

The Appearance of Age and the Origin of the Hawaiian Islands

BY R. JOEL DUFF. The following is a sample (chapter 8) from a book manuscript: *The Hawaiian Islands and the Age of the Earth: A Case Study on Creation Science*.

What is the origin of the Hawaiian Islands? In the previous chapters we explored both conventional and young-earth Flood Geology models for the origins of these islands. We saw that creation scientists universally prefer to account for geological features of the earth including the Hawaiian Islands by appealing to creative events during a recent global flood or post-Flood catastrophes. I have never met a young-earth advocate well-read in creation science literature who believed the Hawaiian Islands have their origins prior to a global flood about 4500 years ago. Why is that?

One possibility is the perceived lack of causal agents for such origins during the time between the end of the creation week and the initiation of the Flood (ie. nothing is recorded in Scriptures between the creation and Flood that would suggest dramatic changes to the earth's structure). But what about the creation week itself? Couldn't God have created the Hawaiian Island when he created the heavens and the earth?

As I said, I haven't met anyone who is either a young-earth apologist or well-versed in creationists literature who believed the Hawaiian Islands were formed during the creation week. But I do encounter Christian non-scientists who have not explored the creationist' or secular literature who are eager to point to events of the creation week to explain the origins of many of earth's geological features and other features of creation such as the physical appearance of the Moon and other planets. Their appeal to fiat creation by God in the space of six days is often a reflexive response to what they perceive as overwhelming evidence that the Hawaiian Island are very old. We have explored some of this evidence in previous chapters. Radiometric dating, coral reef growth rates, paleomagnetism, tectonic plate motion, erosion of volcanoes and subsidence of the islands may appear to form a strong case of an ancient history of the Hawaiian Islands.

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For Christians who feel a literalistic reading of scriptures demands a recent creation of the Hawaiian Islands a convenient response to these evidence of an ancient age can be an appeal to creation with the appearance of age. In a nutshell, **creation with the appearance of age is the belief that God may have created physical objects during the creation week which, upon inspection, have the appearance of being much older than they actually are.** The simplest proof of concept involves an appeal to the creation of Adam who, created as an adult, would have the appearance of having had a history of growth and development that was not a real history. The logic extension to this would be to propose that trees with growth rings, craters on the surface of the Moon and starlight endowed with information about supernovae explosions might all have been created to appear to tell a story of an ancient history but it is nothing more the appearance of age.

This is not a new idea. An appeal to creation with the appearance of age has been a common defense of creationism in the past especially among natural theologians of the 19th century. Appeals to apparent age creation were common at this time but have lost favor among Christian theologians and scientist in the 20th century. As I said before, many Christian non-scientists find apparent age creation appealing and intuitive and therefore still play a large part in common discussion of creation and the age of the earth. Its appeal is obvious. To someone not versed in science navigating the complex world of scientific evidence and sometimes complicated biblical evidence it seems far simpler to ask: why couldn't God have created the Hawaiian Islands as we see them today? Many Christians wonder, why not just push the origin of the Hawaiian Islands all the way into the six-day creation week rather than find what seem to be convoluted explanation for their formation by what seems to be solely natural mechanisms?

It is the response to these questions that we will devote our discussion in this chapter. We will ask why creation scientists don't believe that the Hawaiian Island were made by God



during the creation week. We will also examine the history of apparent age creationism and see what creation scientist and theologians have to say about it.

Were the Hawaiian Islands created on creation day three?

If we consider a fiat creation of the Hawaiian Islands during the creation week (presumably day 3 when the land was formed) there are two possible Hawaiian Islands God could have formed. First, the Hawaiian Islands could have been created with the appearance of great age including the appearance of age progression among the islands. Secondly, the Hawaiian Islands could have been created during the creation week but were created to appear young (<10,000 years). We might call this superficial age creation after the definition of Henry Morris which we examine in a moment. However, this later scenario appears to never have been taken seriously by any Christian scholar probably because if they really did appear young why not simply propose they originated during or after the Flood. In other words, there doesn't seem to be anything to be gained by suggesting that they appear young when the only advocates for a young age of the Hawaiian Islands are creation scientists who insist that the earth's geographical features are all the product of the Flood and therefore are post-creation in origin.

This leaves the first scenario as one that we must consider. This first scenario is referred to as the *creation with the appearance of age* or *apparent age* argument.

What is the "appearance of age" position?

Before considering the premise that the Hawaiian Islands were created to appear old, it is important to understand the roots of the appearance of age argument. While some form of appeal to apparent age in creation can be traced back to the early church fathers, the modern expression and full articulation of the argument can be found in a book entitled *Omphalos: an attempt to Untie the Geological Knot* by Philip Henry Gosse in 1857. As the title suggests, the

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book attempted to present an argument for how old earth geology which had become the prominent geological view of the time could be made compatible with the views of “Scriptural geology.” In his book Gosse proposed that the history of all things was circular and that creation was simply the act of God’s breaking into that cycle at some particular point of the cycle bringing all things into being where ever they be in that cycle. While nothing physically existed before this point, the subsequent objects brought forth would have all the appearance of a complete history as determined by whatever that natural cycle that they exhibit in the present.

