The Absurd Newspeak of Woodmorappe's 'Creation Science'

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Besides attacking radiometric dating and other aspects of geochronology, young-Earth creationist (YEC) John Woodmorappe (1999, p. 16, etc.) accuses geochronologists of being 'biased', 'unscientific' and even 'engaging' in Orwellian Newspeak' as described in George Orwell's book, ***1984***. At the same time, Woodmorappe (1999) would have us believe that the 'careful scientific investigators' of the Earth's past are YECs. Woodmorappe's (1999, p. 2, 5, Table 1 on p. 6, 94, etc.) overall views of young-Earth creationism, its critics, and radiometric dating are summarized by several audacious claims, which include:

- **Young-Earth creationism is in the process of being rigorously tested for overall validity, radiometric dating methods have not (p. 6, 8).**
- **Young-Earth creationism does not claim to be dogmatically factual, radiometric dating methods do (p 6).**
- **Geochronology is controlled by a 'ruling theory' mentality, which discourages scientific criticism. Young-Earth creationism isn't (p. 6).**
- **Young-Earth creationists (YECs) should use the multiple working hypotheses so that they do not become prematurely committed to any one explanation over another (p. 94).**
- **Evangelicals that 'compromise' with the meaning of Genesis are 'steeped in rationalism' (p. 2).**
- **Radiometric dating methods are supported by public monies, the mass media and pushed onto 'unsuspected' children in schools. Young-Earth creationism isn't (p. 6).**
- **'Young-Earth Creation evangelism' is effective and when Christians compromise with 'uniformitarianism' (actualism), they only hinder the promotion of the Christian Gospel (p. 5).**

- **Religious bigotry exists among the critics of young-Earth creationism (p. 6).**

So, how true or relevant are each of these claims? Who is REALLY using Orwellian Newspeak, geochronologists or Woodmorappe?

Young-Earth creationism is in the process of being rigorously tested for overall validity, radiometric dating methods have not.

Even before any research begins, young-Earth creationists (YECs) are convinced that Genesis has told them the 'Truth' about the origin and history of the Earth (as examples: The Necessity for Believing in Six Literal Days; YEC Tas Walker's website; Morris, 2000; Vardiman, 2000). Clearly for YECs, the 'purpose' of geology, cosmology, and other historical sciences is to simply confirm their Bible interpretations and maybe fill in some additional details on how 'God did it'. When scientific data flatly contradict the literal interpretations of Genesis, WITHOUT EXCEPTION, YECs automatically reject the data. Because YECs assume that 'scripture' can never be wrong, they are convinced that ANY opposing scientific data 'must be wrong.' This anti-scientific YEC view is beautifully illustrated by 'The Scientific Method... The Creationist Method' at Frank Steiger's Creationism and Pseudoscience website. What's worse, YECs are even proud of their stagnant, medieval and dogmatic views (see: Science or the Bible?).

The question then arises, how can young-Earth creationism be fully and 'rigorously tested' if YECs are convinced that young-Earth creationism has 'The Answers' even before the testing begins? That is, how can the claims of young-Earth creationism be appropriately evaluated when YECs readily admit that they are willing to invoke miracles to protect young-Earth creationism from failure (e.g., Vardiman, 2000; Humphreys 2000; Kofahl, 1977 on the 'pre-Flood vapor canopy'; Snelling and Woodmorappe, 1998, p. 530 on 'creation week' plutons; etc.)? Considering that the human imagination has no boundaries, YECs have no limits in their abilities to prop up their views with miraculous excuses.

One of the requirements of an authentic scientific test is to consider the possibility that the hypothesis and its associated ideas will fail and to

admit it. Every time scientists enter the laboratory or the field, they must be prepared to face utter failure and literally go back to the blackboard to test alternative hypotheses. Good examples are the obvious failure to date the Pahrump Group 'Diabase' with the Rb-Sr method (Wasserburg et al., 1964; also see: Woodmorappe Can't Read Rb-Sr Diagrams, the frequently unsuccessful U-Th-He dating method (Krauskopf and Bird, 1995, p. 247), and the widespread inability of platinum electrodes to provide reliable Eh measurements on water samples (Drever, 1997, p. 136). Unlike YECs, scientists are unwilling to cheat science and invoke magic or 'god-of-the-gaps' to prop up their hypotheses or methods if they fail to explain reality. Sometimes samples or entire analytical methods must be discarded. Often, nature's mysteries (such as the 'missing' solar neutrinos) aren't easily solved and scientists must continue their research and patiently wait for viable natural explanations.

The creationists of the early 19th century had the courage to reject young-Earth creationism and 'Flood geology' when they saw that the abundant evidence from nature refuted literal biblical interpretations (Young, 1982, p. 41-59; Wilson, 1983). Will the YECs of the 21st century also be willing to consider the same course of action? Will they ever have the courage to even consider the possibility that their fundamental interpretations of Genesis may be the problem with their repeated 'scientific' failures? (For an excellent example of the utter failure of YEC 'geology' to explain reality, see: Dr Tasman Walker's Flood Geology Model). Will YECs ever realize that their biblical dogma is a great hindrance to them really studying and understanding nature? Are YECs really willing to fairly test their ideas without hiding behind flimsy and groundless miracles? I doubt it.

