

# The systematic consistency of biblical creation: an introduction

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In the realm of paradigmatic analysis, many tests have been proposed for selecting between one paradigm and another. One such test is the combinationalist test of systematic consistency, designed to evaluate the consistency of micromodels within a macromodel. Given the macromodel of Christian theism, the test of systematic consistency can be used to analyze the veracity of any proposed creation model (a micromodel within the macromodel of Christian theism) within that larger paradigm. It is argued that the standard formulation of the creation model commonly referred to as young-earth creationism (YEC) passes the three standard subtests of systematic consistency rooted in the rationalist, evidentialist, and experientialist schools of thought: logical consistency, empirical adequacy, and experiential relevance.

One of the central issues in science is the question of how to best put a given theory to the test to determine how well it corresponds to reality. Concerning the origins issue, the intramural debate among Christians is further complicated by the fact that we have both the scientific *and* the biblical data to take into account in our model building. A number of different creation models have been proposed to date whose respective proponents have generally professed to seek a consistent integration of the two sets of relevant data. (One notable exception is the religious myth view, which sees little to no historical value and, therefore, no scientific implications in the Genesis account.)

The pressing question is that of how to determine which creation model is correct, to which there have been a number of different approaches taken. It is not the purpose of this paper to advocate for any particular approach over another. (Indeed, it might be argued that each approach has its appropriate place in the origins debate.) Rather, for the sake of argument, we will assume an approach which evaluates a given model based on what has been referred to as systematic consistency. In doing so, this paper will provide some introductory notes on how this combinational or cumulative-case approach can be used to demonstrate the veracity of the standard formulation of the young-earth creation (YEC) model.<sup>1</sup>

## The test of systematic consistency

One of the greatest issues in the evaluation of paradigms is the insufficiency of stand-alone tests. Whether it be rationalism, evidentialism, experientialism, or some other test for truth, a recurring problem is that each test only addresses—and, in many cases, only accepts—one feature of a more complex reality. The rationalist tends to be suspicious of personal experience. The experientialist tends to ignore any evidences which *undermine* personal experience. The evidentialist tends to forget that reason is required to interpret

facts as evidence for one view or another. A combinational approach, however, betters the situation by incorporating each of these individual tests into a larger analytical scheme. Such an approach has sometimes been referred to as the test of systematic consistency.

While the test of systematic consistency is inadequate to test for truth *between* worldviews (e.g. between theism and atheism), it can rightly be used on a case-by-case basis for testing for truth *within* a worldview (e.g. between *Christian* theism and *Islamic* theism, between different views *within* Christian theism, etc.). Norman L. Geisler explains:

“Once an overall framework has been determined, it follows that whatever most consistently and comprehensively fits into that system is true. If that system of truth is not only a worldview but a world and *life* view, then the applicability of that truth to life also becomes a crucial aspect of that truth. . . . *Systematic* consistency follows from the establishment of a system of truth. Or, to state it another way, once a macromodel is established for interpreting all the experiences and occurrences in the world, the most consistent and comprehensive way that the micromodels are fitted into it is the indication of truth. On the one hand, systematic consistency is inadequate to test *between* divergent systems since they all may be systematically consistent within themselves. But, on the other hand, systematic consistency is eminently qualified to test for truth *within* a system; that is what the system is all about. Anything not systematically related cannot be a truth within that system.”<sup>2</sup>

For the purposes of this paper, we will presuppose a broad Christian theism as the worldview or macromodel accepted by all creation models. We will also assume that each model seeks a consistent integration of our respective understandings of God’s world and God’s Word. From that point of reference, we will begin to consider whether or not

the YEC model demonstrates a systematic consistency in its account of reality.

However, it must be remembered that the test of systematic consistency is a *probabilistic* test. That is, within the scope of the information presently available to us, the more tests a model passes, the more probable it is that the model corresponds to reality. If it appears to surpass other models in passing these tests, then it is more likely than those models to be true. As Geisler continues to explain:

“It must be admitted that systematic consistency does not provide an apodictic or undeniable test for truth. For one thing, no finite mind is in actual possession of *all* the facts. Further, no finite person is able to comprehend completely *all the facts*. Also, finite minds have difficulty in understanding the consistency and inconsistency between all the facts. For these reasons, absolute certitude will be difficult, if not impossible, for every opposing truth claim made within a given worldview. As in almost everything else in life, probability is the guide. However, in some cases of high probability one may reach a level of moral certitude in which, while other views are logically possible, there are no known reasons to veto the acceptance of the truth claim being adopted.

