accountable for all the historical developmental effects. He also does not delve into the assumptions that lead to the Big Bang theory and whether those are justifiable. Instead, he seems to conclude that there are no other significant options. While he does hold to the earth and our galaxy's having a special place in the universe, he does not hold to the idea of a

galactocentric cosmos.⁴ If he did, the Big Bang would be brought into question. His Big Bang beliefs also appear in written debates⁵ between Hugh Ross and Russell Humphreys, relating to Humphreys' white-hole cosmology.⁶ In these debates, Ross was clearly not open to Humphreys' model and, in my opinion, he was unprepared to debate it and thus did not do well (I have read the full exchange). Ross' seeming hunger for open communication in this book seems glaringly missing in those debates, a flaw that is thankfully correctable.

A weakness I find in the RTB approach is that the included starting assumptions need to be more primitive. The RTB assumptions are extensive and are apparently only partially listed in this book. Ross includes too much of what is "established" as if true. Nevertheless, this does not prevent cooperation between willing, open-minded participants of various persuasions. In such an environment the winning hand should

prevail, and even failures help the cause of finding truth. As Christians or as scientists, we ought to welcome that result.

While RTB, YEC, non-theist, and other participants in the origins debate have very divergent views, there is still much to be gained from each other's efforts. Debating premises might not be productive yet, but I think cooperation may proceed by each faction's doing its own investigation, based on its own assumptions, and then, by touching base periodically, comparing predictions vs. conclusions. A number of conclusions, though, can be immediately shared for mutual benefit where there is common ground.

Aside from the differences in assumptions and the obvious disagreements the reader will encounter, the general, systematic, blended, deductive and inductive approach presented by Ross is pleasing if adequate detail does indeed exist, as he implies in his references. Ross' approach also appeals to my other life experience as

a systems engineer. It makes sense as a good systems approach. I recommend not only reading his book, but also responding to the stated invitation to comment or correct.

— Reviewed by Ken Caproni
kencaproni@comcast.net

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3. Chapter 9.
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Speaking of Science

Editor's note: Unless otherwise noted, S.O.S. (Speaking of Science) items in this issue are kindly provided by David Coppedge. Opinions expressed herein are his own. Additional commentaries and reviews of news items by David, complete with hyperlinks to cited references, can be seen at: www.creationsafaris.com/crevnews.htm. Unless otherwise noted, emphasis is added in all quotes.

The Evolution of Creationism and Other Intangibles

If you are a creationist, you can't help yourself, because evolution made you that way. It might have also made you moral and religious, especially if you are a woman. These and other evolutionary stories are making the rounds.

Evo-creationism: *NewScientist*¹ says humans may be primed to believe in creation. Studies show that humans tend to see purpose in things. That can only mean they evolved that tendency, said some psychologists at Boston University. A good education, they say, can help cure them of this and show them that the world is really without purpose or design.

Evo-religion: Robert Roy Britt speculated at *LiveScience*² why more women tend to be religious than men. Maybe evolution made males more apt to look for short-term thrills than long-term satisfaction (like heaven). Britt did not overtly use evolution to explain this tendency, but quoted Rodney Stark, of all people, who appealed to biochemistry: "Studies of biochemistry imply that both male irreligiousness and male lawlessness are rooted in the fact that far more males than females have an underdeveloped ability to inhibit their impulses, especially those involving immediate gratification and thrills." Britt remarked, "Stark may have purposely overstated the case, but you get the point." The point seems to be that religiousness is a function of biochemistry, which is a function of biology.

Evo-morality: Jonathan Haidt and two of his friends are evolu-

tionizing morality again. They published another Perspective article in *Science*,³ entitled, "From oral to moral." Their idea, reporting on a paper by Chapman in the same issue,⁴ is that morality evolved from the disgust response. We find certain smells and sights disgusting, and transfer those responses to behaviors. Chapman and Haidt suggest that responses to "violations of divinity," such as righteous anger at profanity or blasphemy, began in the mouth, when the human animal learned unpleasant sensations during nausea, gagging, and loss of appetite. One can only wonder how they would explain another scientist's finding this thesis disgusting.

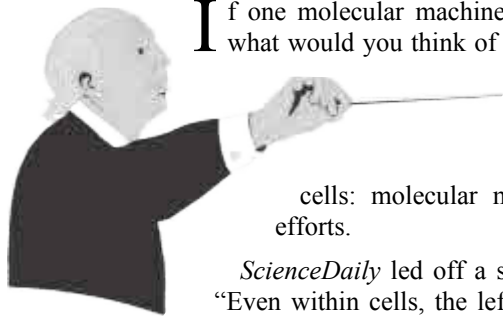
Anomaly: Each theory has anomalies. A surprising anomaly appeared in *ScienceCareers*, an online publication of the AAAS.⁵ Imre Miklós Szilágyi, one of the best upcoming young scientists in Hungary, is "far ahead of the average student or young researcher of his age in motivation and systematic work," but he is a creationist. Maybe he had a particularly beneficial mutation. Whatever it was, he claimed it helped him become a scientist. "My belief is very important for my career," he said, "because this is the first thing that gives me my motivations so that I could work hard and I could achieve the best I can."

