

The Earth

– *God's Loving Gift to Man*



Bro. Richard Doctor

Portland Area Bible Students Annual Study Convention – August 15, 2015

Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.20

- “...We accept the Genesis account as a part of the great divine revelation--the Bible-- and find its sublime statement in few sentences *most remarkably corroborated by most critical scientific researches*. On the contrary, none of the ‘religious books’ of the heathen contain anything but absurd statements on this subject.”

How different Genesis is from ancient Near East Creation myths!



Tiamut, a demonic woman judged to destruction. Her severed body becomes heaven, earth, and ocean.

“In the Beginning...”



“In the Beginning...”

- "In the beginning [of our physical universe], God created the heaven and the earth."
(Genesis 1:1; Job 38:7) In collaboration with this "master-builder" God's plans for creation were framed. The creative work began with the basics: time, space, energy, and matter. The "standard model" is how physicists speak of the great event that created time and space

The natural laws – *tuned to favor life by God's hand*

- So carefully tuned are the constants of physics that even small deviations in their values would fill the cosmos with space, time, energy, and matter, but certainly prohibit life as we know it.

Davies, P.C.W., *The Accidental Universe*, Cambridge (1982). The treatment of Prof. Davies work is admirably done from a Christian perspective by Ross, H., *The Creator and the Cosmos*, NavPress, Colorado Springs, 1993

- There is intense debate on the “Anthropic Principle:” *“Much of what passes for theory these days is more like theological speculation...”*

Prof. Burton Richter, Stanford *SCIENCE* 11 August 2006

The natural laws – *tuned to favor life by God's hand*

Calculations by the world's leading cosmologists, find the probability that the universe would turn out this way by chance is infinitesimal. It is like throwing darts and the bull's eye is just one part in 10^{120} of the dart board.

Geoff Brumfiel, "Outrageous Fortune," *Nature*, 5 January 2006, p. 10.
There are fewer than 10^{80} atoms in the universe.

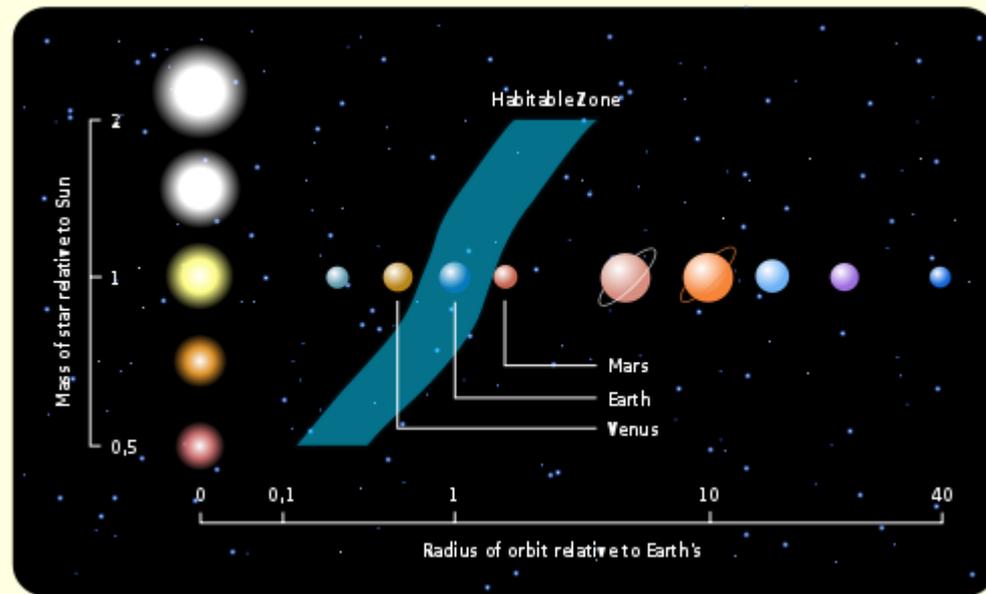
Hubble telescope observations suggest an age of the universe of 13.5 billion years

Galactic Habitable Zones (GHZ) — Our ideal location



Our GHZ location is a balance between Safety and being close enough to the Galactic center to have metals and far enough away to avoid neutron stars and super-novae

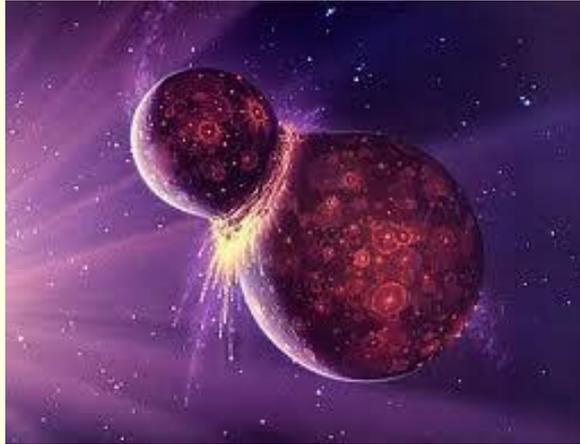
The “Star” Habitable Zone shows even more amazing preparation



Protoplanetary disk – current conception



“Earth without form and void...”



A statistically rare and critically important event to make earth habitable took place when “Theia” - approximately the size of Mars - crashed into the earth; our moon was formed from the material that splashed off. Moon rocks, undisturbed until scooped up by the Apollo astronauts, testify of this cataclysm.

“Earth without form and void...”

"A giant impact such as that which formed the moon would have completely blown off any [early] atmosphere and ocean."¹ A new ocean was needed. About the cooling of the earth for a second time, distinguished geophysicist Professor James C.G. Walker of Yale University writes: "We conclude that nearly all the atmosphere (and the ocean) has been released from the solid earth."²

1. Schubert, Gerald, "The Lost Continents," *Nature*, Vol. 354, 5 Dec. 1991, p. 358

2. Walker, James C.G., *Evolution of the Atmosphere*, Macmillan, NY, 1977, p. 182

“Earth without form and void...”

This is consistent with the words in Job: “Who shut up the sea with doors, when it brake forth as if it had issued out of the womb?”
(Job 38:8-11)

Without inspiration, how did this marvelous detail of geophysics get transmitted to us?

With the presence of a sea, the earth “without form and void” was now ready for active creation.

What about the Vailian or Canopy Theory?