Contrary to the repeated claims of Woodmorappe (1999, p. 8, 16-17, 18, etc.) and creationist Dr. David Plaisted (at More Bad News for Radiometric Dating and The Radiometric Dating Game), over the past 50 years radiometric dating methods have been INDEPENDENTLY tested and thoroughly evaluated through detailed comparison studies involving different radiometric methods (K-Ar, Ar-Ar, U-Pb, Rb-Sr, etc.), field relationships, paleomagnetic results, fossil data and/or astronomical data (Harland et al., 1990; Hilgen et al., 1997, p. 2043;

Baadsgaard et al., 1988; Baadsgaard et al., 1993; Queen et al., 1996; Montanari et al., 1985; Hirschmann et al., 1997; Foster et al., 1989; Stern et al., 1981, p. 5-6; and countless other examples in the literature, including most of the references in Woodmorappe, 1999; also see Radiometric Dating Does Work!; Consistent Radiometric Dates ; The Formation of the Hawaiian Islands; and A Radiometric Dating Resource List). Numerous mineral standards, which are used for radiometric dating, have been repeatedly tested and verified for accuracy at different laboratories (as examples: Lanphere and Dalrymple, 1965; Samson and Alexander, 1987; Sudo et al., 1998; Renne et al., 1998; Dalrymple and Lanphere, 1969; Jaeger et al., 1963; Flisch, 1982; Ingamells and Engels, 1976; Odin et al., 1982; Lanphere and Baadsgaard, 1997).

In response, Dr. Plaisted criticizes Harland et al. (1990) for not containing any more than 800 dates, which are used to calibrate the boundaries between the periods in their geologic time scale. However, as indicated in Harland et al. (1990) and especially their references, the validity of these 800 or so dates have been confirmed with biostratigraphic studies and even magnetic data. Furthermore, many of the dates were verified with multiple radiometric methods. To be exact, Harland et al. (1990, p. 79) were very conservative and omitted many dates with less than stringent analytical and stratigraphic precision:

'A large number of items that have at one time or another been proposed as time scale constraints have been excluded from the list. The criteria for exclusion include rejection by the original authors, excessive uncertainty in date or stratigraphic position (generally those that exceed 3 to 4% 1 sigma errors or that lie more than two to five time scale subdivisions away from any likely time scale). Items that are clearly anomalous with respect to the main body of data have also been excluded [i.e., any outliers].'

Also:

'Our approach is a somewhat "democratic" one. As many time scale items as possible are allowed to influence the calibration. No single point is given exceptional weight. The result is a compromise that accommodates the maximum number of reported facts, tempered by common sense and experience.'

Unfortunately, by only quoting part of Harland et al. (1990, p. 79), Dr. Plaisted fails to properly represent Harland et al.'s meticulous approach to data quality control. Clearly, these 800 or so dates are more than enough to sink young-Earth creationism.

In an earlier essay, I discussed in detail one example from Harland et al.'s (1990) list, the Beemerville Nepheline Syenite. However, this was not good enough for Dr. Plaisted. He wanted me to provide more summaries from Harland et al. (1990) and their references. However, Dr. Plaisted is free to personally investigate the 799 or so other examples for himself. I don't want to spoon-feed him. Although Harland et al. (1990) has limited discussions and mostly consists of data tables, everything is well-referenced and Dr. Plaisted can evaluate the details in Harland et al.'s (1990) references. Nevertheless, I'm not persuaded that any amount of evidence will convince most YECs that their Genesis interpretations are wrong. If Harland et al. (1990) contained 8,000; 80,000; 800,000; or even 8,000,000 high-quality calibration dates instead of 800 or so, it would not make any difference to most YECs.

There are also countless other dates that are consistent with fossil and/or magnetic data WITHIN the various periods of the time scale (for a few examples, see: Baadsgaard et al., 1988, 1993; Montanari et al., 1985, Queen et al., 1996, and Foster et al., 1989). Unless YECs are willing to groundlessly invoke a massive dishonest conspiracy among geochronologists, appeal to the financial and scientific nonsense of Woodmorappe's Crap Shoot, invoke preposterous miracles to explain away the dates (Vardiman et al., 2000), or claim that geochronologists are universally stupid, YECs have no choice but to admit that radiometric dating has been tested and passes the tests for precision and accuracy. Dr. Andrew MacRae summarizes the situation at Radiometric Dating and the Geologic Time Scale:

'Skeptics of conventional geology might think scientists would expect, or at least prefer, every date to be perfectly consistent with the current geological time scale, but realistically, this is not how science works. The age of a particular sample, and a particular geological time scale, only represents the current understanding, and science is a process of refinement of that understanding. In support of this pattern, there is an unmistakable trend of smaller and smaller revisions of the time scale as the dataset gets larger and

more precise... [reference omitted]. If something were seriously wrong with the current geologic time scale, one would expect inconsistencies to grow in number and severity, but they do not.'

Young-Earth creationism does not claim to be dogmatically factual, radiometric dating methods do.

Dogma may be defined as an established principle, tenet or doctrine, which is not open for discussion or dispute. Typically, there is little or no historical or scientific evidence to support dogmatic claims. Many people accept dogmatic beliefs on the basis of faith, authoritarian decrees, tradition and/or popular opinion. Of course, skeptics and other rationalists find any type of dogmatism to be repugnant.