Bernard Ramm in 1955 summarized Gosse’s views as follows:

"Pro-Chronic, or ideal time view. In 1857 Philip Henry Gosse published *Omphalos: An attempt to Untie the Geological Knot*. Gosse was a man learned in natural history and not a simpleton nor an arm-chair speculator. He argued that Nature is a circular process and therefore that creation must commence somewhere in the cycle. A building may be commenced from scratch at the foundation but buildings do not have a cyclical existence. You cannot create an organism from scratch. Because all organic life exists as a cycle, creation must start somewhere in the cycle, and hence the created life would appear as if it had already gone through the cycle up to the point where it was created. Gosse lists as his two fundamental theses that (i) all organic life moves in a cycle, and (ii) creation is a violent irruption into the cycle of Nature. He asks what creation is and answers his own question: '[Creation] is the sudden bursting into a circle. Since there is no one state in the course of existence, which more than any other affords natural commencing point, whatever stage selected by the arbitrary will of God, must be an unnatural, or rather a preter-natural, commencing point.' Omphalos is the Greek word for navel. Did Adam have a navel? Of course he did, argues Gosse. He was created at a given point of the circle of life and therefore was created as if he had gone through the entire cycle. If God created a tree, it would have rings in it. God could create a tree only at a point in its natural cycle. Every object of creation has two times. That which is before time or instantaneous in coming into existence is pro-chronic. That which consumes time is dia-chronic. All processes during the course of the world since its creation are dia-chronic. All things at the moment of creation were pro-chronic. Gosse also uses the



terms real time and ideal time. At the moment of creation Adam's real time was zero-actually he did not exist till the moment of creation. His ideal time was, say for purposes of illustration, thirty years old. A tree in the garden of Eden would appear fifty years old (its ideal age) whereas it had just been created (its real time). How does this apply to geology? It means that the real time of the universe might be 6,000 B.C. or 10,000 B.C., whereas its ideal time might be in millions of years. Fossils and geological processes refer then to ideal or prochronic time, not to real or historical time. (Bernard Ramm *The Christian View of Science and Scripture*, Eerdmans, 1954, p193-194)

Put another way, Gosse proposed that the initial products of God's creation must display the traces of previous stages in the circle whether those prior stages had any real existence or not. Interestingly, for Gosse, this requires that the present becomes the key to the past in interpreting these apparent histories. This is because to understand the apparent history that God created within all things we must be able to study and understand the historical cycles of all physical objects in the present. In essence, Gosse, even if not acknowledging it explicitly, was arguing that the conclusions of the geology of his day suggesting the earth was old were actually correct except that they did not recognize that God had created the earth out of a moment in a planetary life-cycle.

A Gossian argument for the origin of the Hawaiian Islands and the presence of tectonic plate motions might be that the Hawaiian Islands, and the ocean plates they sit upon are part of the cycle of plate motions and mountain formation that in "ideal time" lasts for many millions of years but in "real time" were made real less than 10,000 years ago. This explanation allows for estimations of plate motions to have occurred over millions of years in the past ideal time at the same rates as we measure in the present real time. The Hawaiian Islands are simply an extension of an entire global process of plate motion and magma upwelling through the ocean plate to form islands over a period of millions of ideal time years. So the geological processes of this past ideal time would have been the same as those we see in the continuation of these cycles in real time today. Hence, it would not be unexpected within the Gossian apparent age



view that measurements of age and reconstructions of historical events would yield the same results of modern geological models as found in hundreds of publications in science journals.

At first glance the appearance of age argument might appear to permit a person to recognize most of the findings of modern geology and yet still believe that the physical origin of the earth was very recent. This argument then singularly eliminates the need for the many contrived theories of Flood Geology to explain the origin of all of the geological features of the earth within the space of 10,000 years.

If this apparent age argument has merit, why isn't this view widely held within the community of creation scientists seeking to bring science and Scripture together? One of the principle reasons was mentioned in Chapter 5 and is expanded upon in Appendix C. Creation scientists believe, almost universally, that the Scriptures require that death of all animals was the direct result of Adam's first sin. They view the original creation as wholly perfect and thus fundamentally different than the present world. As a result, they reason that any evidence of death in the world must be the result of activity after Adam's creation and fall. Furthermore, since Adam was created the sixth day and fell into sin sometime soon thereafter they believe it is impossible to assign any of the geological features of the earth that contain fossils to any point during the creation week. This is because they accept the theory that fossils represent the remnants of formerly living things and therefore could not represent part of the original creation. Since almost all mountains today have fossils contained in them it is argued that God could not have created the Hawaiian Islands or practically any other geological formation we see today during the original creation week.

Creation scientists cannot concur with Gosse's model of apparent age. By positing the Hawaiian Island's creation to a "pre-chronotic" time suggests to most creation scientists that God imagined the world as containing cycles of death prior to the literal physical creation and this conflicts with their interpretation of a deathless world prior to the fall.



Could God have created a world in which many features had the appearance of age? It is certainly within God's power and liberty to have created in such a way. To some extent no object could be created without some appearance of having a prior history. However, some theologians have objected to the appeal to apparent age preferring, if it be used at all, that it be restricted to a small set of special cases.

Dr. Douglas Kelly¹ in his 1997 book *Creation and Change; Genesis 1.1-2.4 in the light of changing scientific paradigms* defends a literal 6-day creation and though he appeals to appearance of age in a few special cases he draws back from the widespread use of the argument. In a footnote to a discussion on the appearance of age he makes these comments:

"In the nature of the case, there are certainly limits to this. It is one thing to realize that Adam was created full grown, but quite another to hypothesize that distant stars were created with a pathway of light shining all the way to earth (perhaps indicating the historical explosion of a supernova, which- according to this theory - never actually occurred). The former follows from a sensible reading of the text of Genesis; the latter does not." (Kelly, 1997; pg. 162)

The dilemma of "old" light is very similar to what is observed with the geological features of the earth. In both, we can readily infer a specific sequence of what appears to be historical events just as we can see a bullet hole at a crime scene and infer that a bullet has passed through that point at some point in the past. However, the apparent history ancient earth history is not the history that the creation scientists believe the Scriptures are revealing. Rather than appeal to apparent age to explain why the earth looks old they are convinced the earth neither looks old nor really is old and thus any interpretation of great age is questioned and they seek ways to

¹ Douglas Kelly is Professor of Systematic Theology at Reformed Theological Seminary, Charlotte, North Carolina. His book on the interpretation of Genesis 1.1-2.4 has been influential within the reformed Christian community and is considered one of the best defenses of the literal six day creation interpretation of Genesis.



conform the data to an interpretation that assumes all historical events are contained within about 6000 years of time.