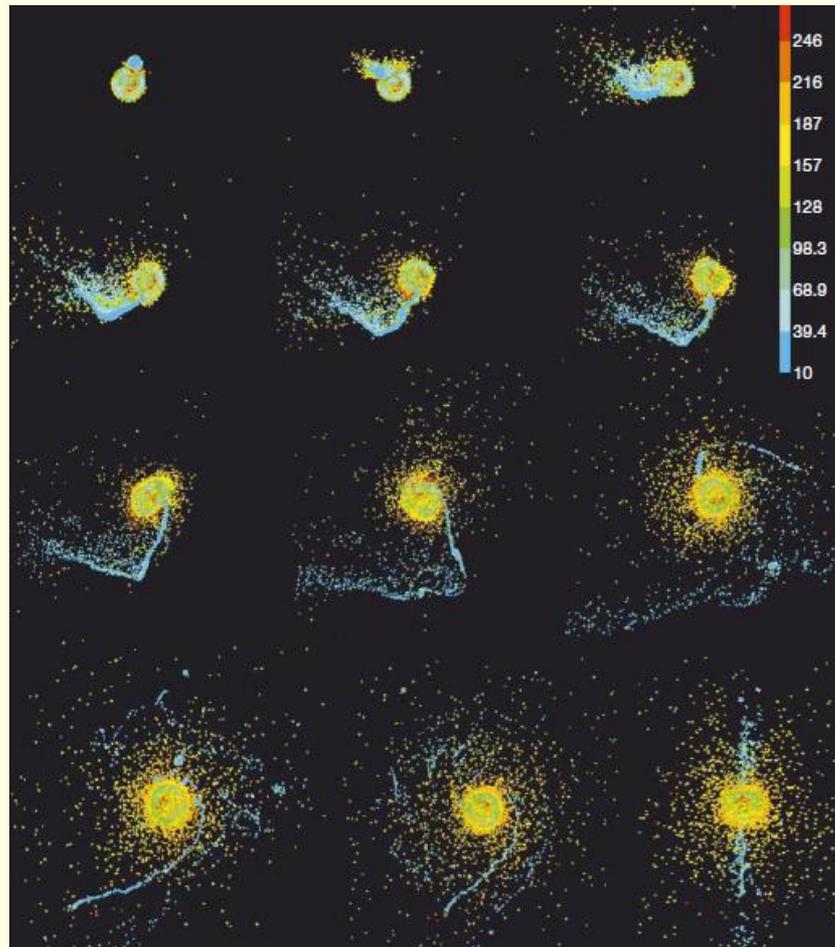


Ring formation at Roche limit ~ 2.9 earth radii
(First calculated 1848)

The first 23 hours of the moon's life

Origin of the Moon in a giant impact near the end of the Earth's formation

Robin M. Canup & Erik Asphaug NATURE | VOL 412 | 16 AUGUST 2001 | www.nature.com



Moon Forming Out of Rings

Copyright William K. Hartmann

<http://www.psi.edu/projects/moon/moon.html>

Vailian collapsing rings is standard



In the beginning - Atmosphere



Atmosphere	
Surface pressure	9.3 MPa = 93 atmospheres
Composition	~96.5% Carbon dioxide ~3.5% Nitrogen 0.015% Sulfur dioxide 0.007% Argon 0.002% Water vapor 0.0017% Carbon monoxide 0.0012% Helium 0.0007% Neon trace Carbonyl sulfide trace Hydrogen chloride trace Hydrogen fluoride

In the beginning - Atmosphere

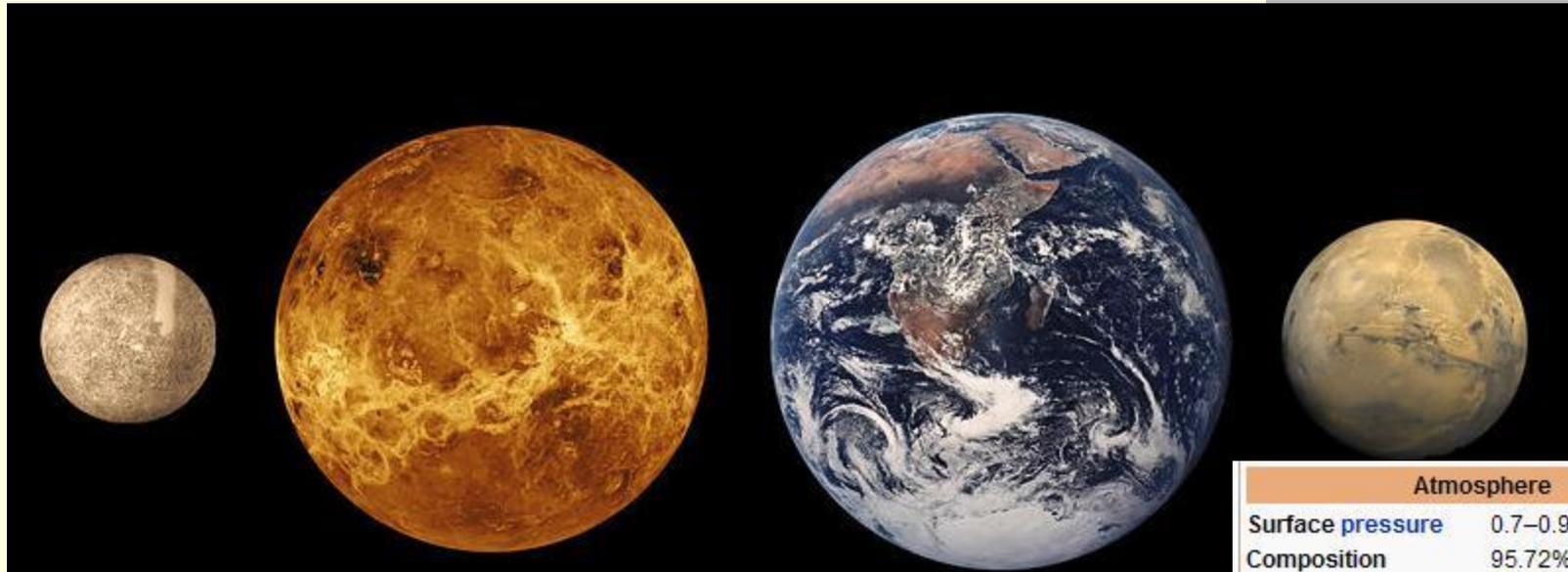


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Pressure = .009 atmospheres

Atmosphere	
Surface pressure	0.7–0.9 kPa
Composition	95.72% Carbon dioxide 2.7% Nitrogen 1.6% Argon 0.2% Oxygen 0.07% Carbon monoxide 0.03% Water vapor 0.01% Nitric oxide 2.5 ppm Neon 300 ppb Krypton 130 ppb Formaldehyde 80 ppb Xenon 30 ppb Ozone 10 ppb Methane