To the untrained mind, well-understood and long-verified scientific claims may seem 'dogmatic'. For example, YECs often mistakenly refer to the ancient age of the Earth, the existence of its crustal plates, and even heliocentricism as some sort of 'religious dogma' just because these well-established principles may conflict with their supposedly 'true' and 'authoritative' biblical interpretations. However, there is a great difference between an unproven dogma (i.e., Genesis) that has NEVER been challenged by its defenders and scientific data that were vigorously tested and verified beyond a reasonable doubt decades or even centuries ago (such as studies that have determined the age, shape, size and orbital mechanics of the Earth). There comes a point when explanations are so reliable, predictable and well-understood that further testing and verification are simply a waste of scarce time and money. Furthermore, no amount of evidence will ever convince die-hard YECs as long as it conflicts with their scriptural interpretations. So, rather than endlessly engaging with the closed-minded or accepting the pseudoscientific claims of young-Earth creationism which are based on faulty reasoning, bad data, misquotations, empty arguments, and unproven miracles (for some examples, see: The Main Issues in the Science/Creation Debate at 'No Answers in Genesis'), the vast majority of scientific researchers simply prefer to proceed onto more worthwhile topics. Because scientists typically refuse to keep running and rerunning their experiments until they conform to the YEC views of Genesis, the religious right tends to label these scientists as 'dogmatists.'

Certainly, anyone is free to reject any scientific reality that conflicts with his/her political or religious views. However, the individual must realize that his/her religious or political convictions are the real dogma and not scientific theories that were verified decades or even centuries ago. No rational person can expect scientists to keep repeating experiments and spending money until the results conform to YEC interpretations of Genesis or the narrow agendas of other religious or political sects. Science is not a slave of politics or religion.

In contrast to well-established science, the 'biblical' foundation of young-Earth creationism is perfectly described by the definition of dogma. YECs are so confident (dogmatic) about the accuracy of the literal interpretations of Genesis that they are unwilling to accept ANY data that contradicts it. While the age of the Earth was debated and settled long ago in science, the authority and accuracy of the Bible has NEVER been challenged or even fairly discussed by YECs. YECs simple use questionable statements from Jesus and Paul in the New Testament to defend a literal interpretation of Genesis or pseudoscientific 'evidences' to support their views (for a few examples of YEC pseudoscience, see: The Main Issues in the Science/Creation Debate at 'No Answers in Genesis', Buddika's 300 Creationist Lies, the Talk.origin Archive, and Strahler, 1987). Indeed, it's not unusual for YECs to use the old circular argument of 'Jesus "said" that the Bible is infallible (Matthew 5:18) and Jesus' words are infallible because they're in the Bible (2 Timothy 3:16).'

The cultic dogma of contemporary young-Earth creationism becomes obvious if anyone in the YEC 'fold' happens to question the 'sacred' interpretations of Genesis. If the 'dissident' doesn't recant, she/he is immediately expelled from YEC organizations and treated like a heretic. For example, see Glenn Morton's sad testimony at Why I left Young-Earth Creationism and especially the tragic and acidic onslaught from Woodmorappe's mouth (see James 3). Scientists can certainly be heated in debates with their fellow colleagues, but at least we don't excommunicate each other as heretics. Furthermore, unlike various 'Christian' factions in Northern Ireland, Punctuated Equilibrists and Neo-Darwinians aren't killing each other in the streets because of their differing views of biology.

Because young-Earth creationism is a dogma, the purpose of YEC 'research' is not to explain how nature works, but to simply locate information that may be used to prop up its dictatorial biblical doctrines. If the Bible accidentally hints at a scientific discovery, YEC tabloids and Internet websites loudly proclaim that the Bible 'provided' this scientific information long ago (e.g., Morris, 1986). That is, the Bible was 'right all along.' If the data utterly refute young-Earth creationism, the information is ignored or slandered (e.g., Woodmorappe, 1979, 1999) for as long as possible. If YECs can no longer readily defend their flawed biblical interpretations (such as interpreting the 'pillars' of the Earth in Job 9:6 as being literal features), rather than admitting that their biblical views are myths, YECs use their boundless imaginations and maybe a few miracles to twist the interpretations to comply with the discoveries of modern science (for example, the 'pillars' of Job 9:6 may somehow be incorporated into modern plate tectonics). The fundamentalists then proclaim that the Bible had these 'answers all along.' The YEC non-falsifiable approach to biblical interpretation is no better than a rigged 'tails, I win; heads, you lose' carnival game.

History is full of examples (geocentricism, demonic possession, witchcraft, etc.), where the bible literalists have claimed that they 'know the Truth.' When the literalists acted on their ignorant and narrow-minded dogma, the results were disastrous (e.g., witch hunts and the crusades). Unquestionably, scientists have also made mistakes and, certainly, some scientific endeavors have yielded tragic consequences (e.g., thalidomide and chemical weapons). Nevertheless, scientists typically correct each other's mistakes. In contrast, rather than the YECs correcting themselves, it's been scientists that have repeatedly corrected the countless blunders of 'biblical science' over the years or found superior scientific explanations to mythical biblical interpretations (e.g., geocentricism, 'pillars of the Earth,' Carl Baugh's fish tooth, the Paluxy 'human' footprints). Also, biblical critics have had a leading role in repeatedly exposing the moral fallacies of biblical fundamentalism (e.g., killing 'witches,' Bob Jones Senior's advocacy of segregation, the support of slavery in the 19th century southern Bible Belt, etc.). (Also see: Woodmorappe's Subjective Creationism and Not So Subjective Radiometric Dating). Clearly, science advances, whereas young-Earth

creationism is chained to archaic biblical interpretations that can only be twisted so far before they become untenable.