“In the case of systematic consistency within an established worldview, whichever conclusions *best* fit all the known facts and are the *most* consistent will be considered true.”<sup>23</sup>

As we consider whether or not the YEC model demonstrates a systematic consistency in its account of reality, we are, in fact, evaluating its level of probability as being the *correct* creation model. The correct creation model *should* have full correspondence with both God’s Word and God’s world. We shall invoke the three standard subtests of systematic consistency rooted in the rationalist, evidentialist, and experientialist schools of thought. Respectively, we will invoke the tests of logical consistency, empirical adequacy, and experiential relevance.

### The logical consistency of the YEC model

The first subtest of systematic consistency is that of *logical* consistency. This test follows one of the three laws of logic—that is, the law of non-contradiction, which says that A is not non-A. It is important that we take a moment to clarify what exactly constitutes a logical *inconsistency* as this has been a point of confusion for many. As Morris R. Cohen and Ernest Nagel note:

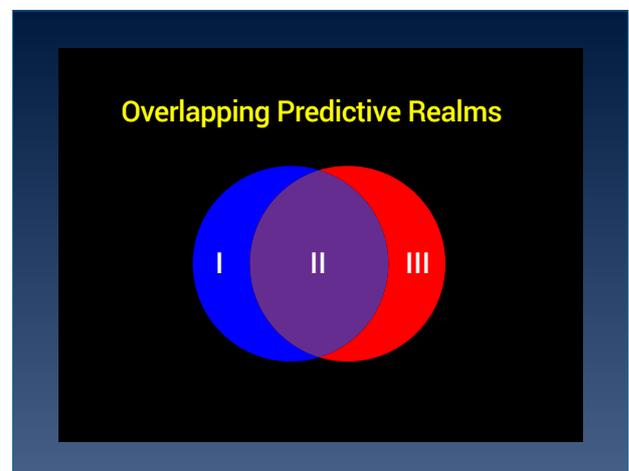
“One of the most fruitful sources of intellectual confusion is the too facile assumption that any two propositions which are not equivalent are mutually exclusive. Thus men have debated about the relation of mind to body, of heredity to environment, of selfishness to altruism, of art to nature, frequently without

realizing that while the alternatives are not equivalent, it does not follow that they are mutually exclusive.”<sup>24</sup>

Whether or not one agrees with every example Cohen and Nagel list is irrelevant to the point being made. Logical inconsistencies can at times be tricky to identify, which in turn leads to misidentifications. As we will see in a moment, this has certainly been the case in the evaluation of the internal consistency of the YEC model by its detractors.

Technically speaking, logical inconsistency encapsulates not only contradiction but also another closely related form of logical inconsistency called contrariety. Contrariety is often confused for contradiction, so clarification is in order. Two propositions *contradict* one another if the truth of one entails the falsity of the other and if the falsity of one entails the truth of the other. *Contrary* propositions are similar in that they cannot both be true. However, they differ from contradictories in that they *can* both be false. Contradiction and contrariety are, in fact, the only two forms of logical inconsistency. Therefore, if a set of propositions is to be determined as being false, one simply needs to identify at least one contradiction or contrariety within the set. On the other hand, if no contradiction or contrariety can be identified, then the set of propositions as a paradigm stands as a viable candidate for truth.

The simplest way to demonstrate the logical consistency of a view is to counter claims to the contrary. The charge of logical inconsistency is not a common objection raised against the YEC model. However, it does arise on occasion. Perhaps most popularly, it is supposed that the YEC model is logically inconsistent in its understanding of natural processes. On the one hand, the YEC model affirms that God has established a regularity in natural processes governed by natural laws (see Jeremiah 33:25). On the other hand, it



**Figure 1.** In the diagram, zones I and III each represent the predictive realm of a rival theory, while zone II represents the realm of predictive overlap between the two rival theories. Data which fall into the realm of predictive overlap cannot be used as evidence for either theory over the other.