Young earth creationists resist the use of apparent age to explain the appearance of great age of the earth. What are their primary reasons that YECs avoid appeals to apparent age?

1) It is not the character of God to deliberately deceive man by creating false histories about himself and the world around him. Both the evidence of death in the presumably created record as well as evidence of the evolutionary history of organisms result in a fantasy past that is neither intellectually satisfying nor Biblically defended.

2) The appearance of age argument is used primarily by those convinced the earth is young but who wish to avoid confrontation with scientific data. However, it doesn't even fulfill this purpose as we will see. By placing many geological features in the creation week, the question is begged: where does a global flood fit with apparent age?

This first difficulty stems from the impression that if God created with the appearance of age he would be un-necessarily deceptive. Creation scientists find themselves at odds with each other with respect to how far to employ the creation with the appearance of age argument. Earlier we noted that Douglas Kelly did not find the incorporation of a history in star light was "sensible" by his reading of Scripture. However, both Henry Morris and his son John Morris have been willing to employ this explanation for a wide variety of phenomena including the presence of ancient starlight that contains information about past events that literally did not happen. In response to the question "Did God create with the appearance of age?" John Morris writes:



“Simply stated, the idea of “creation with appearance of age” means that when God created, those things which He created might superficially have looked as if they had a history. When Adam was created, he no doubt looked like a mature adult, fully able to walk, talk, care for the garden, etc. When God created fruit trees, they were already bearing fruit. In each case, what He created was functionally complete right from the start—able to fulfill the purpose for which it was created. Stars, created on Day Four, had to be seen to perform their purpose of usefulness in telling time; therefore, their light had to be visible on Earth right from the start.....The scientist would rely on today's human growth rates (or rates of radioactive decay, or the speed of light), and calculate how long it would take for this state of maturity to develop, and would come to a wrong conclusion.

This is because the world today is not as it was in creation. God's creative powers are at rest now, and He is maintaining the creation using present laws of physics. The original created world, perfect and non-decaying at first, was subsequently cursed and made subject to decay and death (Genesis 3:17; Romans 8:20, etc.). Furthermore, even that world was destroyed by the Flood of Noah, so that the world we live in today is a relic of destructive processes, not creative processes. Any effort to apply present processes and process rates to creation is doomed to failure.” (Dr. John’s Q&A #21, “Did God create with the appearance of age?” Available at <http://www.icr.org/>)

Here Morris is advocating that starlight would have been visible right from the beginning no matter the distance of the source. It might seem that Morris is more willing to appeal to apparent age than Kelley but Morris includes an important qualifying word - “superficially.” Superficially insinuates that there is only a general appearance of age built into the original creation. Any light that was shining on the earth would necessarily have appeared to have had its source as the sun. To use the term “superficially” though, is a way of suggesting that the sunlight would have filled its necessary role as an indicator of the daytime, but that light would not be endowed with historical information that would suggest past events that didn’t pertain directly to its specific purpose. It is likely, therefore, that Morris and others would not expect to find specific information contained in that original light, such as evidence of supernova explosions that point to past events that did not serve its original purposes in



creation. This can be seen as Morris further states in his response to the question of apparent age:

“God, in His sovereignty, knew that fallen man, living in the post-Flood world might wrongly conclude the age and origin of things. For just that reason, He gave us a clear record of what He had done and when He had done it. Furthermore, when we look at the evidence in light of what He has told us, the universe doesn't even look old. The real evidence is fully compatible with an origin only thousands of years ago. On the other hand, if fallen scientists extrapolating present process are right and the universe is old, then God has lied to us, for He clearly said He created all things in six days, not too long ago.” (Dr. John's Q&A #21, “Did God create with the appearance of age?” Available at <http://www.icr.org/>)

So, if starlight were to have information that suggested a specific history of events that never occurred the response to that data it is not necessary to conclude that God didn't create the light with that data. Rather it is necessary to look at the evidence in another way such that it is reinterpreted in light of the “clear record.” In the context of this presupposition of the truth of a young universe the evidence should become compatible with that view. It is impossible then to say where Morris really draws the line between things such as light that is created with apparent age and those things, such as the evidence contained in light, that are being incorrectly, in his mind, interpreted as suggesting an old age universe.

Other creation scientists have taken a much more vigorous stance in rejecting apparent age arguments. For example, Batten et al. (2000) at Answers in Genesis commented about apparent age in *The Revised and Expanded Answers Book*. Here they states:

“Perhaps the most commonly used explanation is that God created light ‘on its way,’ so that Adam could see the stars immediately without having to wait years for the light from even the closest ones to reach the earth. While we should not limit the power of God, this has some rather immense difficulties. It would mean that whenever we look at the behavior of a very distant object, what we see happening never happened at all. For instance, say we see

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an object a million light-years away which appears to be rotating; that is, the light we receive in our telescopes carries this information 'recording' this behavior. However, according to this explanation, the light we are now receiving did not come from the star, but was created 'en route,' so to speak.