Because the courts generally view creationism as a religious sect, YECs have had a lot of difficulty attempting to legally push creationism into science classrooms. In an attempt to get around this problem, Henry Morris and other ICR YECs earlier claimed that there are 'two independent varieties' of creationism: 'biblical' and 'scientific.' Supposedly, 'biblical creationism' is based on the Bible, whereas 'scientific creationism' is 'independent' of any religious doctrine and is 'entirely based' on the 'scientific evidence' for a 'young' Earth and a 'worldwide deluge.' However, few scientists or courts accepted this scam. Even YEC E.H. Andrews (1986, p. 49-51) admitted that 'scientific' creationism is not scientific and is totally subsidiary to 'biblical' creationism. Andrews (1986, p. 49-50) states:

'You may say, "Just a moment! Surely the entire scope of scientific creationism is not limited to attacking evolution? Does it not provide positive evidences for creation?" I find it very difficult to discover any such positive evidence. I doubt whether there will ever be any truly positive proof of creation that is scientific in character. An act of creation represents a discontinuity in natural law and therefore we can never make any comment about it by scientific methodology. It is by definition miraculous, lying outside of the corpus of science. It cannot be addressed in scientific terms.'

Also, (Andrews, 1986, p. 51) states:

'Creation science has an important role, but it is a subsidiary and supportive role to that of biblical creation.'

Andrews' comments are extremely honest and valuable in demonstrating that 'scientific' creationism is an oxymoron and does not meet the qualifications of science.

In contrast to the dogmatic and cultic foundation of young-Earth creationism, the only principle in science that might be considered 'dogmatic' is that scientists are not allowed to invoke magic and other supernatural shortcuts (e.g., 'God did it!!') to solve the mysteries of nature. Now, science does NOT deny or confirm the existence of the supernatural. Science simply says that miracles cannot and should not

fit into the scientific method. That is, scientists use natural explanations, and not the supernatural, to understand how chemical reactions produce new plastics in the laboratory. Scientists would rather say 'I don't know' than rely on miracles, which have no track record of reliability.

Over the years, science has had great success in explaining lightning, thunder, snow flakes, diseases, the origin of elements (Faure, 1998), volcanoes, radioactive decay, and countless other natural phenomena without resorting to miracles or supernatural beings. Scientists also recognize that rocks are ancient because of their mineralogy and chemistry. Unlike YECs, scientists aren't willing to throw away good chemical, textural, structural, and mineralogical data to embrace stories about talking snakes and magical fruit. If we don't invoke Voodoo curses to explain deaths or goblins to explain missing car keys, why invoke miracles to explain the origin of rocks? Also, when I take my malfunctioning car to the mechanic, I want a mundane (and hopefully inexpensive) explanation for the problem. I would tow or even push my car to another garage if I were told that my car was 'possessed by demons.' If we don't use supernatural explanations in our courtrooms, car garages, and hospitals, why should biologists and geologists use them? Also, see: It'll Take a Miracle to Save their Science and Young-Earth Creationists Dull Occam's Razor.

Geochronology is controlled by a 'ruling theory' mentality, which discourages scientific criticism. Young-Earth creationism isn't.

Science, including geochronology (e.g., Dalrymple vs. Renne in Kerr, 1995), thrives in conflict and controversy. Every scientist dreams of overthrowing a popular theory, becoming famous and winning a Nobel Prize. Furthermore, the history of science illustrates that change should not be feared, but welcomed as an adventure. Old beliefs may be destroyed, but new and more exciting ones will emerge.

Certainly, maverick scientists will face strong opposition and skepticism if they oppose popular scientific ideas, but that's how science works. It is the duty of all scientists to be skeptical and to vigorously challenge any new data and hypotheses. New scientific ideas are only accepted after vigorous investigations. Critical evaluations also continue during

the peer-review process as the results are being considered for publication. I can speak from personal experience that the peer-review process for scientific journals is often brutal. However, only through vigorous testing and careful evaluations will the most robust and accurate hypotheses survive and develop into theories.

Now, certainly, there have been cases of scientists improperly rejecting valid data and having unfair biases against new ideas. Nevertheless, successful theories, such as plate tectonics, don't go away just because they may be unpopular with the old establishment. Instead, their ability to make predictions and explain observations tends to attract additional supporters. Therefore, these powerful theories survive and often become crucial to various disciplines. For example, the theory of plate tectonics now has important applications in petroleum exploration, ore prospecting, paleontology, biological evolution, paleoclimatology, glacial geology, tectonics, and volcanism. At the same time, healthy skepticism in science has debunked 'cold fusion', astrological charts, young-Earth creationism, and, most importantly, a lot of potentially dangerous medical quackery. Astrologers, psychics, YECs, water dowsers, spiritual mediums, herbalists, folk practitioners, and many others claim to have 'scientific evidence' for their beliefs, but rarely do these claims withstand scientific scrutiny.

In comparison, the only individuals that entirely reject Ar-Ar and U-Pb dating are YECs and non-scientists that clearly have a poor and outdated understanding of radiometric procedures and the scientific method (e.g., Richard Milton, see: A Review of Richard Milton's 'Shattering the Myths of Darwinism'). Individuals that actually use radiometric dates to solve field problems in their research recognize the widespread reliability and value of these methods, and their testimonies are common in the very references that Woodmorappe (1999) exploits (see: Important Statements on Radiometric Dating in Woodmorappe's References that He Doesn't Want You to See).

Contrary to J. Morris' claims (2000, p. iii), YECs DO fear change. Fear explains why 'Answers' in Genesis (AiG) and the Institute for Creation 'Research' (ICR) do not provide links to their opponents websites, whereas No Answers in Genesis does. YECs have so tightly bound their religion and 'salvation plan' to their interpretations of Genesis that any

new discovery in paleontology, cosmology, or geology is viewed as a potential threat to their entire 'faith.' Every time a scientific discovery about the Big Bang or the Earth's history makes the headlines, a desperate 'no, no, it's not true!' rebuttal shows up at the AiG website. It is this fear, along with an obvious enslavement to a ruling theory mentality, that fuels the abundant YEC tabloid literature and websites, including the recent rash and ineffective attacks on National Geographic, the U.S. Public Broadcasting Service, and the Discovery Channel. For some counter rebuttals to the AiG nonsense, see: WGBH Series Rebuttals, AiG and Whale Evolution and The C-Files: Jonathan Sarfati.