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Atmosphere	
Surface pressure	101.3 kPa (MSL)
Composition	78.08% Nitrogen (N ₂) 20.95% Oxygen (O ₂) 0.93% Argon 0.038% Carbon dioxide About 1% water vapor (varies with climate) ^[7]

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*“Darkness was upon
the face of the Deep...”*



Bringing some focus to the debate on Origins



- *The Bible accurately preserves the critical detail that light was unnecessary for the 1st life*
- *Some wise council on Evolution-Creation debate from Pastor Russell*

Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.35-36

- *It is not for us to dispute that even the protoplasm of the Paleozoic slime may not have come into existence through chemical action of the highly mineralized waters of those seas.* What we do claim is, that all came about as results of divine intention and arrangement, and, hence, were divine creations, whatever were the channels and agencies. And we claim that this is shown by the facts of nature no less than by the words of Genesis;

Day 1 “*And the spirit of God moved upon the face of the waters*”

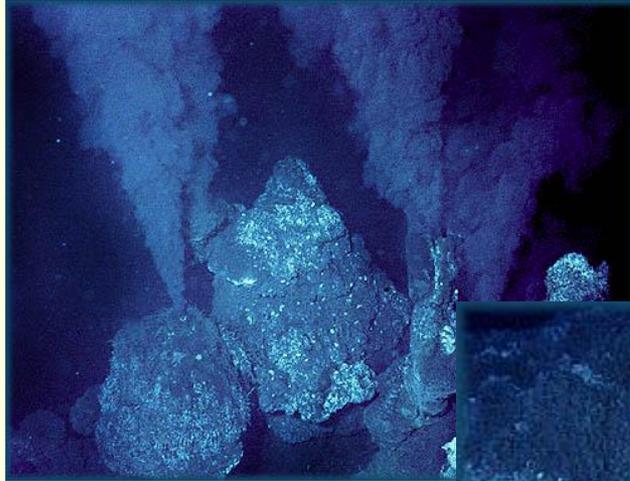
All the geophysical evidence concurs with Genesis that life began in the oceans *and was not dependent on light* through the pioneering efforts of Archaeobacteria and other “chemoautotrophs” that feed directly off chemicals

Schlesinger, W., Biogeochemistry [second ed.], Academic Press, 1997, pp. 32-34

Day 1 *“And the spirit of God moved upon the face of the waters”*

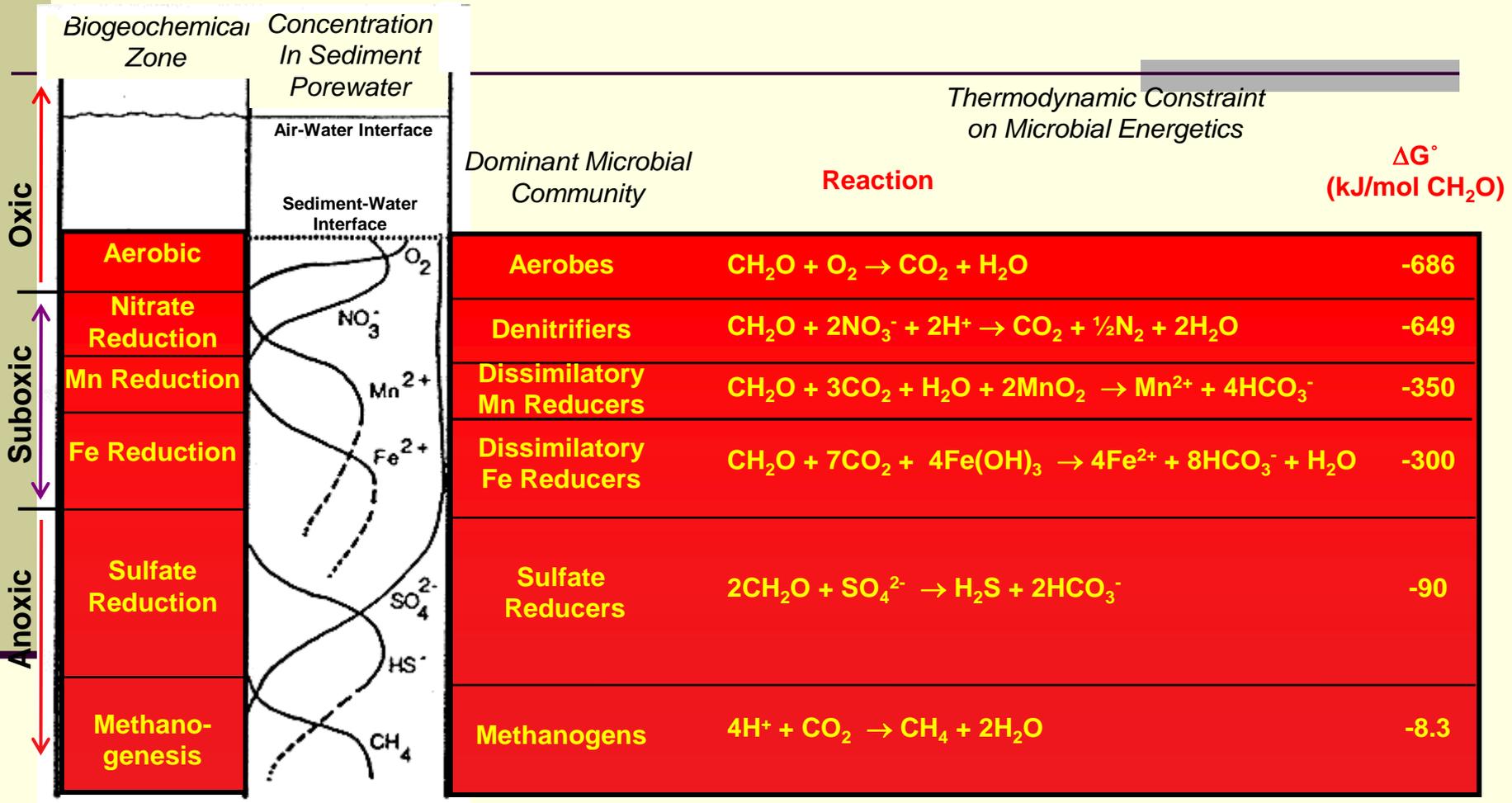
- *Without inspiration, how did this marvelous detail, namely, that life could exist without light, get transmitted to us?*

Chemoautotrophs are still with us



Photographs taken at the hydrothermal vent site located at the Juan de Fuca Ridge on the East Pacific Rise. (© Woods Hole Oceanographic Institution, Deep Submergence Operations Group, Dan Fornari)

Designing for High Energy Oxygen Life



After Eganhouse and Venkatesan, 1993

Day 1 *“And the spirit of God moved upon the face of the waters”*

- During the first day the still young sun with 70% of its current luminosity was rapidly increasing its output
- “Snowball Earth”
- Meanwhile the earth’s atmosphere— still swaddled with clouds and heavy with greenhouse gases—was slowly being changed by the metabolism of chemoautotrophs and then photosynthetic algae to become more transparent.