This would mean that for a 10,000-year-old universe, that anything we see happening beyond about 10,000 light-years away is actually part of a gigantic picture show of things that have not actually happened, showing us objects which may not even exist..... To create such a detailed series of signals in light beams reaching earth, signals which seem to have come from a series of real events but in fact did not, has no conceivable purpose. Worse, it is like saying that God created fossils in rocks to fool us, or even test our faith, and that they don't represent anything real (a real animal or plant that lived and died in the past). This would be a strange deception." (Batten et. al. 2000. *The Revised and Expanded Answers Book*)

It appears the authors believe that light, or any other object of study that exhibits clear evidence of having a past history that is not completely faithful to the original condition of the created world (free from decay and death as Morris has stated), must have originated after the fall of man. The use of the phrase "no conceivable purpose" is very similar to the sentiment of Morris and his use of the term "superficially." Both words suggest that as long as the object, such as light, were filling an essential purpose at the time of creation then the apparent age of that light would not be unexpected nor violate the character of God. Any other information that might be conveyed by light beyond its original intent would be considered a "strange deception." For Batten and colleagues the obvious information that can be learned about supernova contained in some light goes beyond the expected purpose of light in the original creation and therefore must have emanated at some point after the creation was altered by man's sin, thus allowing for supernovae to occur. For creationist, therefore, all data suggestive of great age must therefore be reinterpreted to fit within this paradigm.

Both of these descriptions of apparent age rely on a sense of purpose to define what is *essential* appearance of age versus what would be *deceptive* appearance of age. But how might



essential and *deceptive* appearance of age be distinguished? Let us take the example of Adam. Most creation scientists defend a “perfect paradise” (see. *Peril in Paradise*, Warton 2005, for more on this creation model) interpretation of the created state of the world that understand Adam as created without blemish. As a new creation Adam would have the appearance, based on common experience, of having had biological parents. However, it might be argued that the specific characteristics of those parents and specific events that happened to him during his childhood would not be possible to reconstruct. In this way Adam superficially or “essentially” would have the appearance of age.

However, what if Adam had been created with indentations on his arm that identically matched the dental pattern of a coyote with a missing left incisor? Furthermore, what if a quick search around the Garden of Eden revealed a coyote with a missing left incisor? Might not that evidence be interpreted as revealing an apparent history with no conceivable purpose? Of course the creation scientist could respond that this is just a hypothetical example and that, in fact, Adam had no such scars other than a generic belly button. But, the example does illustrate that defining how to apply the appearance of age as an explanatory tool can become very difficult. In the hypothetical above, the indentations on Adam’s arm and the coyote with a missing left incisor are just observations. It is the interpretation of that data that results in the problem.

Morris has suggested a solution as he concludes that all the evidence, when seen in the proper light will be consistent with a young earth. As a result, Morris could respond to the above observations (ie. a fact or piece of evidence) by saying that the indentation did not come from the wolf. Rather, what appears to be bite marks on his arm are actually indentations designed for the purpose of allowing a place for Adam, in his nakedness, to store berries he has collected in the Garden while climbing trees. Suddenly, rather than these marks having no conceivable purpose, these marks are given a purpose by the designer and so become an integral part of the creation. The coyote with the missing left incisor might then be dismissed



as just a coincidence. By doing this, Morris would be able to redefine the evidence such that it makes sense in light of his presuppositions.

The conundrum of the evidence for the antiquity of earth or even other planets² over against the fear of making God a deceptive creator has most often been handled by creation scientists as demonstrated above. Many creation scientists are reluctant to insert old light or the Hawaiian Islands into the original creation for fear of making God appear deceptive. As a result, their only other recourse is to question the standard and well-accepted interpretation of the evidence itself.

Rather than accept radiometric dates as the product of creation of apparent age and therefore accurate interpretations of the measurements of radionuclides in the created earth, they are compelled to question the validity of the dates and require all data to be interpreted to fit within a 10,000 year window. The creation science literature is replete with examples of attempts to demonstrate how data can be reinterpreted within a young earth paradigm. However, a large number of scientifically illiterate—both of secular and creation science models—Christians seeking answers to how to interpret the world from a young earth perspective find the apparent age explanation a convenient explanation allowing them to avoid the difficult task of working through the complexities of the scientific models.

The example of the coyote and the marks on Adam's arm illustrates how the same evidence could be interpreted in two different manners to completely different effects.

² Consider also the example of the planet Mars. After a number of missions to Mars including surface rovers and numerous satellites peering down at the surface a more complete picture of the features of Mars has been revealed. Mars has what appear to be volcanoes, large craters from asteroid impacts, sand dunes, and evidence that water covered portions of its surface in the past. These features create the appearance of great age and dynamic change through much of the history of Mars. In some cases there are what appear to be volcanic flows which are partially covering previous layers of rock that have numerous craters. These lava flows have craters in them and even have craters inside craters and even these craters show much erosion by the wind. The many textures and divergent features across the Martian landscape produce the very strong impression that the Martian surface was formed by a series of sequential events each of which would have required considerable time to achieve the appearance they have today. Were all of these features created with the appearance of age, or has Mars undergone massive geological changes during its history as the earth? Creation scientists have been reluctant to attribute all of the surface features of Mars to the original creation week. As a result some have speculated that Mars underwent dramatic global changes during the same time the earth experienced a global flood.



However, while the marks on Adams' arms may be satisfactorily placed into a more comforting context, the lack of an explanation for the apparent coincidental data (the correlation of the marks on Adams arm and the dental problems of the garden wolf) of Adams should be a warning that all the evidence is not so easily dispatched. The volume of evidence that has resulted from studies of light, radioactive elements, and Hawaiian Islands and the ease with which that evidence can be interpreted within modern plate tectonic and atomic theory suggests that such simple re-interpretations of the data are unlikely to be successful or satisfying. The coincidence of the coyote in the garden with the same tooth pattern as the indentations on Adams' arm may be easy to ignore, but the plethora of coincidences (correlated data) observed in numerous studies of the Hawaiian Islands and the earth's tectonic plates are not so easily dismissed though they may be convenient to ignore.