There is little doubt that at least some YECs are afraid that they have invested their lives in a worthless cause (1 Corinthians 15:19). Indeed, it is likely that continued scientific discoveries in the cosmos and the fossil record will eventually bring down the YEC church of cards and doom this 'faith' to extinction. Besides fearing the death of their dogma, YEC leaders should fear what laypeople will do to them financially once their nonsense is exposed. Additionally, just like geocentricism and flat Earth doctrines, YECs have good reason to fear that their ideas and reputations are destined to end up eternally damned and ridiculed in the junkyard of history.

Because individuals in the ICR, AiG and the Creation 'Research' Society (CRS) are enslaved by a ruling dogma, they only accept employees, students and/or members that conform to their narrow religious litmus test. That is, these YEC organizations only accept participants that will swear allegiance to their sectarian 'statements of faith' (for more details on the oaths and other 'statements of faith' that must be accepted by any participants in these YEC organizations, see: Rats in RATE's 'Research'). In reality, these oath-takers are promising not to accept ANY data that question their religious interpretations. Anyone with a science degree that signs an oath of allegiance to a political or religious dogma forfeits their scientific integrity and does not deserve to be called a scientist.

The pure hypocrisy and inaccuracy of Woodmorappe's (1999) statements about 'dogma' and 'ruling theory mentalities' can be clearly seen if any of the employees of the Institute for Creation 'Research' ever criticize young-Earth creationism or if members of the Creation

'Research' Society refuse to sign their 'statements of faith.' Obviously, if a young-Earth creationist wants to keep his/her membership in the CRS or his/her job at the ICR or conservative Christian schools, he/she had better not advocate any evidence that refutes the official Biblical interpretations of the Ruling Fundamentalist Party. This dogmatic tyranny is anti-science at its worst. Clearly, young-Earth creationism with its oaths and accusations of 'heresy' are no more scientific and free of a dogmatic 'ruling theory mentality' than North Korea is a 'Democratic People's Republic'.

In contrast, memberships in secular science societies (such as the Geological Society of America) or becoming faculty members at secular universities and colleges do not require taking any oath, pledge or signing any statement promising not to undermine biological evolution, the Big Bang, plate tectonics, atomic theory, or Einstein's Theories of Relativity. Conservatives, libertarians, atheists, Hindus, Islamics, Jews, communists, liberals, left-wingers, gays, anarchists, and even YECs may join the Geological Society of America and other secular science societies. Clearly, the membership committee of the Geological Society of America doesn't care about the political, religious, and sexual orientations of its members. In comparison, how many conservative Jews and Moslems are members of the ICR or the CRS? Can a Jehovah's Witness or Mormon become a 'faculty' member of the ICR? The only requirements to be a good scientist are to honestly go WHEREVER the evidence demands, not allow religious or political myths to undermine research and to only use natural explanations in hypotheses.

Young-Earth creationists (YECs) should use the multiple working hypotheses so that they do not become prematurely committed to any one explanation over another.

Scientists can minimize biases and avoid 'ruling theory mentalities' by using the method of the multiple working hypotheses. Around 1890 the method of the multiple working hypotheses was developed for scientific use by T.C. Chamberlin. However, the method also has diverse applications outside of science and should be widely used by people in other disciplines and in their personal lives. The purpose of the method is to minimize and correct errors, and to prevent individuals from having unfair biases for or against certain

explanations. As a student, I learned an updated version of the method, which states that when a person makes an observation in the field, laboratory or elsewhere, he/she should immediately think of as many NATURAL explanations (hypotheses) as possible to explain the observation. The explanations (plural) should be made on site where the evidence can be observed and not left for contemplation back at the office desk some time later. Next, he/she should design experiments and make measurements to test the hypotheses. Each hypothesis is treated like a child and is only rejected if the evidence demands it. As experiments and measurements progress, some hypotheses might be eliminated, but others may be added to the list. At the end of the research, the individual may have one viable explanation, six possible explanations or none. The approach teaches the individual to be patient. The goal of science and other research is not to find 'The True Answer,' but to evaluate the possibilities and see what survives. In other words, this is 'survival of the fittest' among competing hypotheses. Ideally, the method of the multiple working hypotheses encourages patience and tolerance for alternative natural explanations, and an avoidance of 'pet theories' or 'ruling hypotheses.' The approach is also meant to encourage cooperation rather than conflict between people on research topics. That is, if a colleague comes up with an alternative explanation, it is simply added to the list of possibilities for further testing. That is, it becomes like an adopted child.

Some have criticized the method of the multiple working hypotheses as being unrealistic, unworkable, too expensive and time-consuming (Johnson, 1990). Others have noted that scientists often ignore the method (Locke, 1990). Although individuals may not have the time or money to evaluate every hypothesis, together different research institutions often can explore a great variety of explanations (Locke, 1990). For example, a number of hypotheses are being investigated for the cause(s) of the Cretaceous-Tertiary mass extinction, and not just the currently popular asteroid impact hypothesis. The key to good science or any other discipline then is to keep an open mind; evaluate a number of different natural hypotheses personally or by reviewing the literature of other researchers; and recognize that natural events, such as glaciations or mass extinctions, may have multiple causes.