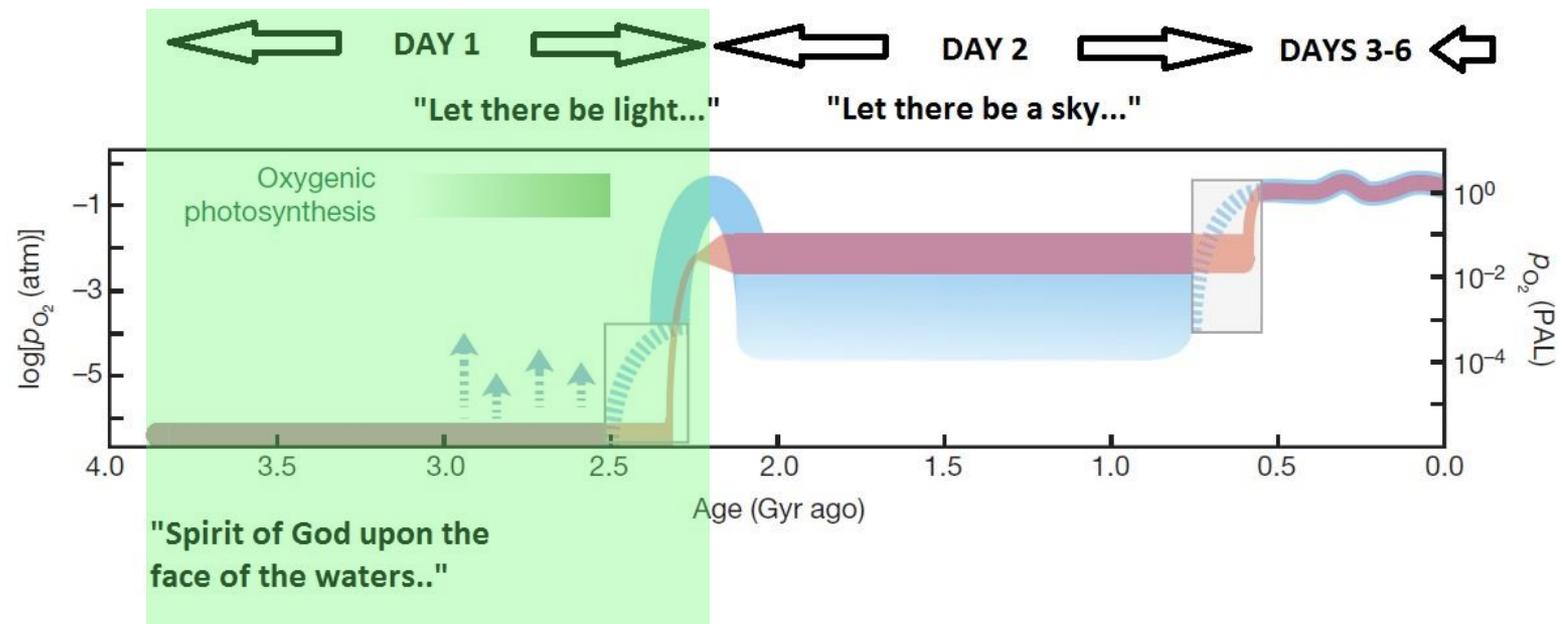
“Let there be LIGHT...”



Day 1 “*And the spirit of God moved upon the face of the waters*”

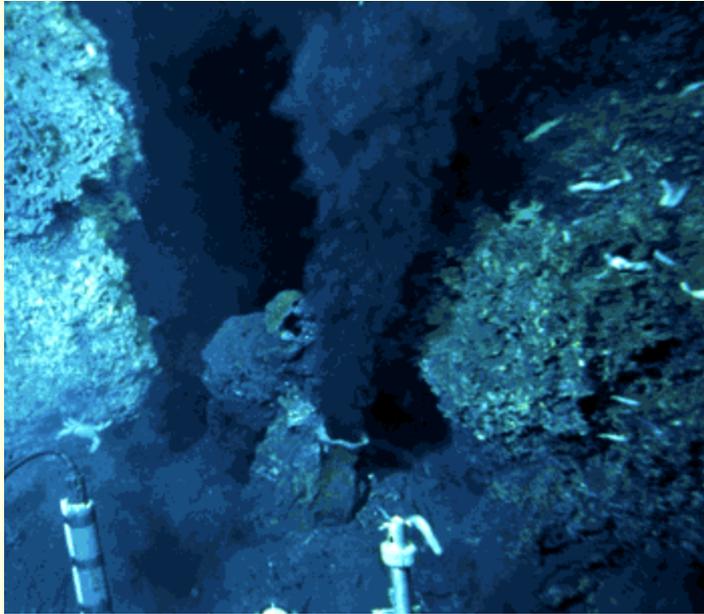
- From “Snowball Earth” One of the greatest crises for life on earth was its narrow escape from a runaway greenhouse that would have boiled off the oceans. *By design, life appeared just when it was needed to prevent this catastrophe.*
- A popular report on the studies of Dr. Michael Hart of NASA identifying this issue dubbed it “a lucky fluke.” Hindley, K., "Earth's Atmosphere—A Lucky Fluke," *New Scientist*, 8 June 1978, p. 671

“Days” and the Geophysical record



“The rise of oxygen in Earth’s early ocean and atmosphere”
Timothy W. Lyons¹, Christopher T. Reinhard & Noah J. Planavsky
NATURE 2014-02-20

Day 2 “*And God said, Let there be a sky.*” *Genesis 1:6-8*



Now there was a crisis for the Archaeobacteria. The atmosphere steadily accumulated oxygen, a highly reactive waste product of photosynthesis deadly to these pioneers.

Their essential work in the divine program now finished, they retired from a place of prominence to deep ocean volcanic vents

Day 2 “*And God said, Let there be a sky.*” *Genesis 1:6-8*

“Let the sky be a means of dividing between waters and waters.” Atmospheric changes now cleared the heavy clouds and fog which had enshrouded the earth.