accepts catastrophism, for example, as a viable framework for understanding the formation of the geologic record. Proponents of rival creation models have seen these as being logically contradictory propositions.<sup>5</sup> (This criticism aims to undermine the underlying principles of YEC scientists' advocacy of flood geology as well as their critique of deep-time dating methods.) However, the YEC position is not that physical *laws* change but that physical *processes* can change (including in their rate of change) as they are affected by external factors. In this case, there would only be a logical contradiction in the model if the two claims were universal propositions, which they are not. That is, in order for the two propositions to contradict, they would need to be formulated as something like “All geologic features were formed from *uniform* natural processes” and “All geologic features were formed from *catastrophic* natural processes”. The former would be a strong form of uniformitarianism and the latter would be a strong form of catastrophism. However, the standard YEC model does not make such universal claims. Rather, the position set forth is more moderate. It consists of the two particular propositions “Some geologic features were formed from *uniform* natural processes” and “Some geologic features were formed from *catastrophic* natural processes”.<sup>6</sup> It may not be a 50:50 ratio of uniform versus catastrophic causation, but the ratio is precisely the issue at hand. No scientist denies that both uniform and catastrophic processes play a role in shaping the earth. The YEC scientist simply grants a larger role to the catastrophic than do most other scientists.<sup>7</sup> What is *really* at issue, as far as the YEC model is concerned, is whether or not the Noahic Flood and its aftermath played a prominent role as the single most catastrophic geologic event in Earth's history in the formation of the geologic record. (Which is, of course, a question not of logical consistency but of empirical adequacy.)

Space does not permit us to explore further examples of alleged logical inconsistencies within the YEC model. However, the above example, which seems to be the most prominent one, serves well to show the YEC model's logical consistency.

### The empirical adequacy of the YEC model

The second subtest of systematic consistency is that of empirical adequacy. The term was coined by philosopher Bas C. van Fraassen and, put simply, refers to the scientific accuracy of a theory. According to van Fraassen, a theory is judged to be empirically adequate “exactly if what it says about observable things and events in the world is true—exactly if it ‘saves the phenomena’”.<sup>8</sup> He elaborates:

“To present a theory is to specify a family of structures, its models; and secondly, to specify certain parts of those models (the empirical substructures) as candidates for the direct representation of observable phenomena. The structures which can be described

in experimental and measurement reports we can call appearances: the theory is empirically adequate if it has some model such that all appearances are isomorphic to empirical substructures of that model.”<sup>9</sup>

Keep in mind, however, that raw data are subject to interpretation. As Stephen Jay Gould notes: “Facts do not ‘speak for themselves’; they are read in the light of theory. ... [Science is] not a mechanized, robotlike accumulation of objective information, leading by laws of logic to inescapable interpretation.”<sup>10</sup> This is not to support the postmodern notions of relativism and of every interpretation being equally valid. Rather, we must carefully examine and determine which interpretation or account of reality is likely to be true.

When trying to assess whether or not a theory gives a true account of the world, scientists must weigh it against alternative theories by considering which theory can most consistently account for the relevant data.<sup>11</sup> Data which fall into the realm of predictive overlap between two rival theories cannot be used as evidence for either (figure 1). However, if certain data can only be accounted for by one theory and not the other, then this counts as evidence *for* the former and *against* the latter.

The YEC model can be demonstrated to be empirically adequate in two respects. First, its account of reality can consistently integrate the known scientific data within its paradigm. Second, it can account for data for which rival creation models cannot. Both criteria must be met in order for the model to be a competitive scientific model.

#### Observational consistency

On the first point of empirical adequacy, we can show that the YEC model's account of reality has not been discredited by the known relevant scientific data. To the contrary, it has proven to be able to consistently integrate into its paradigm what we are continuing to learn about the world around us and its record of the distant past.

A favourite example comes from the study of speciation. The YEC model, like many old-earth creation (OEC) models, predicts that there would be definitive boundaries between respective members of the originally created kinds (see Genesis 1:11–12, 21, 24–25; cf. 6:20, 7:14). These would include not only reproductive boundaries but also speciation boundaries (figure 2). As fate would have it, this is exactly what has been observed. Biochemist Michael Behe, who *accepts* the evolutionary tenet of universal common descent, points out that there are definite limits to what purely natural processes can account for in the origins of species. He places the boundary marker—“the tentative edge of evolution”, as he calls it—at the taxonomic levels of genera, families, and/or orders.<sup>12</sup> These are the exact same taxonomic levels at which YEC scientists have identified the speciation boundaries of the created kinds.<sup>13</sup> (Modern taxonomy is a relatively recent man-made classification system. Therefore, it is no surprise that the respective speciation boundaries of the different

biblical kinds would fall along a small range of categories in this system.)