In contrast to authentic science, Woodmorappe (1999, p. 94) only gives lip service to the method of the multiple working hypotheses. Under young-Earth creationism ALL multiple hypotheses must ultimately comply with YEC Genesis interpretations. So, how can Woodmorappe (1999, p. 94) claim to support the method of the multiple working hypotheses, when any hypothesis that conflicts with the ruling biblical dogma is immediately aborted rather than judged on its own merit? How can YECs truly advocate the use of multiple working hypotheses if they're not willing to question their biblical interpretations? How can YECs embrace the scientific method and the method of the multiple working hypotheses when they are willing to throw out any data that challenges their biblical dogma on a 'worldwide Flood' and a 'young Earth'? Also, how can any supernatural Bible-based 'hypotheses' be tested? How is the supernatural measured in the field or laboratory? When do YECs decide to invoke a miracle or look for a natural explanation during their 'investigations'? Clearly, in direct contradiction to the approach of the method of the multiple working hypotheses, YECs have no interest in investigating different natural explanations if they refute their religious doctrines. While the method of the multiple working hypotheses demands patience, tolerance, and a complete avoidance of 'religious short cuts', absolutist YECs too often advocate the existence of only 'ONE True Divine Answer' to explain Genesis, politics, social issues, nature and other topics.

Evangelicals that 'compromise' with the meaning of Genesis are 'steeped in rationalism.'

Many Christians, Jews and Moslems readily accept the reality of biological evolution, the Big Bang, and an ancient Earth. The acceptance of scientific answers by mainstream religious people greatly annoys YECs. However, rather than referring to Christian old-Earth creationists or theistic evolutionists as 'heretics', Woodmorappe (1999, p. 2, 5) is somewhat more 'religiously correct' and labels them as 'compromising evangelicals that are steeped in rationalism'.

For YECs, 'rationalism' is the 'evil' philosophy of humanists and atheists. In reality, a rationalist simply argues that only human reason and logic provide reliable answers to social problems and the mysteries of nature. According to rationalists, emotional gut feelings, 'inspired

scriptures', 'spiritual inspiration', astrology charts, 'psychics', 'prophets', or 'voices' from supernatural beings are not dependable sources of information. In contrast, YECs believe that 'Ultimate Truth' comes from the Bible and prayer and not from human thinking.

The YEC approach to rationalism and the supernatural is often hypocritical. If YECs really believe that it's suitable to invoke supernatural explanations in biology and geology, why don't they advocate the use of the supernatural in courtrooms, forensic labs and hospitals? Clearly, most people advocate rational explanations in their daily lives and not the supernatural. That is, most people realize that bacteria and viruses better explain diseases than demons. When a child gets sick, most of us call a doctor before a faith healer or an exorcist. During the Salem Witch Trials of 300 years ago, it was not unusual for the trial's participants to invoke the presence of witchcraft. Today, thanks to the Enlightenment, any defense attorney would be disbarred if he/she argued that a demon and not the suspect committed the crime. Even the Roman Catholic Church will consult psychologists if someone comes to them claiming to hear the voice of the Virgin Mary. Whether we're dealing with a murder victim, thick salt deposits, diseases, snowflakes, or craters on the Moon, viable explanations don't involve gods, demons, Noah's Flood or Jack Frost. By attacking rationalism, Woodmorappe is being irrational, inconsistent and unrealistic.

Within conservative Christian denominations, theistic evolutionists or old-Earth creationists may suffer persecution and even excommunication at the hands of the YEC majority. In many respects, YECs despise old-Earth creationists and theistic evolutionists much more than secular evolutionists. YECs see secular evolutionists as 'wolves in wolves clothing.' That is, YECs see the beliefs and actions of secular evolutionists as being open and obvious. However, from the viewpoint of young-Earth creationism, 'apostate' believers are much more dangerous to the YEC faithful because they are 'wolves in sheep's clothing'.

I don't doubt that YECs sincerely believe that the 'devil' will 'use' Christians that don't accept the YEC view of Genesis. However, rather than being 'wolves' or 'heretics', Old-Earth creationists and theistic

evolutionists demonstrate that sincere believers don't have to submit to the cultic and medieval control of YECs to be devout or even biblical conservatives. Furthermore, it is very obvious that theistic evolutionists and old-Earth creationists are serious threats to the ability of YEC leaders to have power and control over their 'flock' and the ability of YECs to attract more converts and financial support. In other words, Christian old-Earth creationists and theistic evolutionists are telling people that they don't need to throw away their minds and believe nutty medieval doctrines to be good Christians.

Long-age radiometric dating is supported by public monies, the mass media and pushed onto 'unsuspected' children in schools. Young-Earth creationism isn't.

The last refuge of any intellectually bankrupt fanatic is to claim that their goal is to 'save' and 'protect' children. In contrast to legitimate groups that strive for the welfare of children, YECs attempt to obtain public sympathy and support by portraying the science of geochronology as 'brainwashing' and 'victimizing' children, whereas the 'heroic' YECs are there to 'save' innocent children from 'brainwashing', 'demonic Darwinian doctrines', and 'hell fire'.

