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Genesis and world chronology

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Abstract: Distrust of Genesis as history has been fostered by uniformitarian geosciences and Deep Time chronology. The reality or otherwise of a global flood has a crucial bearing on world history and chronology. Evidence of disparate kinds favouring such a flood from Scripture, from geoscience and from anthropology is presented. Radiocarbon dating, suitably calibrated for the flood discontinuity, substantiates a Compact Time chronology of thousands of years for earth history. This is reinforced by comparison of flood model radiocarbon dates for ancient Near Eastern sites with those independently obtained by archaeologists. Further corroboration of the Genesis chronology comes from discoveries of preserved soft tissues, proteins and even DNA in fossil dinosaur bones and in other specimens from throughout the geologic column. Belief in a recent, rapid creation is credibly defensible by science divested of secular naturalist ideological constructs. Compact Time chronology rehabilitates belief in the historical reality of the Genesis accounts of the origin of life and the origin of death.

Keywords: Genesis; Chronology; Global Flood; Radiocarbon; Dinosaur fossils.

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Gênesis e a cronologia mundial

Resumo: A desconfiança de Gênesis como história tem sido fomentada pela geociência uniformitarista e pela cronologia do tempo profundo. A realidade ou não de um dilúvio global tem um papel crucial na história e na cronologia mundiais. São apresentadas evidências de tipos diferentes que favorecem tal dilúvio a partir das Escrituras, da geociência e da antropologia. A datação por radiocarbono, devidamente calibrada para a descontinuidade do dilúvio, fundamenta uma cronologia compacta do tempo de milhares de anos para a história da Terra. Isso é reforçado por datas de radiocarbono com base no modelo diluviano para sítios do antigo Oriente Próximo comparados com os obtidos independentemente pelos arqueólogos. A corroboração adicional da cronologia de Gênesis provém de descobertas de tecidos moles preservados, proteínas e até mesmo DNA em ossos de dinossauros fósseis e outros em espécimes de toda a coluna geológica. A crença numa criação recente e rápida pode ser defendida pela ciência isolada de construções ideológicas seculares naturalistas. A cronologia do tempo compacto reabilita a crença na realidade histórica dos relatos de Gênesis sobre a origem da vida e a origem da morte.

Palavras-chave: Gênesis; Cronologia; Dilúvio global; Radiocarbono; Fósseis de dinossauros.

Are Genesis narratives historical? Doctrinal implications

Fathoming the past is essential for insight into future prospects. The world's three major monotheistic religions, Judaism, Christianity and Islam are all deeply rooted in historical events and phenomena. Genuine knowledge of past events is imperative for understanding Christian beliefs and Christian future expectations. For centuries the descriptions of cosmic and human origins chronicled in the book of Genesis were bedrock beliefs but, for many Christian thinkers, this has been eroded by uniformitarian geosciences and evolutionary biology. Scholars, persuaded by these sciences, characterise the first eleven chapters of Genesis as allegory or myth (MORELAND, 2017). The implications of this for Christian doctrines of God, of creation, of sin, and of redemption are very sombre.

That the author of Genesis[2] believed he was writing history is known from his literary style which matches that of other historical books of the OT. Furthermore,

[2] Compelling reasons to believe this was Moses are given by: K. A. Kitchen (2003, p. 295-304); J. B. Doukhan (2016, p. 25-27).

Genesis uses Hebrew syntax such as the "*waw* consecutive" (WALTKE, 1990, p. 543-553; JOÜON, 1993, p. 389-393) and verb tenses (GESENIUS, 1956, p. 132-133; SARFATI, 2015, p. 48) that are typical of sequential historical narratives. Many OT and NT writers refer to events and people in Genesis as real and historical. The creation account is mentioned many times in the wisdom literature and in the major prophets. Other passages express a longing for the paradise of Eden to be restored. The book of Revelation culminates on a note of re-creation featuring elements from Eden. It is taken for granted throughout both Testaments that the OT patriarchs were Israel's real ancestors. Genesis is foundational to understanding the theology and ethical teachings of the rest of the Bible. Some of the implications if Genesis is understood to be unhistorical allegory or myth are listed below:

- The narratives are deceptive and misleading because presented as if historical.
- If OT and NT writers all mistook Genesis for history can their "inspiration" be trusted when they report other events and miracles?
- Adam and Eve were not the progenitors of all humankind.
- There was no real global flood.
- Living organisms evolved by a process of death and disease over millions of years that can't be described as a "good" creation.
- Death would not be "the wages of sin". It would have existed since the first life and be an essential element in the evolutionary method of creation.
- If it took millions of years for mankind to evolve, is a supernatural resurrection in an instant believable?
- The credibility of the entire corpus of Scripture is damaged.

It is very desirable that these outcomes be avoided. Much evidence has been emerging in the last decades that radically undermines the sciences that have influenced liberal scholars to doubt the historicity of Genesis. Cogent reasons for mistrusting and discarding the major tenets of these sciences are in the public domain (MEYER, 2021; GALLOWAY, 2021; THOMAS, 2021; AXE, 2016; CARTER, 2014; WILLIAMS, 2020).

Deep time or compact time world chronology?