Before turning to the specific question of the Hawaiian Islands and what they offer to the question of apparent age, one additional example of data relevant to the topic is offered. In this case, a specific set of observations of the fossil record that speak to the presence of death and decay in the past is in view. In addition, these data have all the appearance of representing an ordered progression of events that have taken place over a long period of time.

As in the case of the hypothetical indentations on the arm of Adam, they do not speak directly to the presence of death or decay prior to the fall. However, there are many examples from the fossil record that present a compelling case of specific past events of death as they record changes in the flora of a location in time. The specific fossils of interest here are leaves that are riddled with tell-tale signs of insect damage. In fact the observed damage in the fossilized leaf imprints is so clear that the type of insect that was munching on the leaves before they were trapped in the sediments and fossilized can be determined with remarkable precision. These leaves present a formidable challenge to those who seek to posit them as part of the original creation (apparent age) but are equally as challenging to flood geology models who must explain the fossil leaves as artifacts of a global flood



These fossils are discussed in a paper entitled “Impact of the Terminal Cretaceous Event on Plant-Insect Associations” by Labandeira and colleagues.³ These fossils show very explicitly the type of death and decay that is recorded in the fossil record of plants. The authors of this paper report examining 13,441 fossil plant specimens spanning the end of Cretaceous/Tertiary boundary which is dated at 66 million years according to conventional geological dating methods. Within this same layer of rocks, found around the world, there is a pronounced change in the characteristics of the fossil record. Below the layer’s boundary there is a huge diversity of fossils of all kinds, while right above the boundary there is a conspicuous absence of the majority of those fossils. This portion of the fossil record has been interpreted as evidence of a massive extinction event of up to 90% of many groups of organisms including all of the dinosaurs, as only a few dinosaur bones have ever been found⁴ in layers above this portion of the geological record. Labandeira and colleagues examined plant fossils from this boundary zone in detail from one location. They were able to identify 51 separate type of plant-insect associations in these fossil leaves. Based on the huge number of leaf fossils examined (13,441) they could identify insect pests that attacked only a single species of plants versus insects that were generalists and attacked the leaves of many different species of plants. These insect-plant interactions are very similar to those we see today. For example, there are many insects such as some leaf miners or gall makers⁵ that will only attack a single species of plant while others may generalize across a whole range of different plant species. With these 51 recognized plant-insect associations from thousands of fossils that showed evidence of insect damage and the observation of exactly what layer of sediment each fossil was found (ie. below, in or above the

³ Labandeira C. C., K. R. Johnson and P. Wilf. 2002. Impact of the terminal Cretaceous event on plant-insect interactions. *Proceedings National Academy of Sciences USA* 99(4): 2061-2066.

⁴ There are apparently some reports of dinosaur bones found in somewhat younger-dated rocks however, it is not clear in those cases whether the fossils were deposited in those sites at the time of their formation or if bones from older layers of rocks might have eroded and become deposited into younger sediments. In the latter case the dinosaur bones might be found in younger rocks but still have died much earlier.

⁵ Leaf miners are insects that often leave what look like discolored trails across the surface of leaves because they have eaten out the inside or underside of a leaf. Gall makers are insects that cause the leaf to react to their presence by growing a gall which is often a curling of the leaf and expansion of the tissues to produce a home for the insect where it can eat and reproduce with some protection. In both of these cases there are some insect species that may be only be able to effectively mine or create galls in a single species of plant while other species may be able to mine or cause gall formation across many species of plants or even different families of plants.



boundary layer) they looked to see if there were any patterns among specialist insects versus the generalist insects across this boundary. What they found was that the leaf fossils in the layers of rock just below the boundary layer, which has been interpreted as evidence of a great extinction period in history, there were a large number of specialists and generalists insects as well as a great diversity of plant species. However, in the layers of rock just above this boundary layer they found that both the numbers of insect and leaf fossils were greatly reduced. Most interestingly, as they examined the fossils found in successive rock layer above the boundary zone it was observed that both the number of insect and leaf species fossils gradually increased. Each of these successive layers are described by conventional radiometric dating as spanning several million years.

These data supported predictions based on other studies of these rock layers from other parts of the world and further illuminated the nature of insect/plant relationships in the fossil record. These data should be interesting and challenging to any reader who might initially be tempted to explain the origins of these plant and insect fossils as solely the consequence of a global flood or as an apparent history of plant-insect interactions introduced into the original creation. But before looking at the responses, these data present even greater challenges when examined in even greater detail because they suggest an even more precise historical series of events. Not only is there a general pattern of loss of diversity and then regain of that diversity as each successive layer is examined but there is a distinct relationship evident with respect to the insect specialists and generalists. While the total number of different types of insect damage were greatly reduced in layers above the boundary layer, significantly, every specialists insect found in the lower layers is absent in the layers just above the boundary transition. As a result the generalists are the only insects that are present in layers straddling the boundary. It is only in layers well above the boundary layers, when the total diversity of plants has increased, that fossils are observed with obvious species specific leaf damage again appears. Once leaves with this specific damage appear again in the fossil record they are then observed to increase in successively higher layers interpreted as an increased numbers of



specialist insects present in the environment at the time the leaves were deposited into the soil.

How do the authors interpret this data? They were interested in testing the effects of mass extinctions on recolonization from an evolutionary perspective. Evolutionary theory predicts a loss of diversity would also result in a loss of specialist insects in a large extinction event. The theory predicts that if something wiped out a large number of trees and other plants then after such an event those organisms that are good generalists (like a cockroach that seems to eat anything) will be more likely to survive. Subsequently, as the world is repopulated and the diversity of plants again increases (ie. new species of plants have evolved) in a more stable environment it would be expected that insects that specialize on single plant species would again start to become more prevalent. This study was a direct test of this pattern of diversification predicted by evolutionary theory. The pattern of fossils observed in the fossil record conformed well to expectations based on this evolutionary assumption. Here again is a case where new data most readily conform to an old-age model.