Certainly, Federal funding agencies, public schools, and the mass media support geology, including an ancient Earth. This is because of the overwhelming evidence FOR an ancient Earth (e.g., Baadsgaard et al., 1993; Strahler, 1987). Geologists and the geologic time scale have a long and successful record of finding oil, valuable ore deposits and presenting a coherent and logical view of the Earth's history, whereas young-Earth creationism is an unrealistic and sectarian religious cult (e.g., Vardiman et al., 2000), which is ultimately based on talking snakes and magical fruit. Additionally, petroleum companies want scientists with a working knowledge of the geologic time scale and not individuals that claim to find oil with Bibles, divining rods, or 'psychic vibrations'. That is, petroleum geologists are paid well for their ability to interpret the geologic record with actualism (modern uniformitarianism) and not their ability to interpret Genesis. Science deals with facts, young-Earth creationism deals with denying facts by invoking groundless and superfluous ***ex nihilo*** creation miracles (for example, see: It'll Take a Miracle to Save their 'Science'. Indeed, no one

should underestimate the ability of a YEC to make up a creative excuse to explain away a failed Bible 'prophecy' or a section of the geologic record that refutes his/her beliefs. The desperate mind can always invent elaborate excuses. For some creative and far-fetched examples, see: Apologetics Index and How did Judas Die? Would YECs REALLY accept these excuses if Mormons used them to defend the ***Book of Mormon***?

The National Science Foundation uses public funds for authentic scientific research and not religious YEC ideas that will always fall back on ***ad hoc*** miracles if their 'research' fails to explain reality (Humphreys, 2000; Vardiman, 2000). Nevertheless, YEC organizations obtain financial support from church-goers who rarely, if ever, take the time to read and understand anything but YEC literature. As RELIGIOUS MINISTRIES, YEC organizations can always apply for tax-exempt status. To their credit, the ICR and other YEC groups are members of the Evangelical Council for Financial Accountability. Nevertheless, there is little doubt that many of these YEC ministries survive on the backs of many poor and elderly members that really can't afford to be throwing money at such a hopeless cause.

Woodmorappe (1999, p. 5) claims that YECs are under no obligation to provide alternative explanations for radiometric dating. Fine, unless they're willing to propose alternative SCIENTIFIC hypotheses to explain radiometric dating within a YEC timescale that don't involve unproven miracles, they should expect NO financial support from the National Science Foundation and other sponsors of scientific research. It's easy to comb the scientific literature for irrelevant quotations and pound the Bible, but to construct sensible scientific hypotheses to explain how a young Universe could possible exist is far beyond reason. It's also easy to hide behind groundless miracles when the scientific data refute the YEC's fundamentalist claims. In the next few years, we'll see if the YEC RATE project can obtain any results to explain away radiometric dating without hiding behind miracles or misquoting the scientific literature.

'Young-Earth Creation evangelism' is effective and when Christians compromise with 'uniformitarianism' (actualism), they only hinder the promotion of the Christian Gospel.

The Earth is old, round, and a speck in an unexceptional galaxy in a huge Universe. Most YECs now recognize that we are in a minor corner of a large three-dimensional Universe, yet they refuse to recognize that we are also in a minor part of the fourth dimension - time. Whether YECs like it or not, they have to deal with this reality. Like their flat-Earth spiritual brethren, YECs are only hurting their religious cause by denying scientific reality. They must deal with the reality of an ancient Earth, or they will ultimately vanish into ridicule and oblivion. Liberal, moderate and even many evangelical Christians recognize this fact.

Woodmorappe (1999, p. 5) cites 'numerous cases' of people that have embraced fundamentalist Christianity through 'creation evangelism'. However, Woodmorappe and his YEC allies don't tell the public about the 'other side of the story'. There are numerous YECs that have studied science or worked as geologists and the deception of young-Earth creationism has driven them out of Christian fundamentalism and in many cases entirely out of Christianity. Examples of ex-YECs include Glenn Morton, a petroleum exploration geophysicist and Christian, and Jon Scott, the founder of the now defunct 'Talk.Science' YEC web site. Also see: What Harm is Done by Creation Science? Furthermore, Babinski (1995) contains numerous testimonies of people that left Christian fundamentalism for a variety of reasons. YECs need to realize that by burying their heads in Genesis and denying the reality of nature, they ultimately sabotage their cause. Woodmorappe and other YECs must recognize that the falsehoods of young-Earth creationism will eventually be exposed and when they are, as in any cult, the followers will become disillusioned and the many good things in Christianity could be ultimately harmed. When YECs distort reality for Jesus, when they believe that the ends justify the means, when they select or reject scientific data according to their dogmatic interpretations of Genesis (e.g., Vardiman et al., 2000), they are only damaging themselves and their cause. Distortions and falsehoods have no place in any scientific, religious, political, business, government, or philosophical pursuit. Mainstream Christians, which YEC fanatics treat like 'heretics', learned a painful lesson from Galileo; that is, don't attempt to distort scientific reality with outdated and unrealistic Biblical interpretations and church doctrines. The people will eventually discover what is scientific reality

and what is biblical myth, and when they do, fundamentalist Christianity will be left looking foolish.

When pushed into a corner, YECs will often attempt to escape the trap by claiming that the 'foolishness' of the world is really 'wisdom' and 'Truth' in the eyes of God (1 Corinthians 1:18-3:19). However, any group can play this lame game. In other words, any cult can claim that if the majority of people think that they're foolish, then according to 1 Corinthians, the foolishness of the cult must be God's 'Truth'. For example, when shown that the ***Book of Mormon*** is a forgery, Mormons can also hide behind this doctrine, as well as geocentricists and flat earthers. Do YECs really want to be hiding with such company? Do YECs really want to be using the same irrational excuses as their opponents, Mormons and flat earthers? Why is it alright for YECs to claim a monopoly on the 'worldly foolish and divine wisdom' game and to deny such silly excuses to the Mormons, flat earthers or any one else that has irrational ideas in the eyes of an ordinary citizen with common sense? YECs need to be honest and admit that their claims are based on hopeful miracles and myths, and not reality.