Chronology is the backbone of history, and it lies at the root of the controversy over the historicity of Genesis. Hundreds of millions of years (known as Deep Time) are

essential to the uniformitarian geosciences account of the vast sedimentary and seismic features of the geologic column. Furthermore, Deep Time is indispensable for the evolution of the immense range of plant and animal species by the neo-Darwinian mechanism. However, Deep Time is irreconcilable with the only thousands of years of world history (hereinafter referred to as Compact Time) implicit in the rapid creation account and patriarchal genealogies of Genesis.[3]

Did a real global flood take place?

A global flood would be a colossal discontinuity in the backward flow of historical events so it is essential to establish if this giga-catastrophe really occurred. Genesis devotes three chapters to a detailed, rational, and compelling account of the Noachian global flood (Gen 3-8). NT writers believed the flood was a real event. For example, Matthew reported Christ as affirming "For as in the days that were before the flood" (Matt 24:37-39). Other NT writers including Luke (Luke 3:36; 17, 26), Peter (1 Pet 3:19-22; 2 Pet 3:3-8) and the author of Hebrews (Heb 11:7) all mention elements from the Genesis flood account. Belief in a universal deluge was also evidently the norm throughout the Ancient Near East (ANE). Cuneiform tablets unearthed from numerous sites in the ANE are inscribed with resonant flood stories. In the Sumerian account Ziusudra escapes in a boat. Similar narratives are found in the Babylonian Atrahasis and Gilgamesh epics. Here the god Enki advised the hero Atrahasis to escape in a boat with his family and animals. After seven days the flood ended and Atrahasis offered sacrifices to the gods. In the Gilgamesh Epic the hero-king Gilgamesh journeyed to meet flood survivor Utnapishtim who told him a detailed flood story very similar to that of Atrahasis (PRICE, 2017, p. 55-66; ANDERSON, 2014, p. 2-3; HOLDEN, 2013, p. 206-211).

What is more, it's highly significant that narratives of a massive global inundation feature prominently in folk history from diverse nations on every inhabited continent. Anthropologists have discovered folklore and traditions from practically every civilization and culture. Hundreds of these tell of a huge, catastrophic flood that destroyed the world and was survived by only a few individuals and animals (REHWINKEL, 1951,

[3] For dates for creation and the flood derived from the numerical data in the genealogies of Genesis 5 and 11 see: R. Young (1970, p. 210); D. Batten (2001, p. 24-27); J. D. Sarfati (2015, p. 125-132).

PERLOFF, 1999, LIGUORI, 2021). Byron Nelson analysed 200 flood traditions from around the world and found they contained many common elements (NELSON, 1968). In 95 % the flood was global, in 88% a certain family was saved, in 70 % they survived in a boat, in 67 % animals were also saved, in 57 % the boat landed on a mountain, in 35 % bird scouts were employed and in 9% eight people were saved. Most of these accounts derive from different historical epochs and geographically separated civilizations that could not possibly have copied from one another. They stem from written and oral traditions dating from long before any missionaries arrived with the Genesis account of Noah. The soundest way to understand the widespread, similar flood legends is to recognize their kernel of authenticity. All the world's peoples, though now separated geographically, linguistically, and culturally, have descended from a group of real survivors of a real global flood. They survived on a real boat which eventually landed on a real mountain. The survival drama of this apocalyptic event has never been forgotten.