Another point of observational consistency, which came as a bit of a surprise, relates to the gradually decreasing lifespans evidenced in the chronogenealogies recorded in Genesis 11 and other Old Testament texts. YEC interpreters believe these chronogenealogies to list literal individuals and ages and to provide a complete timescale from the date of creation onward. In light of what is now known about biological decay due to genetic entropy, it has been observed that plotting the biblical pattern of decreasing lifespans reveals a very clear biological decay curve with a coefficient of determination of 0.96 (with 1.00 being a perfect fit) (see figure 3). Geneticist John C. Sanford comments on the discovery:

“This unexpected pattern in the Biblical data is amazing. We are forced to conclude that the authors of the books of Genesis, Exodus, Joshua, and other books, either faithfully recorded an exponential decay of human life spans—or they collaborated in fabricating the data using sophisticated mathematical modeling. To fabricate this data would have required an advanced knowledge of mathematics, as well as a strong desire to show exponential decay. But without knowledge of genetics (discovered in the 19<sup>th</sup> century), or mutation (discovered in the 20<sup>th</sup> century), why would these authors have wanted to show a biological decay curve? It does not seem reasonable to attribute this [*sic*] data to some elaborate fraud thousands of years ago. The most rational conclusion is that the data are real, and that human life expectancy was once hundreds of years but has progressively declined to current values. The most obvious explanation for such declining life spans,

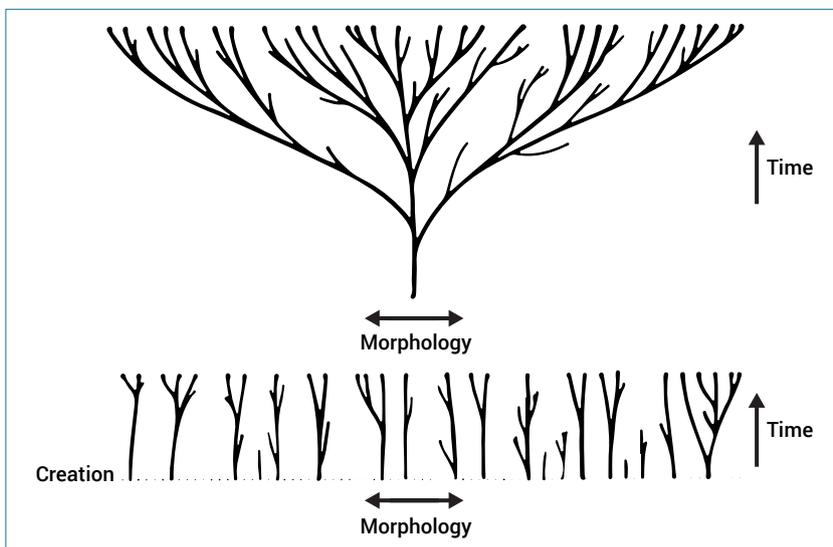
in light of all the above discussions, would be genetic degeneration due to mutation accumulation.”<sup>14</sup>

These examples of observational consistency from the areas of speciation and biological decay show that the YEC model has received expected *and* unexpected scientific confirmation.

Some will no doubt contest that there have been some scientific data (e.g. radiometric dating, distant starlight, allegedly transitional fossils, etc.) that appear to conflict with the YEC model. However, such data have been met with thoughtful responses from the YEC scientific community. Plausible explanations have been given for the apparent discrepancies between the YEC model’s account of the observed phenomena and the phenomena themselves. Some of the apparent discrepancies, for example, have been issues of interpretation. (Recall my earlier comments on the interpretation of scientific data.) Alleged evolutionary transitional forms in the fossil record are a case in point. According to evolutionary models of origins, these are supposed to bridge the gaps between what YEC scientists have identified as the boundaries of speciation (i.e. the boundaries of the created kinds). However, most alleged transitional forms are based on scant fossil fragments and artistic impressions. Others might just as easily be interpreted as members of a particular created kind. On the ambiguity of interpreting the fossil data on this matter, evolutionist paleontologist Colin Patterson rightly notes: “Fossils may tell us many things, but one thing they can never disclose is whether they were ancestors of anything else.”<sup>15</sup> Another example would be the reality of physiological and genetic similarities between members of what the YEC model would classify as different created kinds. While these similarities certainly could be interpreted as evidence

of evolutionary relatedness or common ancestry, they could be *at least* as easily (and arguably *better*) interpreted as evidence of common *design*.<sup>16</sup>