Szilágyi, who takes the Bible literally, according to the article, feels that the "the debate over evolution, design, creation, supernatural intelligence, etc., is not a scientific question in the first place but the collision of worldviews, the confrontation of materialism and idealism."

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Cell Motors Play Together



If one molecular machine by itself is a wonder, what would you think of groups of them playing in concert? Recent papers and news articles are claiming that's what happens in living cells: molecular motors coordinate their efforts.

ScienceDaily led off a story on this by saying, "Even within cells, the left hand knows what the right hand is doing."¹ Researchers at the University of Virginia said they "found that molecular motors operate in an amazingly coordinated manner" when "simple" algae named *Chlamydomonas* need to move with flagella. This contradicts earlier models that pictured the motors competing with each other as in a tug-of-war.

The new U.Va. study provides strong evidence that the motors are indeed **working in coordination**, all pulling in one direction, **as if under command**, or in the opposite direction — again, **as if under strict instruction**.

It almost requires imagining a conductor or foreman guiding the process. Understanding it could help with treatments of neurodegenerative disorders. The article did not mention evolution. The researchers published their work in *PNAS*.²

Another cellular system reported by *ScienceDaily* refers to coordination of independent parts.³ DNA transcripts made of messenger RNA emerge from the nucleus in 3-D clumps. These need to be "straightened out" into a linear code that can be read by the ribosome. Research at Rockefeller University shows that one of the 30 kinds of proteins in the nuclear pore complex "magnetically" attaches to the transcript when it passes through the gate, joining an unwrapping machine called a helicase "to form a machine that unpacks balled-up messenger RNA particles so that they can be translated."

Here's how Andre Hoelz described the action: "We found that the messenger RNA protein package and Nup214 competitively bind to the helicase, one after the other." Each binding strips one protein off as it passes through. "The process is akin to a ratchet mechanism for messenger RNA export," Hoelz said. Failures in the mechanism, again, were said to be implicated in disease. Once again, also, the article said nothing about evolution.

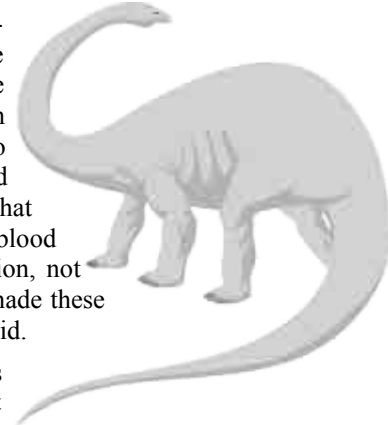
The Darwinists have their chance to show up and explain the evolution of coordinated action of multiple parts needed for function, the failure of any component of which leads to disease or death. The intelligent design team showed up. Where's the evolution team? It's like in sports. Fail to show up and you forfeit.

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Tall Dinosaurs Couldn't Lift Their Heads

In *Jurassic Park*, the huge sauropods were pictured grazing on the tops of tall trees. This would have been physically implausible, said an Australian biologist in a letter to *Science*.¹ A brachiosaur's head would be 9 meters above its chest. That would require 750 mm (Hg) of blood pressure. The problem of circulation, not only of hypertension, would have made these beasts keep their heads down, he said.



This approach to the problem does not rely on knowledge of heart size or strength, but involves an estimate of the energy cost of the circulation, based on two axiomatic relationships between metabolic rate, blood flow rate, and blood pressure. First, the Fick Principle states that an animal's **aerobic metabolic rate** is proportional to blood flow rate. Second, the **rate of work done** by the left ventricle is proportional to the product of blood flow rate and mean arterial blood pressure. Therefore, **cardiac work is proportional** to the product of **metabolic rate** and **blood pressure**. Cardiac work averages about 10% of the metabolic rate in mammals that have a mean arterial blood pressure of about 100 mm Hg. An animal that produces 750 mm Hg would consequently have a cardiac work rate 7.5 times higher. Its **metabolic rate** would increase to **165%**, and it would expend **45% of its total energy requirements just to circulate the blood**. These percentages would be the same whether the animals were active or resting, high-energy endotherms or low-energy ectotherms. The **high cost of high browsing** makes it energetically more reasonable to **keep the head down and move the neck horizontally rather than vertically**.

Even so, the hearts of these creatures must have been enormous. Creationists have long pointed to the design features of living giraffes that enable them to lift their heads high to browse in the tall trees, yet bend over and drink water without passing out. The engineering problems solved by the Creator for the giraffe are simple compared to those of the brachiosaurus. We think, despite Seymour's concern, that God's engineering expertise is adequate for the task.