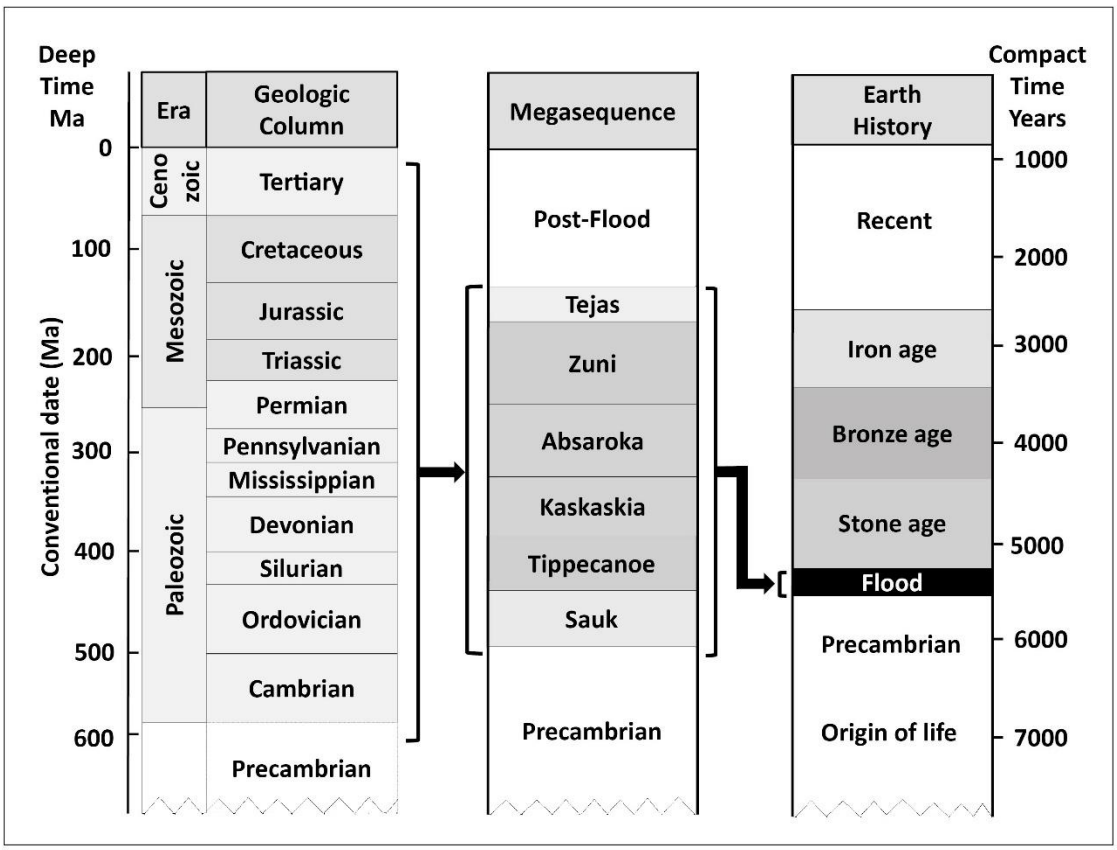
Geological evidence of a global flood

Evidence pointing to a global flood has been building up within academic geosciences itself. Uniformitarianism has been losing ground to "actualism" amongst earth scientists (SHEA, 1982, p. 701-2; MARVIN, 1990, p. 147-54, PALMER, 1999). Actualism recognises many rapid catastrophic events to account for geological features. These include: (i) many colossal, rapidly water-deposited sedimentary strata (NISBET, 1998, p. 329-330; ROTHWELL, 2000, p. 75-80); (ii) huge erosional features due to massive floods; (iii) enormous igneous rock formations (RAMPINO, 1998, p. 663-668); (iv) many extensive fossil "graveyards"; and (v) five major mass extinctions and at least twenty minor ones (RAUP, 1982, p. 1501-3; RAUP, 1986; ALLABY, 1983; DONOVAN, 1989; MCGHEE, 1996, HALLAM, 1997). The influential earth scientist, the late Professor Derek Ager, remained a convinced Deep Timer but wrote several books citing many examples of sudden geological catastrophes. He said that: "It is obvious to me that the whole history of the earth is one of short sudden happenings with nothing much in particular in between" (AGER, 1993, p. 197-8, 14). Removing the empty gaps between these happenings would link together all the individual catastrophes in a short-duration, composite, global giga-catastrophe.

Modern catastrophes, including the Mount St. Helens eruption in May 1980 and the March 2011 earthquake off the Tōhoku peninsula of Japan, have demonstrated how geological features like large canyons and layered strata, once thought to take millions of years to develop, can actually form in days. They showed that an initial high-energy event, frequently an earth movement originating deep in the crust, or from the mantle, could trigger a whole succession of interrelated catastrophic episodes. Such an event on a greatly magnified scale, extending across the entire globe, is entirely conceivable. All the individual catastrophic features that characterise the Earth's crust, from the Cambrian upwards, could be linked into this one giga-lithic event.

That this is the real explanation of the geologic column is slowly gaining credence, not least because of the discovery that it actually consists of six sedimentary megasequences. These colossal groupings of sedimentary strata named Sauk, Tippercanoe, Kaskaskia, Absaroka, Zuni and Tejas, were first identified by Lawrence Sloss in the 1960s in connection with the interior portion of North America (SLOSS, 1963, p. 93-114). More recently geoscientist Timothy Clarey and others have demonstrated that these megasequences extend across at least three and probably all the continents (CLAREY, 2020). The upper and base layers and the individual strata of the megasequences are traceable right across the continents and were *simultaneously* deposited in a colossal-flooding event. Each continent shows the same general pattern. The distributions of marine, land and highland fossil types also match from continent to continent and further validate the flood concept. All the conventional geologic column periods from the Tertiary to the Cambrian are subsumed in these megasequences (see Figure 1).

Figure 1 — Relationship of the Geologic Column, the Megasequences and the Global Flood.



Dr. Timothy Clarey (2020, p. 396) made the telling statement that "The Geologic Column is global because the flood was global." The sedimentary data are compelling evidence that a flood of global extent began with, or shortly before, the Sauk megasequence, successively increased through the Tippercanoe, Kaskaskia and Absaroka megasequences, reached its highest point in the Zuni and retreated in the Tejas megasequence (CLAREY, 2020, p. 468). The data match the great flood described in Genesis remarkably well.

Many geological features that are problematic for uniformitarian geology such as overthrusts, the extensive fields of erratic boulders, widespread flat planation surfaces such as plateaus, mesas and buttes, and the Ice Age(s) are easily explained by the global flood (CLAREY, 2020; OARD, 1990). Oil and gas are known to form rapidly under the right conditions of temperature and pressure, as do rocks such as carbonates (limestone), shales and laminated clays which are the most abundant sediments on earth (CLAREY, 2020, p. 39). Sedimentary rocks all over the world display delicate and easily obliterated features including ripple marks, cross-bed sands, raindrop prints, flue and scour marks,

graded bedding and “mudcracks”. These features are quickly destroyed by bioturbation and, if exposed, by various types of weathering. Their preservation is clear-cut evidence of a comparatively recent catastrophic flood.

This scenario also harmonises with many characteristics of the fossil record. Evolutionary paleontologists readily admit that in the fossil record most species show abrupt appearance, stasis and sudden disappearance (RAUP, 1979, p. 22-29; ELDREDGE, 1996, p. 95; MAYR, 2001, p. 16). The Cambrian explosion, other abrupt “radiations”, and the “big five” mass extinctions are readily explained as the sudden burials of large ecological units of flora and fauna during the colossal flood. Rightly understood, the geologic column portrays the rapid successive *burials* of populations of taxa that, before the flood, all existed together, in their appropriate ecological niches. All this matches up with the Genesis account of the sudden destruction and burial of the whole world in a year-long global flood.