What is the creation science approach to data sets such as this? Does the Flood Geology paradigm offer the similar ability to explain the data and even power to predict the presence of such data prior to its discovery? It is difficult to be specific, since examples of similar data evaluations are rare in the creationist literature. However, all Flood Geology models claim that the specific layers of rock in which the fossils were found for this study were deposited over a short period of time (minutes to days at most) during a the Noahic global.

If all of these rock layers and the thousands of leaf fossils found in them were deposited so quickly, one has to wonder how the leaves with insect damage by specialists and generalists were deposited into multiple layers somehow sorting them into leaves with and without specialist damage and lesser and greater total diversity in the layers above the upper



cretaceous layers. How might have leaves of generalists leaf miner vs. a specialists leaf miner been sorted. I know of no proposed natural process for accomplishing such a feat.

Either, God intervened supernaturally during the Flood and caused these leaves to be deposited in this particular order or the field of sedimentology has completely overlooked some fundamental process in how particles and objects sort themselves during deposition. Thus far, as a theory with the explanatory and predictive power to accommodate data such as these fossil leaves, old earth conventional geology provides a simple and elegant explanation for this type of data while the creation science models provide no obvious explanation. Hundreds of examples like this one can be found in the scientific literature, each of which provides data for which current scientific creationist theories are unable to explain. Until they can provide scientific theories that can account for and even predict these types of data they cannot claim that they possess a better scientific model of the earth's geological features or even claim that the scientific evidence points to a young earth and a global flood.

If compressing these fossils into the short chronology required by young-earth advocates is not possible but one doesn't want to accept an ancient earth and possibly evolutionary biology might apparent age be possible solution?

As Gosse made clear, it would have been impossible for God to create anything that didn't have at least some appearance of a past history. No matter how detailed the evidence of past apparent events may be it does not preclude the fact that God could have created these things as we observe them today. Another reason for the detailed example of the fossils leaves above is to illustrate that appeal to apparent age does not only apply to geological origins but also to biological origins. Logically, if it can be argued that God could create fossils with an apparent history of death and disease then it would not be logical to reject the idea of apparent evolution of organisms as well. In the example above, the apparent age argument could be used to suggest that the evolutionary predictions based on studies of the present were upheld



because God has created a record not just of long periods of geological change but of biological change as well. These logical conclusions of the outcome of appealing to apparent age for the fossil record are rarely acknowledged or even realized by many who employ apparent age on their side in the age of the earth debate.

Finally, the second objection raised with respect to the appearance of age asks the question; if God created geological features with the appearance of age, then what were the literal effects the Flood? What does one do with the Flood if dinosaur bones, volcanic islands and many other features that have apparent age were simply created in the creation week? In the case of the Hawaiian Islands that are above sea level today there is no evidence of Flood sediments on these volcanoes. Therefore, if these islands were created before the Flood did that Flood, which is said to have covered the highest mountains, simply not leave any evidence of its occurrence?

Apparent age and the Hawaiian Islands?

Turning back to the Hawaiian Islands, what sort of apparent historical events do these islands attest to that must, for the young earth advocate, either be reinterpreted within a restricted chronology framework or justified as features of God's original creation? Below we discuss specific challenges and consequences of apparent age are discussed in the context of the apparent age position.

1) Radiometric ages of islands clearly exhibit age progression. Without constructing an elaborate conspiracy theory regarding the determination of these dates, it is impossible to escape the conclusion that as one travels northwest from the main island of Hawaii the islands appear to be older based on radiometric dating and nearly every other form of evidence. In general, appearance of age advocates have little difficulty accepting the radiometric ages assigned to particular rocks, claiming that the dates are the result of the amounts of initial isotope placed in each rock by God during a literal six day creation. If this is true then it is



logical to assume that the methodology of isotope dating is accurate and that resultant estimates of age reflect consistent dates since they reflect the created isotope concentrations.

Obviously, in the case of a person who holds to a literal young earth, dates older than 6 to 10 thousand years would not be accepted as indicative of real age but of an apparent history. Taken further, it might be argued that the purpose of these indicators of false age might be to present man with the opportunity to study the world within a consistent framework of providential laws and ordinances which in turn would enhance man's understanding of how the world works. For example, the past eruptive history recorded in the apparent age creation could be studied within the context of standard uniformitarian paradigm and thus a prediction of future eruptive patterns may be achieved.⁶ In this context, the Biblical creationist appealing to apparent age creation would differ little, other than their belief in ultimate causes, from the secular scientist in his or her approach to understanding and interpreting data.

Many creation scientists claim that the initial composition of created rock cannot be known and that it could have had any amount of initial parent-daughter ratios of elements in it. Granted, nearly anything is possible especially if a rock were created with the appearance of age. But the evidence from the Hawaiian Islands requires that particular rocks from each island had exactly the amount of initial daughter elements (Argon in most cases) that would lead to