Other apparent discrepancies between the YEC model and the empirical data have been issues not of *interpretation* but of pragmatic *assumptions*. This has been true, for example, in the case of deep-time dating methods. Put broadly, each method assumes three principles: (1) initial measurements are known; (2) the system is and always has been closed; and (3) the rate of change has always remained constant. However, YEC scientists have set forth a number of reasons as to why these assumptions appear to be false. Consider the various radiometric dating methods, which are the most popular of the deep-time dating methods. Over the years, there has



**Figure 2.** Contrary to the assumption of universal common ancestry illustrated in the evolutionary tree of life (top diagram), the YEC model predicts that there would be definitive boundaries between respective members of the originally created kinds (bottom diagram).

been mounting evidence that one or more of the underlying assumptions listed above are false with respect to radiometric dating, though which particular ones prove false may differ between types of samples and isotopic decay processes.<sup>17</sup> Some studies, for example, have suggested that some radiometric decay rates may change in relation to the earth-sun distance at different points in the year.<sup>18</sup> This does not appear to be true for all radiometric decays, but it seems to be true for at least some, highlighting the fact that “different nuclides have different sensitivities to whatever external influences are responsible for the observed periodic variations”.<sup>19</sup> In other words, it would seem that different external influences affect different radiometric decay rates to varying degrees. What is more, while some radiometric decay rates may change with the earth-sun distance, others may not while at the same time being affected by other external factors like chemical environment<sup>20</sup> or geomagnetic activity.<sup>21</sup> This means that at least one of the assumptions underlying radiometric dating methods is false in at least some and possibly all cases. It is only a matter of identifying precisely what external influences affect which particular decay processes. Thus, radiometric dating methods might not pose the threat to the YEC model that advocates of deep time might think.

Reasonable explanations have also been proposed for other apparent discrepancies between the YEC model and the empirical data. Has there always been a consensus among YEC scientists as to how to best explain each and every difficulty? Of course not. Are there still some unanswered questions and a lack of plausible explanations when it comes to how the YEC model might account for certain phenomena? Certainly. But such is the case with any scientific model, and this is a far cry from being *inconsistent* with the data. In reality, the only real inconsistencies that have arisen to date have been between the YEC model’s account of reality and the phenomenological *interpretations* and *assumptions* formulated by proponents of rival origins models. Thus, the YEC model’s claim to observational consistency—the first point of empirical adequacy—remains standing.

#### Unique explanatory power

There is a second point of empirical adequacy that sets the YEC model apart from other creation models in the minds of its adherents in the scientific community. In addition to its ongoing consistency with the relevant scientific data, it also has unique explanatory power, being able to account for data for which rival creation models apparently cannot.

An excellent example comes from the question of human origins. The YEC model predicts that all human beings past, present, and future should be traceable back to an original pair of progenitors—Adam and Eve. To be sure, this view is shared with some of the other creation models. However, what is unique to the YEC model’s prediction is the supposition that this first human pair would have lived only about 6,000 years ago. This stands in contrast to a date of

tens or hundreds of thousands of years ago, as per old-earth or evolutionary creation models which affirm a historical Adam and Eve.<sup>22</sup> The latter dating of Adam and Eve comes from evolutionary models for interpreting female-specific and male-specific sections of DNA (mitochondrial DNA and Y-chromosomal DNA, respectively) based on the assumptions of slow mutation rates and of common ancestry with primates. However, the *assumption* of common ancestry begs the question of human origins, and the slow mutation rates are hypotheticals presumed by the evolutionary models. As evolutionary geneticist Erika Hagelberg notes concerning the so-called ‘Mitochondrial Eve’ in particular, using real-world mutation rates yields a very different date for Eve:

“mtDNA datasets often exhibit anomalous patterns.

One of these anomalies is the discrepancy between mtDNA mutation rates observed in evolutionary timescales (e.g. in dating the divergence between two species) and those measured within family pedigrees. If the high mutation rates seen in some human pedigrees were used to calculate the age of our most-recent female common ancestor, she would have lived just 6000 years ago, a date more consistent with Biblical Eve than Mitochondrial Eve.”<sup>23</sup>

Of course, Hagelberg and other evolutionists reject this recalibration of the mitochondrial clock as it does not fit their human origins model. However, such a recalibration seems perfectly reasonable as it would be based on actual *observed* data rather than *hypotheticals* rooted in evolutionary assumptions. The new date for ‘the mother of all living’ would not only be *exclusively consistent* with the YEC model’s understanding of human origins but would also be *predicted* by that model and that model alone. The same holds true for Y-chromosomal mutation rates and tagging a date to the *father* of all living.<sup>24</sup>

Additional examples could be given to demonstrate the unique explanatory power of the YEC model. However, those given above, combined with the model’s observational consistency, should be sufficient to highlight the YEC model’s empirical adequacy.