The scientific evidence for a recent inundation of global extent is very strong and has been steadily accumulating as research progresses. The aqueous nature, magnitude and destructiveness of the event agree well with the folklore originating from hundreds of people groups living on essentially every continent. The data correlate well with the Genesis account of a world-destroying flood survived by only one family and a representative sample of animals. There are good reasons for moving out of the shadow of uniformitarian geosciences and Deep Time.

A reliable clock for dating past events

The global flood was a huge discontinuity in the pattern of past events and in their rate of passage. This catastrophe invalidates the uniformitarian assumption of past geological processes matching present ones and happening at present rates. Because conventional chronometric methods (clocks), including the radiometric potassium-argon (K-Ar), rubidium-strontium (Rb-Sr), samarium-neodymium (Sm-Nd), uranium-lead (U-Pb) and other methods make no allowance for this giant discontinuity they give highly unreliable results. Numerous critiques of these clocks have highlighted the fallibility of the assumptions on which they are based and the invalid ages they produce (WALTON,

2021, p. 1-32; CUPPS, 2019; MASON, 2014, p. 193-213; SNELLING, 2009, p. 797-855; COFFIN; BROWN; GIBSON, 2005, p. 325-370).[4]

All human minds are powerfully influenced by various cognitive biases. The human brain uses these preconceptions as mental shortcuts to help make sense of incoming information. "Confirmation bias", the tendency to interpret and favour information in ways that affirm prior beliefs, is a cognitive tool of great consequence. The seriousness of this bias in misdirecting scientific research has been demonstrated many times (ROSENTHAL, 1966; BROAD; WADE, 1985, p. 107-125). It is the reason "double blind" experiments are so important in clinical trials to avoid defective products being approved. The long ages published by geochronologists are strongly influenced by confirmation bias in several ways. Deep Time preconceptions influence their judgements on which specimens are suitable for study, which dates to select from the spread obtained, and on the role of radioactive element migration into and out of samples. The conventional geologic timescale enjoys huge prestige, plus the backing of the majority of earth scientists. Confirmation bias ensures that ages that disagree with Deep Time are "reinterpreted" in various ways. Only dates that are concordant with the established geologic column are deemed valid and reach publication in mainline periodicals. Those uncommitted to uniformitarianism are fully justified in viewing the Deep Time radiometric methods with a healthy dose of scepticism.

An alternative clock, that makes appropriate allowance for the global flood discontinuity, is highly desirable. Carbon is widely distributed in the natural world in materials such as graphite, coal, oil, wood and bone that are hydrophobic and not so susceptible to gain or loss of content to circulating ground waters. Radiocarbon dating has a different basis from the other radiometric methods in that it depends on an analysis of the amount of carbon-14 (^{14}C) in a specimen compared with the known, roughly constant amount of ^{14}C in the biosphere (TAYLOR; BAR-YOSEF, 2014). The radioactive isotope ^{14}C decays away comparatively rapidly with a half-life of just 5730 years. The miniscule amount of ^{14}C remaining in a specimen after 100,000 years is too small for detection by even the most sensitive modern methods. Fossils, specimens, or artefacts older than this will contain no detectable ^{14}C. It was expected, therefore, by Deep Time earth scientists,

[4] For a critique of other radiometric methods and thermoluminescence dating see V. R. Cupps (2019). Additional information about radiohalos and zircon crystal dating is also presented.

that radiocarbon dating would only be applicable to samples of recent to late Stone Age provenance. According to Deep Time chronology, fossils and specimens from the majority of the geologic column should be radiocarbon "dead", which is devoid of detectable ^{14}C.

A very remarkable discovery is that specimens and fossils from throughout the geologic column actually contain easily measurable amounts of radiocarbon. Many laboratories in different countries have reported finding significant ^{14}C in materials as diverse as wood, coal, anthracite, graphite, bone, marble, calcite and natural gas (WHITELAW, 1970, p. 56-71; SNELLING, 2009, p. 855-864; BAUMGARDNER, 2005, p. 587-630). Paul Giem reviewed about seventy articles from the academic radiocarbon literature reporting ^{14}C in specimens from virtually every level of the geologic column down to and including the Precambrian (GIEM, 2001, p. 6-30). It is noteworthy that sizeable amounts of radiocarbon have been measured in coal from different seams conventionally dated from 34 to 311 million years old (BAUMGARDNER, 2005, p. 587-630; BAUMGARDNER, 2003, p. 127-147).

A further discovery is that fossil dinosaur bones from disparate locations have also been found to contain substantial amounts of radiocarbon (THOMAS; NELSON, 2015, p. 299-311; MILLER, 2012). The conventional radiocarbon method, even uncorrected for the flood, furnishes dates for these specimens vastly younger than the Deep Time usually assigned to them.[5]

Deep Timers dismiss all this ^{14}C as "contamination", but extensive tests and investigations have disproved this (SNELLING, 2009, p. 858-861; GIEM, 2001, p. 6-30). Measurable contamination is not introduced when samples are carefully prepared and furthermore, background radiocarbon is negligible for properly serviced instruments. The quantities of ^{14}C detected cannot be attributed to contamination of samples during their time of burial.