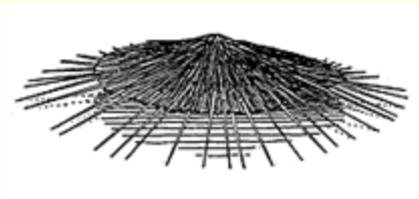
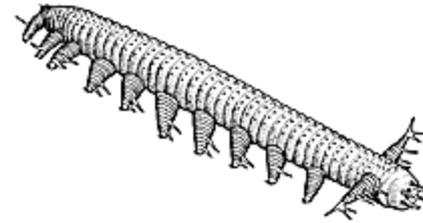
With amazing accuracy, the Bible account calls attention to this marked change that was not clearly accounted for by scientists until elucidated by intensive studies of earth’s ancient atmosphere during the 1970s.

The struggle between Oxygen adapted and Anoxic (Oxygen-free) Life

The most dramatic strata from this era are earth's iron ore deposits "Banded Iron Formations" (BIF) including the Mesabi range of Minnesota



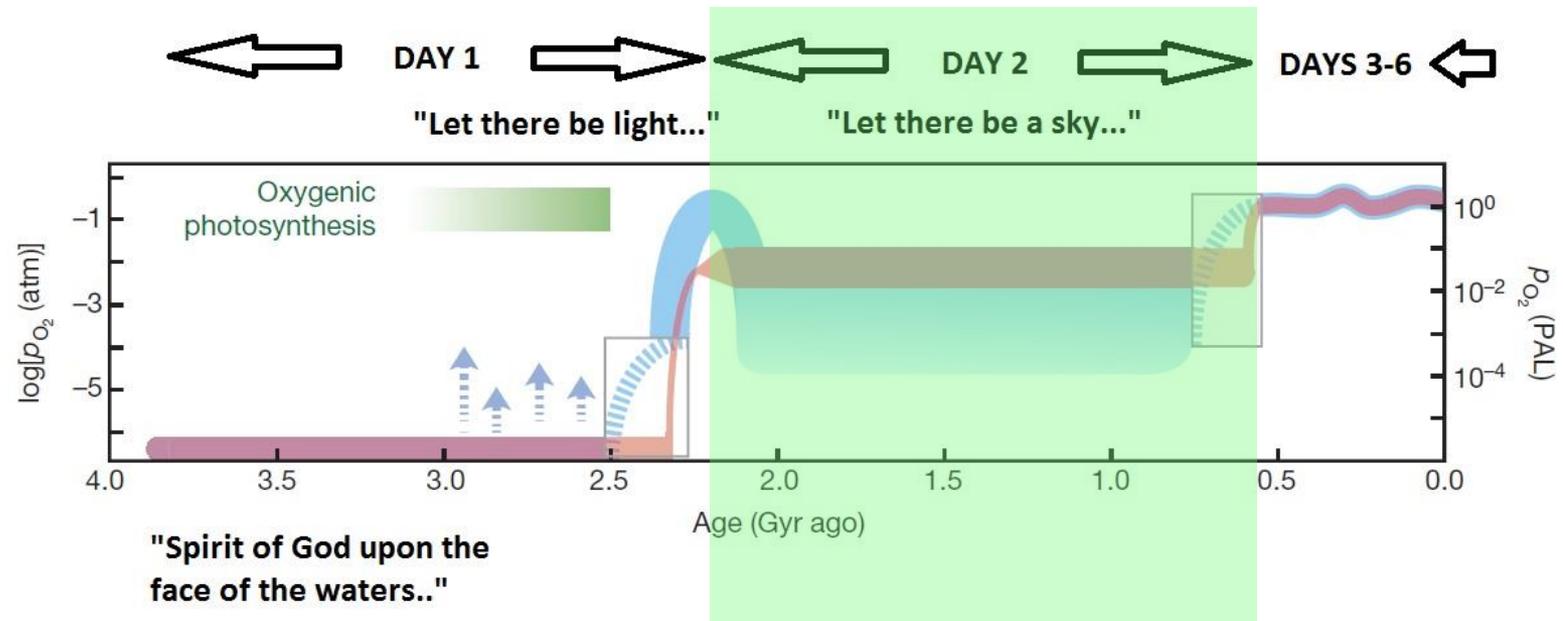
Complex (and never to be seen again) life forms during this day



Burgess shale life forms

paleobiology.si.edu/burgess/burgessSpecimens.html

“Days” and the Geophysical record



“The rise of oxygen in Earth’s early ocean and atmosphere”
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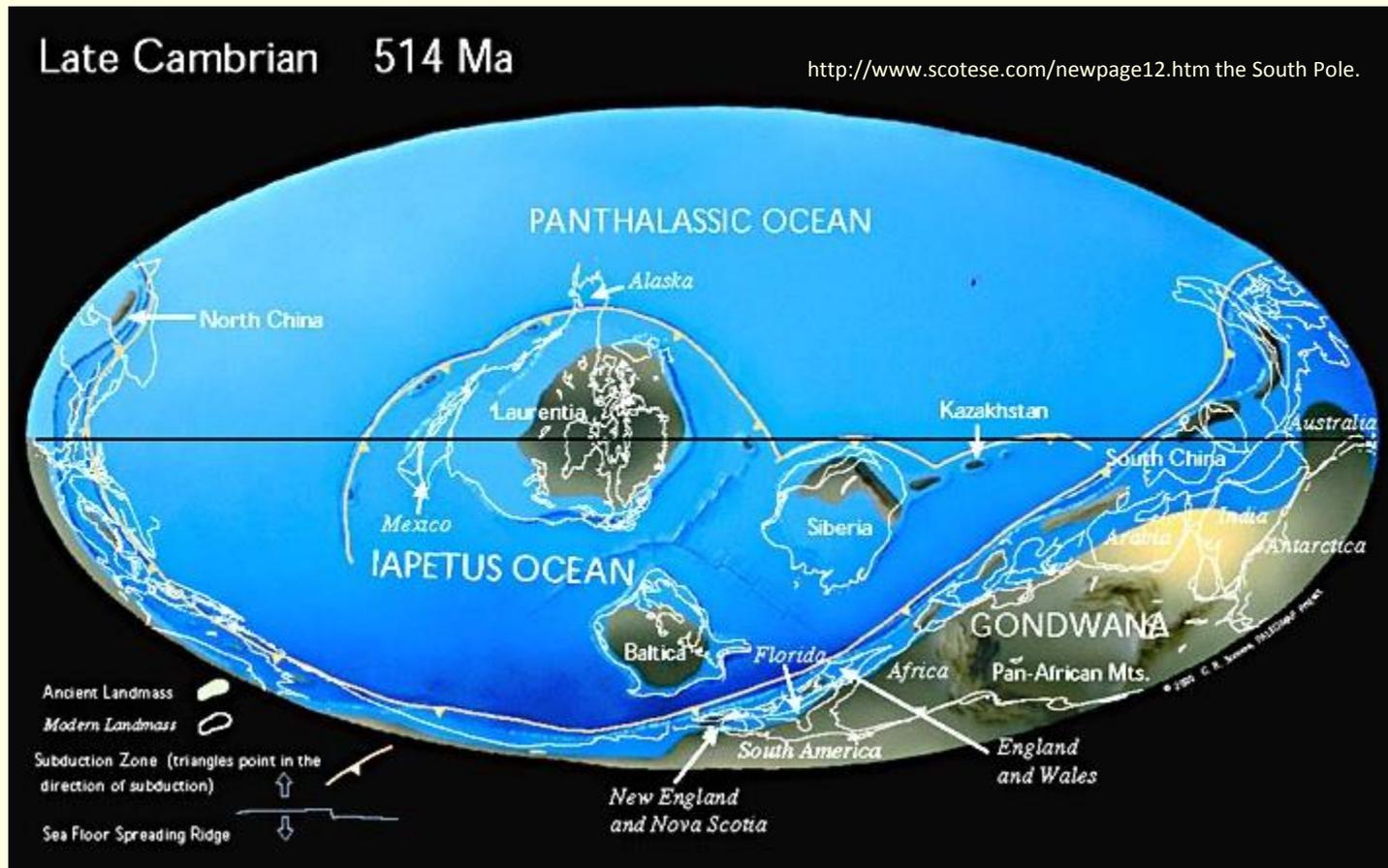
Day 3 – Waters and dry ground