### The experiential relevance of the YEC model

The third subtest of systematic consistency is that of experiential relevance. That is, for a paradigm to be true, it must be sustained in our human experience. Of the three subtests discussed in this paper, that of experiential relevance tends to be the most difficult to demonstrate. This is because experience, while real, is often privatized and interpreted subjectively. This in turn leads to conflicts between personal experiences—or, really, conflicts between *interpretations* of these experiences. To overcome this difficulty, we will simply draw on what appears to be a public or universal aspect of the human experience as our example. We will then suggest

why it seems to be best explained within the YEC model of origins.

The greatest point of experiential relevance for the YEC model is its explanation for the problem of evil. The model maintains that God’s original creation was free from pain, suffering, and death. Such things are consequences of sin’s entrance into the world at the fall of man. Everyone who takes a look at the world today recognizes that something has gone terribly wrong—that things are not the way they are supposed to be. The evolutionary account of history would tell us that all the pain, suffering, and death in the world are perfectly natural and are, in fact, a necessary part of the evolutionary process. However, without being instructed in this way of thinking, people have a deep-seated inner sense that things are *not* supposed to be this way.

The YEC model affirms this inner sense and offers a satisfactory explanation for its validity: things are *not* the way they are supposed to be because the originally very good creation free from pain, suffering, and death has been lost. However, the Bible also offers the good news that we will one day see the heavens and the earth restored to their originally very good state free from sin and all its consequences. As Randy Alcorn notes:

“God has never given up on his original creation. Yet somehow we’ve managed to overlook an entire biblical vocabulary that makes this point clear. *Reconcile. Redeem. Restore. Recover. Return. Renew. Regenerate. Resurrect.* Each of these biblical words begins with the *re-* prefix, suggesting a return to an original condition

that was ruined or lost. ...”

“These words emphasize that God always sees us in light of what he intended us to be, and he always seeks to *restore us* to that design. Likewise, he sees the earth in terms of what he intended it to be, and he seeks to restore it to its original design.”<sup>25</sup>

Albert M. Wolters presses the point further:

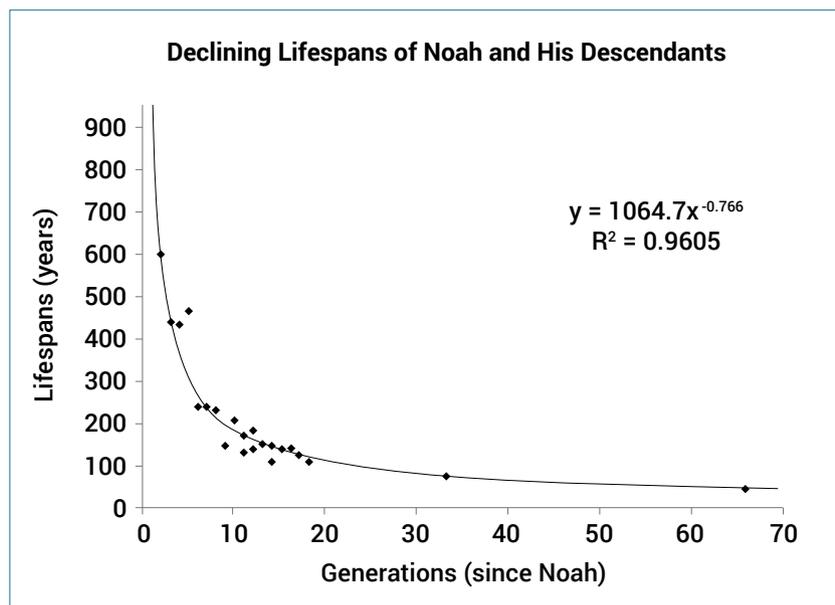
“All these terms [with the *re-* prefix or equivalent] suggest a restoration of some good thing that was spoiled or lost.