The half-life of ^{14}C is only 5730 years so, for samples millions of years old to still contain measurable quantities of contamination, it would have to keep recurring many times: which is unbelievable. Furthermore, it is ironic that when laboratories report *similar amounts* of radiocarbon in specimens from ancient Stone Age cultures, contamination is not mentioned, and the corresponding dates are accepted as historically

[5] By the conventional radiocarbon method ages from 44,000 to 54,000 years were obtained for coal seams and from 22,000 to 41,000 for dinosaur fossils see: J. C. Walton, (2021, p. 39-48).

sound. The inconsistency in accepting the same result in one context and rejecting it in another is obvious.[6]

Knowledge of the amount of radiocarbon prevailing in the biosphere *at the time the specimen was buried* (or the organism died) is needed for calculation of radiocarbon dates. Conventional radiocarbon dating assumes that the level in the biosphere has remained fairly constant into the far past.[7] However the flood discontinuity would have drastically altered this. During the flood enormous quantities of carbon-containing materials were buried and now appear as coal, oil, natural gas and carbonate rocks. The world's biosphere before the flood was much larger and more luxuriant than at present.[8] Estimates of this buried carbon suggest the biosphere before the flood contained 300 to 700 times as much carbon as at present (BROWN, 1979, p. 30-44; SCHARPENSEEL; BECKER-HEIDMANN, 1992, p. 541-549, GIEM, 2001, p. 6-30). The ^{14}C in the pre-flood biosphere would consequently have been diluted by a large factor. It is essential this be taken into account in deducing ages from raw measurements of ^{14}C in ancient samples. Several scientists have devised means of calibrating radiocarbon data to factor in the steep increase in the level of ^{14}C in the biosphere after the flood (WHITELAW, 1970, p. 56-71; HEFFERLIN, 1972, p. 68-71; HANSON, 1976, p. 50-55).

Physicist Robert Brown devised a very applicable method based on an exponential function to model the increase in ^{14}C due to all factors during and after the flood.[9] He derived a mathematical expression to calibrate radiocarbon data allowing for flood effects (BROWN, 1979, p. 30; 1975, p. 6; 1990, p. 56-65; 1992, p. 45-47; 1994, p. 66-79). His flood calibrated dates, hereinafter referred to as 'Flood Model' dates, are compared with conventional radiocarbon dates in Figure 2A. The straight dashed line in the Figure shows conventional ^{14}C dates stretching back into the past. The flood model ^{14}C dates (curved line) increase linearly from the present to about 3000 BP (1000 BCE) but then start to level off. They agree well with the conventional ^{14}C ages and also agree with

[6] If contamination by radiocarbon is rife, as Deep Timers maintain, then contamination of other radioactive elements such a potassium, rubidium, samarium and uranium must also be expected. This would further invalidate these radiometric dating methods.

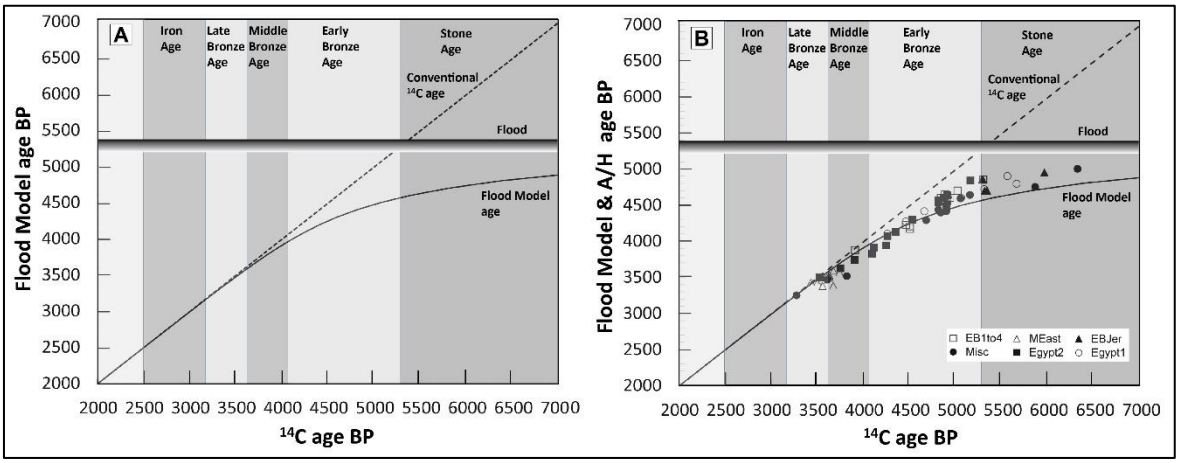
[7] Comparatively minor variations have occurred, and these are allowed for by means of the 'IntCal13' calibration curve J. P. Reimer et al. (2013, p. 1869-1887). This calibration depends on dendrochronological data but the two dating methods exist in an essentially symbiotic relationship. For discussions of this see: J. C. Walton (2021, p. 94-99); A. Snelling (2009, p. 894-898).

[8] It is probable deserts and arctic regions were absent in the pre-flood world.

[9] Other factors including the steady decrease in strength of earth's magnetic field also contribute to the increase in the ^{14}C level.

archaeo-historical (A/H) data from the present till about 3000 BP (1000 BCE) exactly as is found in practise.