“And God said, Let the waters under the heavens be gathered together into one place, and let the dry ground appear.”—Genesis 1:9

Sediments weathered from the continents now formed fossils to preserve an amazing record of the explosion of new life forms called the "Cambrian period."

Day 3 - Gen 1:9 And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so.

- Animals with hard-shells appeared in great numbers for the first time during the Cambrian. The continents were flooded by shallow seas. The **supercontinent of Gondwana had just formed** and was located near the South pole



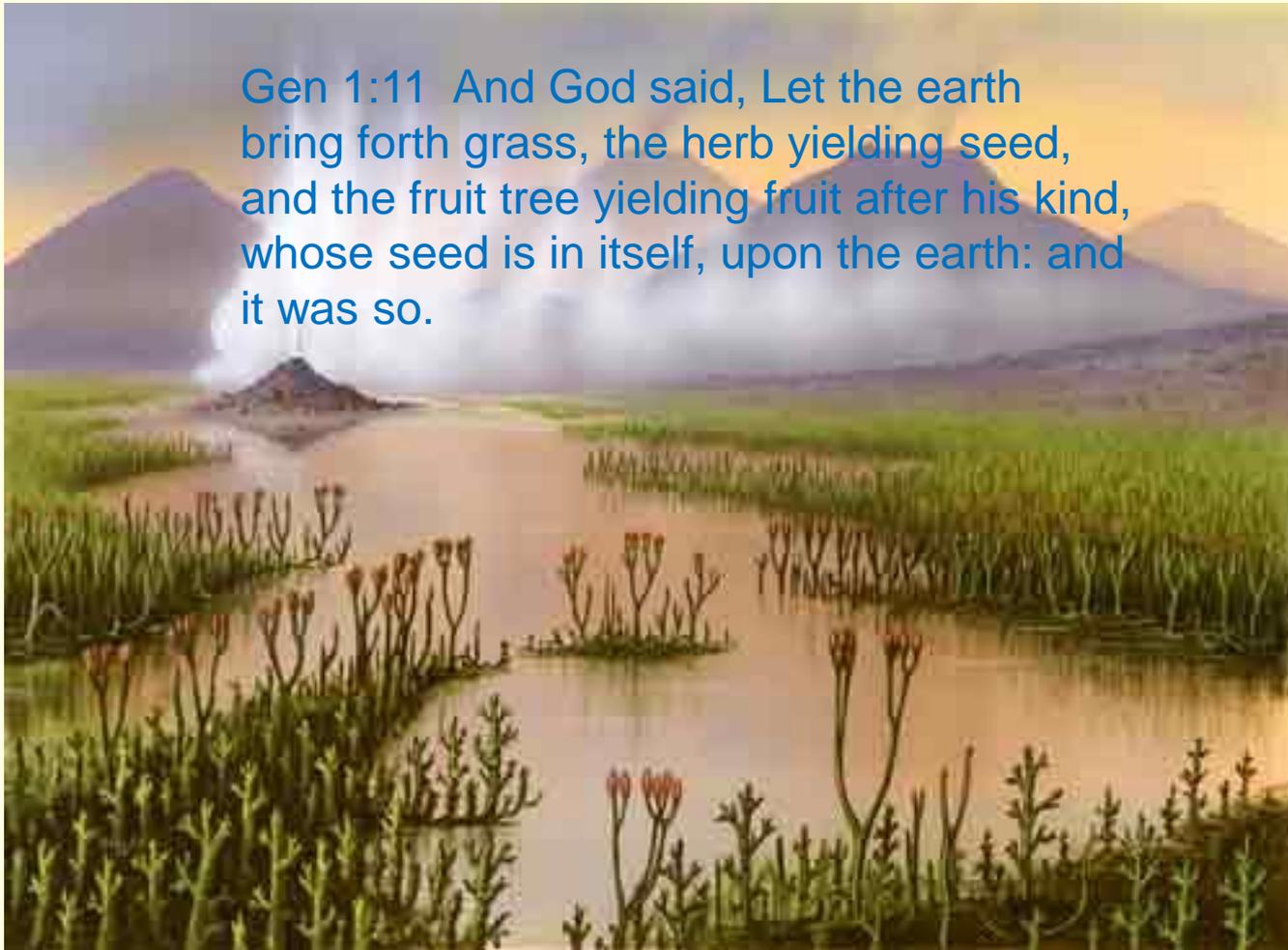
Paleozoic life - Ordovician



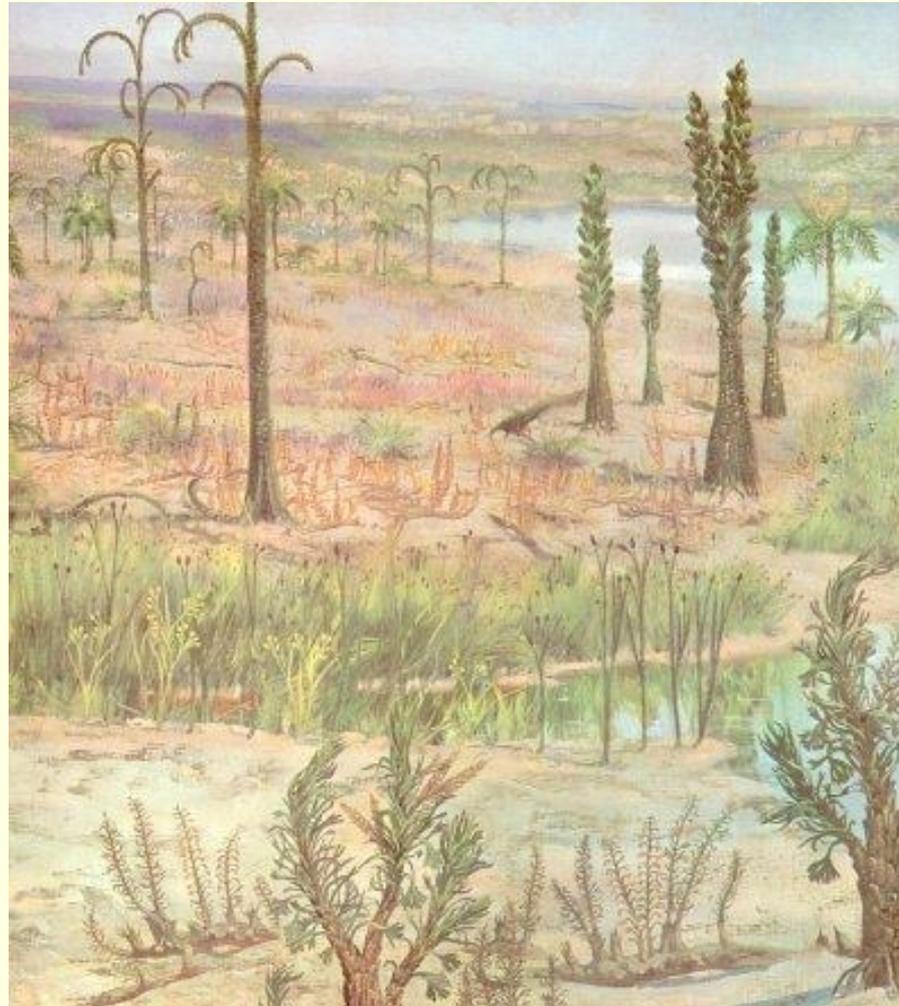
news.softpedia.com/newsImage/Paleozoic-Ancient-Life-7.jpg

Early land plants - Silurian

Gen 1:11 And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so.



Devonian land plants

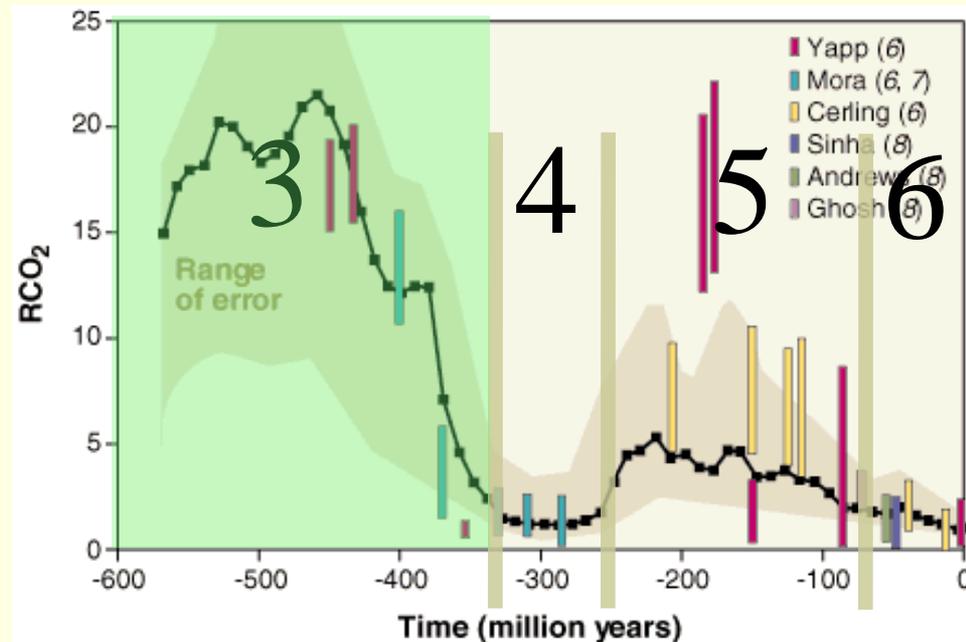


“Coal” forest



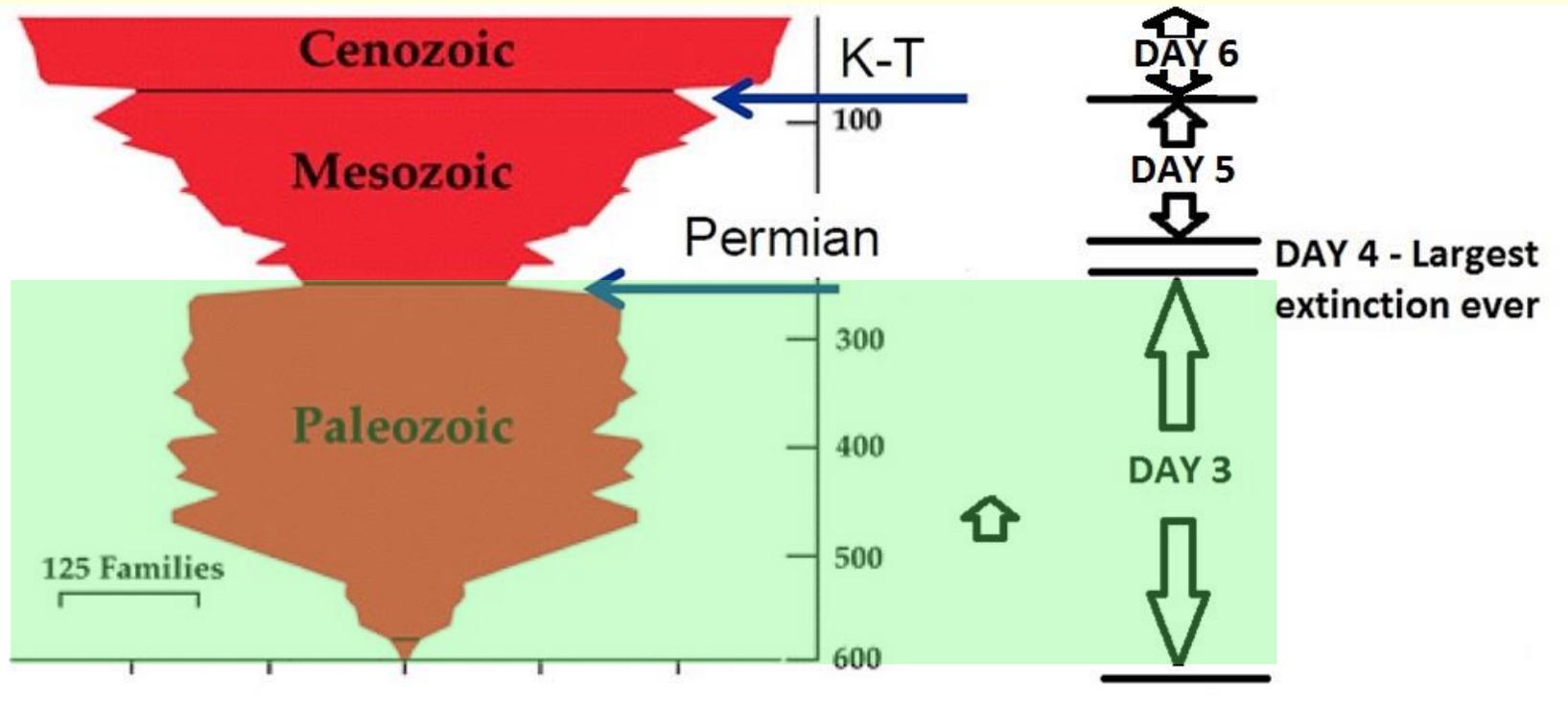
news.softpedia.com/newsImage/Paleozoic-Ancient-Life-7.jpg