“Acknowledging this scriptural emphasis, theologians have sometimes spoken of salvation as ‘re-creation’—not to imply that God scraps his earlier creation and in Jesus Christ makes a new one, but rather to suggest that he hangs on to his fallen original creation and *salvages* it. He refuses to abandon the work of his hands—in fact he sacrifices his own Son to save his original project. Humankind, which has botched its original mandate and the whole creation along with it, is given another chance in Christ; we are reinstated as God’s managers on earth. The original good creation is to be restored.”<sup>26</sup>

But a return to the original creation is only good news *if* the original creation was indeed free from pain, suffering, and death to begin with—a tenet which only the YEC model maintains. The YEC model affirms the inner longing for a better world as the experiential echo of the better world that was once lost but will be regained. The Bible says that eternity is written on our hearts (Ecclesiastes 3:11) and the YEC model provides a framework for an eternity worth longing for. This is the ultimate point of experiential relevance for the YEC model.

### Conclusion

Further examples and discussion could be provided to demonstrate the veracity of the YEC model in each of the subtests of systematic consistency. However, while our application of these tests has been necessarily brief, the examples provided for each subtest highlight the YEC model’s ability to pass these tests. At the same time, this serves as a case study to show how such an analysis could likewise be applied to alternative creation models. Again, it is important to remember that this is but one approach to testing the truth of a creation model. Furthermore, additional subtests could (and should)



**Figure 3.** Plotting the biblical pattern of decreasing lifespans reveals a very clear biological decay curve with a coefficient of determination of 0.96 (with 1.00 being a perfect fit) (from Sanford<sup>14</sup>, p. 168).

be incorporated into the overarching scheme of systematic consistency. (One such test would be a test of biblical consistency.) After all, the more tests a model passes, the more likely it is that it is the correct representation of reality. Regardless, even the brief testing to which we have subjected the YEC model in this paper exemplifies the logical consistency, empirical adequacy, and experiential relevance of the YEC model. This provides corroboration (though not definitive proof) for the view that this model is, in fact, a true account of reality and, therefore, the correct creation model, being in full correspondence with both God's Word and God's world.