Figure 2 A & B — Comparison of Flood Model Dates with Conventional ^{14}C and Archaeo-Historical Dates. [The marker symbols are the A/H dates from the professional literature]



Further back in time the flood model curves below the conventional ^{14}C line and yields *younger dates*. The difference gets greater the older the samples are. The flood model predicts that conventional radiocarbon dating will yield dates for Middle, Early Bronze, and for Stone Age and earlier objects that are too old (too high). A date for the flood of about 5350 BP (3350 BCE) is approached roughly asymptotically by Brown's function.

Tests of flood model radiocarbon dating

An excellent test of the validity of Brown's flood model is to compare its dates with those of historians and archaeologists who have obtained theirs by methods that are *independent* of radiometric dating. They have developed chronologies for ANE sites by careful comparisons and extrapolations from pottery styles, inscribed tablets, king lists, monuments, astronomical data and otherwise. These chronologies are by no means infallible but give reasonable estimates of the "true" dates. Recourse to the archaeological literature immediately reveals that conventional radiocarbon dating does indeed produce dates for Bronze Age and Stone Age specimens that are much too high (too old) in comparison with archaeo-historical dates (ROHL, 1995, p. 479-490; WALTON, 2021, p. 78-102). A serious controversy about radiocarbon dating for these periods is ongoing in

the literature between two camps. On one hand, radiochronologists want to extend history by many centuries but on the other hand, historians and archaeologists oppose this and express the view that there is "something wrong" with radiocarbon dating for these eras.

Archaeologists James Mellaart (1979, p. 6-22), Eliot Braun (2001, p. 1279-1295) and Arthur Knapp (1992, p. 714-720), Egyptologist Haas (1987, p. 585-606) and radiochronologists Bruins and Van Der Plicht (2001, p. 1321-1332) and others have published articles highlighting that conventional radiocarbon dates are always too old in comparison with archaeo-historical dates. Essentially every specimen, artefact or remnant, dated by different radiocarbon dating laboratories, and from different Near and Middle Eastern Bronze Age sites of these eras, yielded conventional ^{14}C dates that were too old in comparison with archaeo-historical dates. The apparently irreconcilable problems created by radiocarbon dating for ancient Mesopotamian and Egyptian chronologies were comprehensively reviewed by Michael Hasel (HASEL, 2004, p. 6-31) and have been lucidly described by David Rohl (ROHL, 1995 p. 480).[10] Conventional radiocarbon creates multiple "empty centuries" where no archaeological remains are to be found and there are no traces of kings or rulers. The "something wrong" with radiocarbon dating is the failure to recognise the effect of the massive global flood discontinuity.

In Figure 2B conventional radiocarbon dates are represented by the straight dashed line of unit slope. The flood model dates are represented by the full curved line. Independent archaeo-historical dates, published by the professional historians and archaeologists mentioned above, for a sizeable set of data from ANE sites, are shown as the individual markers. By about 3500 BP (1500 BCE) the archaeo-historical dates are already perceptibly younger than conventional ^{14}C dates. By about 6000 BP (4000 BCE) the difference is as large as 1000 years. Such huge discrepancies make it easy to understand the empty centuries and the discord prevailing between historians and radiochronologists. The graph also reveals that the archaeo-historical ages are levelling out towards a limit somewhere between 5000 and 5500 BP (3000 and 4500 BCE) on the vertical axis. That limit corresponds to the discontinuity caused by the flood.

[10] Note that these conclusions do not rely in any way on Rohl's radical proposals for shortening and re-dating Egyptian chronology.

The flood model ages (full curve) match the archaeo-historical data remarkably well up to at least 5000 BP on the horizontal axis. For specimens older than this, the A/H dates appear marginally older than the flood model dates. The uncertainties in the historical dates of these older specimens are large and there is a tendency for them to be 'coloured' by conventional ^{14}C dating. The flood model line probably does lie within the error limits of these earliest A/H observations. The agreement of the curvature and absolute values of the A/H ages with the flood model is unmistakable. This gives strong support to the Compact Time chronology for Earth history and points to a date for the global flood of not long before 5000 BP. Use of the flood model calibration brings radiocarbon dates into line with archaeo-historical dates and so resolves the long-running inter-disciplinary dispute.

Consequences of flood model chronology

When the flood model calibration is applied to the radiocarbon in coal specimens from Cenozoic, Mesozoic and Paleozoic strata it is found they all date to within a narrow band of 5360-5350 BP (3360-3350 BCE). Within the error limits of the measurements these ages all fall within the time of the global flood. Similarly, fossil bones of Cretaceous and Jurassic dinosaurs, from several different locations, all contained substantial amounts of ^{14}C. Applying the flood model calibration leads to radiocarbon dates for all these fossil dinosaur bones within the narrow range of 5330 to 5360 BP (3330 to 3360 BCE). This again corresponds to burial of all the dinosaurs within the time of the global flood. Specimens from virtually all pre-Pleistocene periods of the geologic column contained significant quantities of radiocarbon (GIEM, 2001, p. 6-30). Flood model calibration affords dates for all these samples in the range 3350±100 BCE. Thus, radiocarbon dating, suitably calibrated for the flood discontinuity, reveals that all these strata were laid down at the time of the flood.

Radiocarbon dating, appropriately calibrated for the flood discontinuity, shows that the more than 500 million years of Deep Time is illusory. Of course, hardening and consolidation of the rocks, mountain building, coal and oil formation etc. would have continued long after the one year of the flood. The Ice Age (Pleistocene) sediments (and probably part of the Pliocene) were deposited after the flood. Radiocarbon determinations of samples from these post-flood strata of Stone Age and Chalcolithic Age,

when calibrated for the flood, indicate these eras occupied no more than a few hundred years.