Religious bigotry exists among the critics of young-Earth creationism

Woodmorappe (1999, p. 6) and other YECs often claim that their critics are 'religious bigots'. The YEC literature contains many 'testimonies' from YECs claiming to have been persecuted because of their religious beliefs by 'evolutionists' in universities and businesses. No doubt, some of these accusations are true and young-Earth creationists have been unjustly treated.

Bigotry refers to unjustified and irrational biases against certain individuals because of who they are or what they believe. Certainly, all accusations of bigotry must be carefully and thoroughly evaluated. Sometimes these accusations are entirely true and the bigots must be admonished. At other times, however, certain individuals will simply cry 'bigotry' if anyone dares to disagree with them, and especially if someone manages to thoroughly expose their fallacies in logic, sophomoric arguments and unsubstantiated allegations. Obviously, certain YECs easily confuse honest criticism for 'bigotry'. That is, some YECs simply cannot stand individuals that refute their childish ideas

rather than embracing them at the altar of conversion. Still other YECs are just plain obnoxious and simply cry 'bigotry!' when there's a backlash to their detestable rhetoric. Unfortunately, another common refuge of fools and scoundrels is to look for sympathy by claiming to be 'victims' of 'bigotry'.

Because of poor or inadequate training and the bogus nature of 'science degrees' from the ICR 'Graduate School' and many other YEC schools, YEC graduates may fail to meet the minimal requirements for science positions in academia, government or industry. A few of these rejected candidates may claim to have been 'victims of bigotry' even though, despite any technically legitimate degrees, their understanding of science is so poor that they don't qualify for these positions and their interviewers know it.

In church services, people are taught to be polite, reserved, say 'peace be with you' and hug each other. Among the YECs, hostility is left for the 'heretics'. In comparison, scientists are taught to vigorously challenge any new hypotheses and claims. As former U.S. President Harry Truman said, 'If you can't stand the heat, get out of the kitchen'. Nevertheless, it's not unusual for scientists to vigorously debate an issue at a conference meeting, but to socialize with each other afterwards.

Despite so-called cries of 'widespread persecution', there are YECs that have earned legitimate science degrees from secular universities (e.g., Steve Austin, John Morris, Tasman Walker and Andrew Snelling - see A Response to a Dubious Diluvium: A Tas Walker Creationist Fantasy and Flood Geology: a house built on sand). There are also countless examples of creationists or theistic evolutionists that are faculty members at American universities. Clearly, secularism, agnosticism and atheism should not automatically be equated with 'anti-theism' and non-religious individuals and institutions should not be automatically labeled as anti-religious.

In contrast to the generally tolerant behavior of most secular schools, it is quite clear that the ICR 'graduate school' will never award a 'Master's degree' to anyone that refuses to embrace young-Earth creationism. Conservative religious schools routinely require their faculty to sign loyalty oaths and openly exclude 'heretics', gays, liberals, and 'infidels'.

Rightfully, such oaths and discriminatory admissions policies are anathema at secular universities. Because discrimination is far more common in religious schools than secular public schools, perhaps YECs could set an example and open the doors of their schools to religious and political diversity before they complain about 'discrimination' in secular schools.

At the same time, from my experience, the debates within academia are not even close to the bitter cries of 'heresy' and threats of excommunication that come from YECs if they discover that one of their brethren is having second thoughts about young-Earth creationism. Would YECs really claim that a theistic evolutionist has a much greater chance of being unfairly denied tenure at a secular university because of his/her religious beliefs than being excommunicated from a conservative church? Unlike science departments, churches still have heresy trials for people that don't have 'doctrinally correct' thoughts (e.g., Heresy Trial in Orlando, Florida and UK Church Brings Back Heresy Trials). When was the last time a physicist was expelled from a physics department for being a Mormon or having unorthodox views about the Big Bang or Relativity?

I recognize that there are countless geologists that are very angry with Woodmorappe and other YECs. Why do some geologists lose their patience with YECs? It's because we work hard to solve environmental problems (e.g., use of radiometric dating to estimate the long-term stability of nuclear waste sites, Fleck et al., 1996), locate oil and ore deposits and try to meet the other needs of our society. In response to our hard work, young-Earth creationists just fill up their car tanks with gasoline found by applying the geologic time scale and spit in our faces by telling us that we are stupid dupes of satan for not using the Bible to find oil. How would creationist computer scientists, like Dr. Plaisted, feel if someone falsely accused computer scientists of routinely creating computer viruses as part of a big conspiracy so that computer companies can sell more software and anti-viral programs? It is not surprising that the groundless accusations of many YECs generate a lot of loathing and anger among scientists and drive people away from Christianity. As G. Brent Dalrymple once said at a Geological Society of

America conference: 'The creationists' science is so bad that we can only hope that their theology is better.'

CONCLUSIONS

Contrary to Woodmorappe's (1999, p. 16, 5-6, etc.) utterly absurd claims, it's the YECs and not the scientists that are chained to oxymoronic irrationalities that rival those of ***1984*** and Huxley's ***Brave New World***. In the sinister spirit of ***1984***, YECs clearly claim: 'Genesis dogmatism is not dogmatism'. 'The ruling theory mentality of Genesis is not a ruling theory mentality.' 'You either get your geology from Genesis or satan.' 'The monolithic interpretations of Genesis are diverse and based on multiple working hypotheses.' 'Rocks with both metamorphic and igneous minerals and textures were just created to look that way by God.' 'Slavery to YEC interpretations of Genesis is freedom.' In contrast, science thrives on conflict, skepticism, diversity and freedom.

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