## References

1. The standard YEC model is the fiat creation model. While a small number of YEC proponents still hold to the apparent age model, which would have God create the universe and everything in it within a timeframe of thousands of years while giving them the appearance of being millions and billions of years old, this model has now been widely rejected by the YEC community, largely on theological grounds. Those who hold to the fiat creation model point out an important difference between *apparent age* on the one hand and *functional maturity* on the other, rejecting the former while affirming the latter. For further discussion, see Guitard, C.J., Systematic theology with a solid foundation, *J. Creation* 33(3):36–40, 2019; pp. 38–39. Sarfati, J.D., *The Genesis Account: A theological, historical, and scientific commentary on Genesis 1–11*, Creation Book Publishers, Powder Springs, GA, pp. 173–177, 2015; cf. Wieland, C., The earth: how old does it look? *Creation* 23(1):8–13, 2000.
2. Geisler, N.L., *Christian Apologetics*, 2<sup>nd</sup> edn, Baker Academic, Grand Rapids, MI, pp. 133–134, 2013.
3. Geisler, ref. 2, p. 134.
4. Cohen, M.R. and Nagel, E., *An Introduction to Logic*, Harvest edn, Harvest/HBJ, New York, p. 68, 1962.
5. Astrophysicist Hugh Ross, for example, sees the constancy of physical laws as a strong refutation of the YEC model and a strong support for his old-earth creation (OEC) model. See, e.g. Ross, H., *A Matter of Days: Resolving a creation controversy*, 2<sup>nd</sup> edn, RTB Press, Covina, CA, pp. 70, 184–185, 2015. One might wonder, however, how Ross reconciles his belief in miracles with his understanding of physical laws since miracles are surely not confined to physical laws and uniformitarian principles.
6. In propositional language, 'some' is a broad term referring to any non-universal (i.e. particular) category, thus being the opposite of the universal 'all'.
7. A notable exception was the anti-creationist geologist Derek Ager who recognized decades ago the inadequacy of uniformitarianism to explain many features of the geologic and fossil records, favouring instead the view that catastrophic events have indeed played a major role in geological history. See Ager, D., *The New Catastrophism: The importance of the rare event in geological history*, Cambridge University Press, Cambridge, 1993.
8. van Fraassen, B.C., *The Scientific Image*, Oxford University Press, Oxford, p. 12, 1980.
9. van Fraassen, ref. 8, p. 64.
10. Gould, S.J., *Ever Since Darwin: Reflections on natural history*, W.W. Norton and Co, New York, p. 161, 1977.
11. Carter, R., How to think (not what to think), [creation.com/how-to-think](http://creation.com/how-to-think), 1 Nov 2016.
12. Behe, M.J., *The Edge of Evolution: The search for the limits of Darwinism*, Free Press, New York, pp. 217–218, 2007.
13. Sarfati, ref. 1, p. 178.
14. Sanford, J.C., *Genetic Entropy*, 4<sup>th</sup> edn, FMS Foundation, Canandaigua, NY, pp. 159–160, 2014.
15. Patterson, C., *Evolution*, Routledge and Kegan Paul, Oxfordshire, England, p. 133, 1978.
16. Sarfati, J.D., *The Greatest Hoax on Earth? Refuting Dawkins on evolution*, Creation Book Publishers, Powder Springs, GA, pp. 89–104, 2010.
17. Mason, J., Radiometric dating; in: Carter, R. (Ed.), *Evolution's Achilles' Heels*, Creation Book Publishers, Powder Springs, GA, 2014.
18. See, e.g. Jenkins, J.H. *et al.*, Evidence of correlations between nuclear decay rates and earth-sun distance, *Astroparticle Physics* 32(1):42–46, 2009; Sturrock, P.A. *et al.*, Comparative study of beta-decay data for eight nuclides measured at the Physikalisch-Technische Bundesanstalt, *Astroparticle Physics* 59(1):47–58, 2014; Sturrock, P.A., Steinitz, G., and Fischbach, E., Concerning the variability of nuclear decay rates: rebuttal of an article by Pomme *et al.*, *Astroparticle Physics* 98(1):9–12, 2018; Sturrock, P.A., Steinitz, G., and Fischbach, E., Analysis of gamma radiation from a radon source. II: indications of influences of both solar and cosmic neutrinos on beta decays, *Astroparticle Physics* 100(1):1–12, 2018.
19. Jenkins, J.H. *et al.*, Concerning the time dependence of the decay rate of <sup>137</sup>Cs, *Applied Radiation and Isotopes* 74(1):50–55, 2013.
20. Huh, C.-A., Dependence of the decay rate of <sup>7</sup>Be on chemical forms, *Earth and Planetary Science Letters* 171(3):325–328, 1999.
21. Milián-Sánchez, V. *et al.*, Fluctuations in measured radioactive decay rates inside a modified Faraday cage: correlations with space weather, *Scientific Reports* 10(8525):1–12, 2020.
22. Evolutionist S. Joshua Swamidass recently proposed that a historical Adam and Eve could have existed within the evolutionary framework as recently as 6,000 years ago and even have been created *de novo* apart from other *Homo sapiens* who had evolved by that point in time (*The Genealogical Adam and Eve: The surprising science of universal ancestry*, Intervarsity Press, Downers Grove, IL, 2019; The overlooked science of genealogical ancestry, *Perspectives in Science and the Christian Faith* 70(1):19–35, 2018). However, besides the acceptance of evolutionary theory and the belief in 'people outside the garden' (which would mean that Adam and Eve were *not* the first human pair), there are other important differences between Swamidass's evolutionary model's account of human origins and that of the YEC model. For a critical review of his model, see Carter, R. and Sanford, J., A 'genealogical' Adam and Eve? [creation.com/review-swamidass-the-genealogical-adam-and-eve](http://creation.com/review-swamidass-the-genealogical-adam-and-eve), 25 Feb 2020.
23. Hagelberg, E., Recombination or mutation rate heterogeneity? Implications for Mitochondrial Eve, *Trends in Genetics* 19(2):84–90, 2003; p. 85. This mutation rate issue was noted at least as early as Gibbons, A., Calibrating the mitochondrial clock, *Science* 279(5347):28–29, 1998; cf. Wieland, C., A shrinking date for 'Eve', *J. Creation* 12(1):1–3, 1998.
24. For a more detailed discussion of Mitochondrial Eve, Y-chromosomal Adam, and other genetic evidence for Adam and Eve, see Carter, R., Genetics and DNA; in: Carter, R. (Ed.), *Evolution's Achilles' Heels*, Creation Book Publishers, Powder Springs, GA, pp. 65–69, 2014.
25. Alcorn, R., *Heaven*, Tyndale House Publishers, Carol Steams, IL, p. 88, 2004.
26. Wolters, A.M., *Creation Regained: Biblical basics for a reformational worldview*, 2<sup>nd</sup> edn, William B. Eerdmans, Grand Rapids, MI, pp. 70–71, 2005.

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