⁶ For example, in the Pacific Northwest of North America there are hundreds of layers of volcanic ash in the top layers of the sedimentary record. These layers of ash can be dated by radiometric methods and the ash layers examined with microscopes and chemical analysis to determine their age and which of the many volcanoes in the area they came from. In the case of the upper layers of ash the dates may fall within the past 4000 years. For the creation scientist these upper layers of ash may represent actual ash falls after a global flood and can be accurately dated and their volcanic origins determined. But the hundreds of layers prior to some 4000 years ago may be the result of rapid volcanic activity during the global flood or period right after the flood and thus those layers were deposited very quickly. This fast deposition followed by normal deposition over the past 4000 years would render the ash fall record useless to predict the relative frequency and strength of future volcanic eruptions in this area. However, old earth geology would predict that all the ash falls occurred over a long period of time as indicated by radiometric dating of the ash layers. With hundreds of layers a pattern of volcanic activity for each volcano in the area has been determined such that general predictions about future activity can be made. Some volcanoes have shown no activity or only minimal activity in the past 5000 or even 10,000 years and therefore the creation science model provides no data to allow for predictions of future activity. But, in an appearance of age model hundreds of layers of ash could be placed in the original creation with the appearance of age including a distinct pattern of eruptions for each volcano spanning millions of apparent years. In this case the interpretation of the ash layers by an apparent age advocate and the secular geologist may be nearly indistinguishable because both would accept the evidence of the geological record. The one obvious problem with this apparent age argument is that it relies on a seamless continuity between the portion of the rock record that was created with apparent age and the modern record of real activity of the Islands. This creates a difficulty for those that hold to apparent age but also desire to find evidence of a global flood. If there were a global flood it would be expected that there should be a layer of discontinuity between the pre-flood and post-flood rock record and the volcanoes should show evidence of having been covered by a sea.



the conclusion of age progression from one island to another. Not only that, but this age progression is very similar to the progression of other island and seamount chains in the Pacific corresponding to almost the identical ages over the same distances from a current active volcano.⁷ Combine this with polarity data that matches the same dates in deep sea cores, sea-spreading zones, and continental sediment cores and we end up with more than just an apparently old set of islands. Rather we are left with a highly detailed account of a sequence of events that took place, or in this case appeared to have taken place, that resulted in the particular appearance of today's geological features.

2) Paleomagnetic data show that the lava from islands to the northwest of the volcanically active island have remnant magnetization and magnetic inclinations that point farther from the magnetic north pole the further away one is from the active island. By examining the degree of inclination it is predicted that the lava from these islands was likely formed when the islands were very close to the present latitude of the active island. This is despite the fact that today some of these islands are more than 3500 meters from that point. Had these islands been formed at the same moment or even some short period of time, why would the paleomagnetic signals in these layers of lava not be pointing in either random directions or in the direction of the magnetic pole as lava formed today do? That any of these islands would happen to have lava with paleomagnetic inclinations indicative of an origination at the point of the currently active island appears would NOT be predicted by any flood geology model. To explain this data within an apparent age context would require the Creator to make mountains of lava that appear to have been created in a different location in addition to creating them to appear to have been made over a long period of time.

3) Sea-floor spreading rates deduced from radiometric dating of geomagnetic reversals are consistent with those estimated from geomagnetic and global positioning system (GPS) data.

⁷ Wessel, P. and L. W. Kroenke. 1998. The geometric relationship between hot spots and seamounts: implications for Pacific hot spots. *Earth and Planetary Science Letters* 158:1-18.



As described in an earlier chapter, deduced spreading rates are based on radiometric readings because the earth's magnetic polarity reversals have been dated from land-based sediment cores which show the same patterns of polarity reversals as observed in strips of rock running parallel to the ocean ridges. Regardless of the readers opinion regarding the validity radiometric dating techniques, the correlations of spreading rates estimated by simple math using the age and distance values of the islands from the active Hawaiian island (Figure 8 from Chapter 4) with those determined by indirect estimation based on a pattern of magnetic reversals that matches reversal patterns in rocks on the continent is remarkable. To this we add the completely independent confirmation of sea floor spreading rates from laser based (see Figure 14 below) and GPS (Global Positioning System) data⁸ which, except for two small plates, agree with absolute plate model predictions (derived from radiometric and paleomagnetic data) within 95% confidence.⁹

How might an apparent age creation make sense of these data? We might say that God has simply created a world with continental and oceanic plates that appear to have been moving at the same rate in the "apparent" past as they do in the present. This might not seem too objectionable on the face of it just as one might say, but He created the original trees in the Garden with rings that make it appear as if the tree was growing continuously in the past as it does today. But in this case we have evidence that past processes were not the same as they are today. In the Hawaiian Archipelago we have a situation in which we have a record of both past changes in rate of plate motion and plate direction. The Emperor Seamounts, and other similar chain island systems on the Pacific plate, show a different direction of motion for the plate than is presently observed. In addition, calculations based on radiometric dating of seamounts in this chain and others show that these were produced during a time of faster plate motion. Again this gives the appearance, not just of a linear history into the past but one in

⁸ Larson, K. M., J. T. Freymueller, and S. Philipsen. 1997. Global plate velocities from the global-positioning system. *Journal Geophysical Research* 102(B5):9961-9981.

⁹ One might ask why they don't confirm every instance but this is not unexpected. Some spreading zones are found in close proximity and so there are no seamounts from which to derive a calculation and spreading has probably not proceeded at an even rate over time because of the pressures of other plates in proximity to the plate in question.



which conditions changed in history except they would have changed in the history that God created. In these examples we see specific global events that we can investigate and model in detail and from which predictions can be made that have been born out in further investigations.