The time from creation to the flood roughly corresponds to the Precambrian Era. Only a few radiocarbon measurements are available for samples from this Era. The pre-flood atmospheric level of carbon-14 is not known so that Brown's flood model calibration does not apply. The fact that undecayed radiocarbon was detected in these sediments is, however, a good indication the period lasted only a thousand or so years. Although a date for the creation event cannot currently be arrived at from radiocarbon measurements, it is evident that the Genesis date of 5000 to 6000 BCE is consistent with the available data.

Remnants of preserved flesh in fossils

Remarkable evidence supporting the validity of the flood model chronology has been emerging in recent years from discoveries of biological remnants in fossils. During fossilisation, rapid degradation of tissues and their biological components sets in immediately on burial. Microorganisms assimilate flesh, tissues decompose by hydrolysis, and oxidation reduces all biological materials to carbon dioxide and other gases. All rocks are porous to some extent allowing air and groundwater to accomplish these processes thereby converting buried organisms to mineralised fossils. Degradation of tissues and biological components is rapid on the geological timescale. It is accelerated by acid and alkaline groundwaters as well as by clay and mineral catalysts. Chemical sceince makes it absolutely clear that neither the biological tissues nor their component proteins, lipids, carbohydrates or nucleic acids, could survive Deep Time in fossils.

Living cells produce antioxidants and have enzyme-based repair systems that counter degradation, but when an organism dies these measures cease. If flesh, meat, tissues or their components are to be preserved they must be stored in freezers, in the dark, protected from oxygen, microorganisms and all other contaminants. In food production, and in laboratories, efficient chemical stabilizers, antioxidants, preservatives and special protective environments are provided to delay degradation. Even with these precautions, all tissue materials have short shelf lives amounting to only a few decades. From a chemical perspective, survival of exposed soft tissues, of proteins, lipids, nucleic acids and biomolecules over millions of years in rocks and fossils is not credible. On the

other hand, during the few thousand years of Compact Time since the flood, biological remains would be expected in some well-protected fossils.

Soft tissues in dinosaur fossils

A remarkable phenomenon of recent decades is the stream of papers in the professional science literature reporting the discovery of soft tissues and their component proteins in fossils from many sites. The first of these to attract major attention, plus a great deal of hostile criticism from evolutionists, were Dr Mary Schweitzer's reports of soft tissues in T-Rex bones (SCHWEITZER *et al.* 2005, p. 1952-1955; 2007, p. 183-197; 2011, p. 187-216). Schweitzer's papers contained many colour photos of flexible structures, pigmented tissues and even blood vessels uncovered in dinosaur fossils. Reports from many other research groups of preserved cellular structures and even proteins have now surfaced (PAWLICKI, 1995, p. 183-186; ARMITAGE, 2013, p. 603-609; LINGHAM-SOLIAR, 2008, p. 775-780; BAILEUL *et al.* 2020, p. 1-8). Denials of the authenticity of these finds by orthodox paleontologists have been thoroughly refuted (SCHWEITZER, 2011, p. 187-216). A review of the scientific literature by Thomas and Taylor found over 85 papers reporting detection of collagen and other proteins in fossils and showed that discoveries have been surging in the last 10 years (THOMAS; TAYLOR, 2019, p. 881-895). They described the detection of original skin, connective tissues, flexible and branching blood vessels, bone cells, and probable blood cells as well as many specific proteins.

The faith expressed by certain paleontologists in especially efficient preservation of tissues in fossils is not remotely credible (CUPPS, 2019, p. 122-124). Schweitzer maintains that the preservation is due to free radicals released by iron particles. Her trials with concentrated hemoglobin under laboratory conditions for only two years bore little relation to the field conditions of the fossils (SCHWEITZER, 2013). Moreover, any such effect would only apply to fossils associated with iron particles, contrary to the finding of soft tissues in many other circumstances. In reality, any free radicals would immediately combine with oxygen or abstract hydrogen atoms from the proteins and/or lipids rather than couple together as Schweitzer suggested. It is well established that the Reactive Oxygen Species (ROS) generated in this very way are responsible for the rancidification and degradation of fats, oils and organic compounds (SIMIC, 1981, p. 125; HOWARD,

1973, p. 4-57; INGOLD, 1961, p. 563-589). Furthermore, any of the longer coupled proteins advocated by Schweitzer would still be just as susceptible to the normal oxidative and hydrolytic degradation processes. 'Maillard' products that might form by condensation of proteins with carbohydrates have also been suggested as a route to extended lifetimes of soft tissues. However, exactly the same rapid degradative processes would apply to these condensation polymers.