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Your Eye Works a Precision Jigsaw Puzzle

You have twin 125 megapixel video cameras in your eyeballs. Each pixel, a rod or cone connected to a neuron, sees only a small bit of the total image. How do these bits, like pieces of a jigsaw puzzle, fit together? Scientists at the Salk Institute have found that they are finely tuned to fit together for optimum clarity.¹ Writing in *PLoS Biology*, they said,

All **visual information** reaching the brain is **transmitted** by **retinal ganglion cells**, each of which is **sensitive to a small region** of space known as its **receptive field**. Each of the **20 or so distinct ganglion cell types** is thought to transmit a complete visual image to the brain, because the receptive fields of each type form a **regular lattice** covering visual space. However, within each regular lattice, **individual receptive fields have jagged, asymmetric shapes**, which could produce “blind spots” and excessive overlap, **degrading the visual image**. To understand how the visual system overcomes this problem, we used a multielectrode array to record from hundreds of ganglion cells in isolated patches of peripheral primate retina. **Surprisingly, we found that irregularly shaped receptive fields fit together like puzzle pieces, with high spatial precision, producing a more homogeneous coverage of visual space than would be possible otherwise.** This finding reveals that the representation of visual space by neural ensembles in the retina is **functionally coordinated and tuned**, presumably by developmental interactions or on-going visual activity, **producing a more precise sensory signal.**

In the discussion, they added, “The present results demonstrate that the visual representation in the primate retina is **finely coordinated to achieve a homogeneous sampling of visual space.**”

They pondered how this coordination is achieved. Is there a one-to-one correspondence between the dendritic field (DF) and the receptive field (RF)? Or are there overlapping layers of circuitry between that control the precision of the RF? Bipolar cells may do this, they said. Alternatively, inhibitory amacrine cells may tune the edges of RF shapes to prevent excessive overlap. They also wondered how this precision is achieved during development. Perhaps light produces cues that guide the RFs into position. Either way, the implications are surprising. It means that neurons don't

operate in isolation. They follow a precision code:

The present results have **surprising implications** for how **populations of neurons produce an efficient and complete representation**. Recorded in isolation, single neurons frequently exhibit irregular response properties, suggesting that large populations must rely on averaging or interpolation to produce accurate sensory performance or behavior (e.g., see [37–39]). The **present results, however, show that in a complete population, irregular features can be integral to a finely coordinated population code.** This suggests that the **nervous system operates with a higher degree of precision than previously thought**, and that **irregularities in individual cells may actually reflect an unappreciated aspect of neural population codes....**

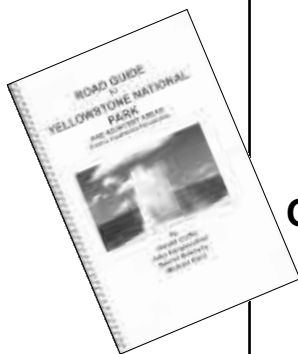
This article was summarized on *ScienceDaily*, which stated,²

...scientists say their findings suggest that the nervous system operates with higher precision than previously appreciated and that apparent irregularities in individual cells may actually be coordinated and finely tuned to make the most of the world around us.

There was not one mention of evolution in this paper. It was all coordination, information, and encoding. As Theophilus Designskey said, Nothing in biology makes sense except in the light of design.

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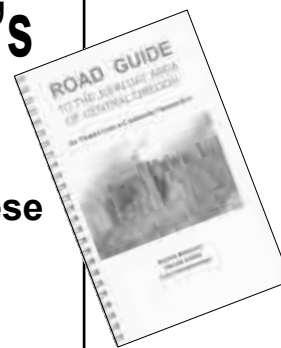


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All by Design

by Jonathan C. O'Quinn, D.P.M., M.S.

Light in the Darkness

Evolutionists believe that all living creatures developed in stages and by chance. One recently-discovered species of deep-sea dwelling siphonophore argues strongly against this notion.

Siphonophores are a large group of marine invertebrates. These animals eat fish, capturing and killing their prey with tentacles that are covered with stinging cells. A newly-discovered species of siphonophore, in the genus *Erenna*, shows a remarkable design (accompanying photo is of a different genus). These animals live in absolute darkness at a depth of 1,600 to 2,300 meters. In addition to living in the dark, they have no eyes. One may well wonder how anything could catch fish in the dark, especially without eyes.

The secret lies in the unique design of the stinging tentacles of these animals. The tentacles are arranged like branches on central stalks, much like trees, and they rhythmically flick back and forth. Through



Benthic siphonophore (Dromalia alexandri) at 1850 meters water depth.

*Location: California, Davidson Seamount
Photo Date: 2002 May 19*

*Credit: NOAA/Monterey Bay Aquarium
Research Institute*

specific chemical reactions, special photoproteins in the tentacles emit a bright yellow

low-to-red spectrum of color, which shines like a beacon in the dark, acting as a fishing lure for fish that are able to see light.

The chemical production of light is an all-or-nothing process that requires specific chemical reactions, calcium, and specialized proteins. Even more amazing is the fact that these animals are blind. How did they know they live in the dark? How did they know they needed to produce light to attract food, and how could they have developed in stages, as evolution teaches? Examples from nature such as this demonstrate the handiwork of an all-knowing Creator.

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