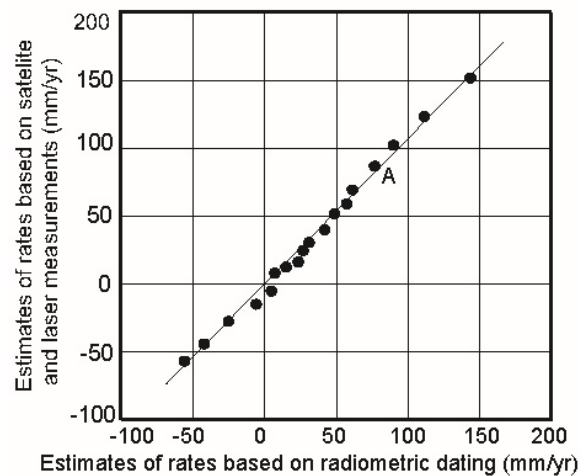


Figure 14. Two sets of plate motion rates compared. The vertical (left) axis shows rates averaged over a few to a dozen years of increasing (positive) or decreasing (negative) distance (some continents are being pushed toward each other and thus the negative rate) on 149 lines between 20 space geodetic sites (very long baseline interferometry or satellite laser ranging). The bottom axis shows rates predicted from a global plate motion model called NUVEL-1 which averages motion over about 3 million year time periods. These modeled time estimates were determined using the ages of geomagnetic reversals from the timescale of Harland et al. 1982 *A geological time scale*. Cambridge University Press. Estimates of plate motion in the past are also determined by radiometric dating of island chains such as Hawaii seen in Figure 9 (Chapter 5). The line represents where data points should be if estimates of past and present motions were identical. Large deviations from that line would signify very different rates in the past and the present. Figure modified from: Robbins, J. W., D. E. Smith, and C. Ma, Horizontal crustal deformation and large scale plate motions inferred from space geodetic techniques, in *Contributions of Space Geodesy to Geodynamics: Crustal Dynamics*, edited by D. Smith and D. Turcotte, pp. 21-36, AGU, Washington D.C., 1993.

4) The amount of sediments covering the undersea flanks of these and other islands and seamounts is difficult to explain if one's exegesis of Scripture requires a global flood. It was previously mentioned that there was an increasing amount of sediment on the undersea flanks



of each island as one moves progressively farther from the active island of Hawaii. This raises two difficulties with the position that these islands originated prior to that global flood (ie. were part of the original creation). The first is that there is only a small amount of sediment evident on the newest seamount forming off the east coast of the island Hawaii. The second is that although there is much more sediment on the flanks of the “older” islands, there is less than one would predict if there had been global flood. Put another way, if the Islands and seamounts had been formed as part of the original creation, how could a global flood deposit many thousands of feet of sediments across the surface of the earth but somehow manage not to affect these mountains? There is a thick layer of sediments on the ocean floor out of which the islands are protruding and yet the base of the islands themselves has much less sediment on them than the surrounding ocean floor. A global flood that deposited a layer of sediment on the ocean floor surely should have also laid down sediments on the base of the islands as well. An examination of the Hawaiian Islands and other such islands strongly suggest that if they were created prior to a global flood then it would appear that God must have miraculously preserved these mountains from the effects of the Flood. The question then becomes, for what purpose did God act to preserve these mountains in their pre-flood state?

Were Physical Processes Sped Up?

In order to avoid some of the objections listed above it has been suggested that in the past all physical processes were sped up at least several thousand times the speed we see today while still maintaining their same relationship to one another. Under such a scenario is it possible to have the ocean spread apart and to have the islands formed in days and sink quickly with coral reefs growing around them in a matter of minutes? If past processes were actually much faster it would result in the appearance of age since we use present rates of processes to extrapolate the rate and timing of past events. Initially this may seem a tempting hypothesis, however, closer inspection of the consequences of faster rates of fundamental processes in the past result in many more problems than they solve. For example, creation scientists almost invariably believe that the days during the flood were the same length as days before and after



the flood, that there were mornings and evenings resulting from the rotation of the earth, that water condensed and fell as rain due to the same gravitational forces present today, that the same molecular forces bound hydrogen and oxygen together to form water with the same properties, and that Noah ate and metabolized food and needed to breathe oxygen in the same manner that we do. If it were assumed that only some processes were sped up while others were not this would severely limit the ability of science to investigate such phenomena and hence even the efforts of creation scientists would be in vain.

Taking the route of contriving changing past rates independently of one another creates a second problem because there is much evidence to suggest that rates have, in fact, remained constant over long periods of time! For example, fossilized corals record their daily growth and they record growth of hundreds of thousands of days in some cases in a single fossilized reef. If they simply grew very fast during the global flood (a common creation science explanation for the presence of numerous large fossilized reefs) because of sped up physical processes why would they contain the same daily growth patterns when it is presumed that the days were still the same length during the flood.¹⁰ In the previously discussed example of the Eniwetok Atoll, faster coral growth in the past would have to be compensated perfectly with faster sea level rise or volcano subsidence to account for the huge thickness of that coral reef.

Even if the very nature of how atoms interact with each other was changed during a global flood it apparently was held constant for Noah and the animals living in the Ark. There doesn't seem to be any Scriptural warrant for saying that physically processes outside the Ark were radically different than those inside. Also, the rapid rate scenario fails to explain the appearance of floods on Mars, old ages of dated moon rocks and asteroids, and many other evidences of age from elsewhere in the solar system. Were there also floods and other catastrophes on the other planets during the same time as the Flood on earth?

¹⁰ Any suggestion that the days were of different length during the flood because of altered physical constants of time and matter during the flood would immediately open themselves up to questions as to why the same logic might not be applied to the creation week.



Conclusions

All too frequently an appeal to apparent age is tossed out in dialogues about the age of the earth as a sort of get out of jail free card when a really difficult piece of evidence that supports an old earth is presented. The above discussion should serve to provide anyone that wishes to appeal to the creation of an object or entire world with an appearance of age arguments a note a caution that this argument is by no means the easy answer to difficult questions that it may first seem.

The above is a draft chapter from a book manuscript: *The Hawaiian Island and the Age of the Earth: A Case Study of Creation Science* by Joel Duff. The material may only be shared for personal or education purposes.

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