Preserved DNA in fossils

Not only is it fully established that soft tissues and proteins survive in dinosaur and other fossils, but DNA fragments have also been reported multiple times. Nucleic acids are far more fragile than proteins and degrade much more rapidly: as actual rate measurements of DNA in papyri (MAROTA *et al.*, 2002, p. 310-318) and in fossil bones (ALLENTOFT, 2012, p. 4724-4733) have proved. The DNA in Pharaoh Tutankhamun's mummy (HAWASS, 2010, p. 638-647), and other Egyptian mummies (KHAIRAT, 2013, p. 309-325) had degraded in under 4000 years to miniscule levels, only detectable on amplification with the super powerful Polymerase Chain Reaction method. This is further evidence of the impossibility of DNA surviving millions of years in fossils. It is especially significant therefore that DNA, or fragments thereof, has been reported in fossil leaf samples, in insects entombed in ancient amber (AUSTIN, 1998, p. 167-176), in dinosaur fossils (BAILLEUL, 2020, p. 1-8) and in other fossils (VREELAND, 2000, p. 897- 900) from much of the geological column. The increasing evidence of DNA from diverse fossils gives credence to the idea that DNA has indeed survived in fossils supposedly buried far back in Deep Time. This is not evidence of some extraordinary science-defying preservation. Instead, it is powerful evidence that the fossils are really very much younger, buried only a few thousand years ago.

Search for preservatives and methods that can extend the shelf lives of foods and medicines is a very active area of science. Such methods for preserving foods, pharmaceuticals and other proteinaceous products for thousands or even hundreds of years do not exist. The best-known preservatives and antioxidants can only extend shelf lives for very limited times. The food and pharmaceuticals industries embrace any genuine advances in this area with delight. These research areas demonstrate the limited protection achievable and the complete impossibility of proteins and soft tissues exposed

to oxygen and water, in unprotected environments in fossils, lasting for millions of years! Paleontologist's claims that proteins and DNA are specially preserved for millions of years are simply wishful thinking inspired by an unshakeable commitment to Deep Time.

The independent evidence supporting the short Genesis chronology

An impressive pattern of extra-biblical data that bears witness to the global flood and the short chronology of Genesis is available for those willing to see. Major features of this pattern include: (i) the six sedimentary megasequences that are global in extent and coordinated in time; (ii) the evidence of catastrophic happenings throughout the geologic column; (iii) the undecayed radiocarbon in samples from virtually all strata of the geologic column; (iv) the agreement of flood model calibrated radiocarbon dates with those from archaeology and history; (v) the preservation of soft tissues and proteins in fossils from throughout the geologic column; (vi) the identification of DNA fragments in numerous fossils; (vii) the more than 250 accounts of a global flood in folklore from throughout the world. These lines of evidence are especially impressive because most have developed independently of one another. They derive from nonaligned and diverse scholarly disciplines as different as geosciences, physics, archaeology and anthropology. That they agree and complement one another reinforces confidence in the Genesis accounts of creation and of a recent global flood. Science, once freed from uniformitarian dogma, and released from naturalist ideology, is seen to be credibly consistent with Genesis understood historically.

Pointers to a rapid creation

An inescapable consequence of the Compact Time chronology and the flood model is that the entire plant and animal kingdoms, with their natural environments, must have originated rapidly and recently.[11] The presence of complex cycles of interdependence at macroscopic and microscopic levels in the biological and mineral realms is in full accord with this. Living organisms are composed of cells which contain millions of proteins organized in complex factory-like arrays. The enzymes cooperate in

[11] The neo-Darwinian scenario of mutations and natural selection for the origin and development of living things requires at least hundreds of millions of years.

networks and cascades that synchronously bring about oxygen transport, digestion of foodstuffs, growth, repair, DNA transcription, cell division and numerous other processes (GALLOWAY, 2021). This is true of even to the smallest and simplest single cell bacteria. The cycles interlock in space and time delivering needed products, catalysing reuse of substrates and supplying feedback control. These matched metabolic cycles require enzymes and co-factors whose shapes and sizes are intimately compatible and whose actions are closely coordinated in time. To achieve this, the component biomolecules and enzymes had to be supplied all together in one 'clean' place and at the same time. The components had to be produced all within a short period and the whole metabolic system had to be intimately coordinated within a safe biological enclosure. No gradualist evolutionary mechanism can engineer multiple complex components to seamlessly integrate so as to achieve these metabolic functions. The inference to a rapid creation is very clear.

The natural environment is itself also characterised by a multitude of beneficial interrelationships operating between it and diverse living organisms. The elements oxygen, nitrogen and carbon move through complex cycles that involve many plant and animal groups and reach into the mineral realm as well as the atmosphere. Human and animal life relies on hundreds of other species such as stomach bacteria, bees to pollinate plants, trees to supply oxygen and soil microorganisms. The origin of these cycles of mutual dependence and of unselfish behaviours, their boundary crossing nature, and their sheer numbers imply an overall design accomplished by a rapid synchronised start-up. The origin of all living things must have been very rapid and coordinated; exactly as described in the first chapters of Genesis.

Theological consequences

Belief in a recent seven-day creation is credibly defensible by science divested of secular naturalist and atheist ideology. This science endorses the historicity and inspiration of the creation account in Genesis. Part of this credible pattern is that human life originated with God's special creation of Adam and Eve on day six[12] and was not the

[12] That genetic DNA diversity evidence is compatible with descent of the human population from a single couple has been demonstrated by O. Hössier and A. Gauger (2019, p. 1-20). See also R. W. Carter (2007, p. 3039- 3045).

result of a long, violent train of evolutionary development. Death entered the world as a result of rebellion against God. Compact Time chronology rehabilitates belief in the historical reality of the Genesis perspective on the origin of life and on the origin of death. Furthermore, the faith OT and NT writers expressed in the reality of God's creation and the flood is seen to be backed by coherent science as well as by inspiration. The integrity of the whole corpus of scripture is thereby upheld. Assurance is therefore heightened that death need not be final and that life everlasting is available as God's free gift.

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