Day 3 – The atmospheric record



Berner, R.A., (Yale) "The rise of plants and their effect on weathering and CO₂," Science (276) 27 April 1997, p.544

Day 3 – The extinction record



Day 4 – Lights in the heavens

“And God said, let there be lights . . . to divide the day from the night.” — Genesis 1:14

- The sun and moon were in existence and influencing life on earth long before they became visible to surface observers.
- Professor Ben Zuckerman at UCLA suggests that the earth is unique in our entire galaxy with respect to the sun and moon

Achenbach, J., "Life Beyond Earth," National Geographic, Jan. 2000, p. 29

Day 4 – Lights in the heavens



Most remarkable is the unusually large moon the earth holds in orbit.

Day 4 – Lights in the heavens

All the other planets in the solar system have systems of moons which are trivial in weight compared to their mother planet. Not so for the earth, and this leads to a significant consequence.

The energy of our earth-moon system has very strongly influenced the magnetic field of the earth making it one hundred times larger than it should be.

Day 4 – Lights in the heavens

This magnetism wraps the earth in an invisible shield that deflects many of the life threatening particles streaming from the sun.

Constant buffeting from the solar wind sweeps back the outer layers of Earth's magnetosphere (shown in blue at right). The image comes from the American Museum of Natural History's Science Bulletins, which uses catchy multimedia to explain discoveries in astrophysics, earth science, and biology. Aimed at students and the general public, the site posts weekly Snapshots that focus on new findings, such as what recent studies of debris from the comet Tempel 1 reveal about its origins. Features let you spend time with researchers trying to save the imperiled lemurs of Madagascar and probing Yellowstone's explosive past—three massive volcanic eruptions have battered the area in about the last 2 million years. >> sciencebulletins.amnh.org



Day 4 – Lights in the heavens

An elegant study by Marianne Greff-Lefftz at the Paris Institute of Global Physics directly links "core oscillations induced by lunar-solar tidal forces" directly to the end of this era. These forces created "a resonance amplification factor of about 10,000 with respect to present values" *and drove the extensive volcanism and geological instability that helped to end the entire Paleozoic, or "old life" era.*

- Greff-Lefftz, M. and H. Legros, "Core Rotational Dynamics and Geological Events," *Science*, Vol. 286, 26 November 1999, p. 1707

Day 4 – Mesozoic life on land – after 95% of life died in the greatest extinction ever



Day 4 – Permian sea floor



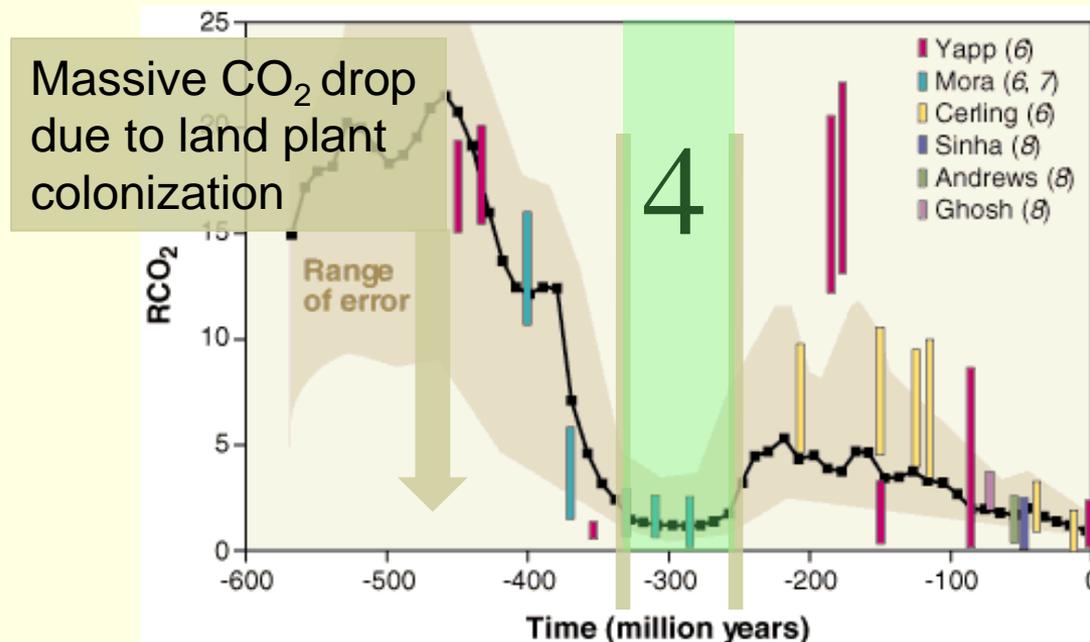
<http://science.nationalgeographic.com/science/photos/permian-period/permian-diorama.html>

Day 4

- From this period forward trees that lose their leaves in the fall and show strong seasonal growth patterns become an important part of the ecosystem.
- The earth now exhibited a “structure and dynamics..... not substantially different from those of the present day, even though all the species were different.”

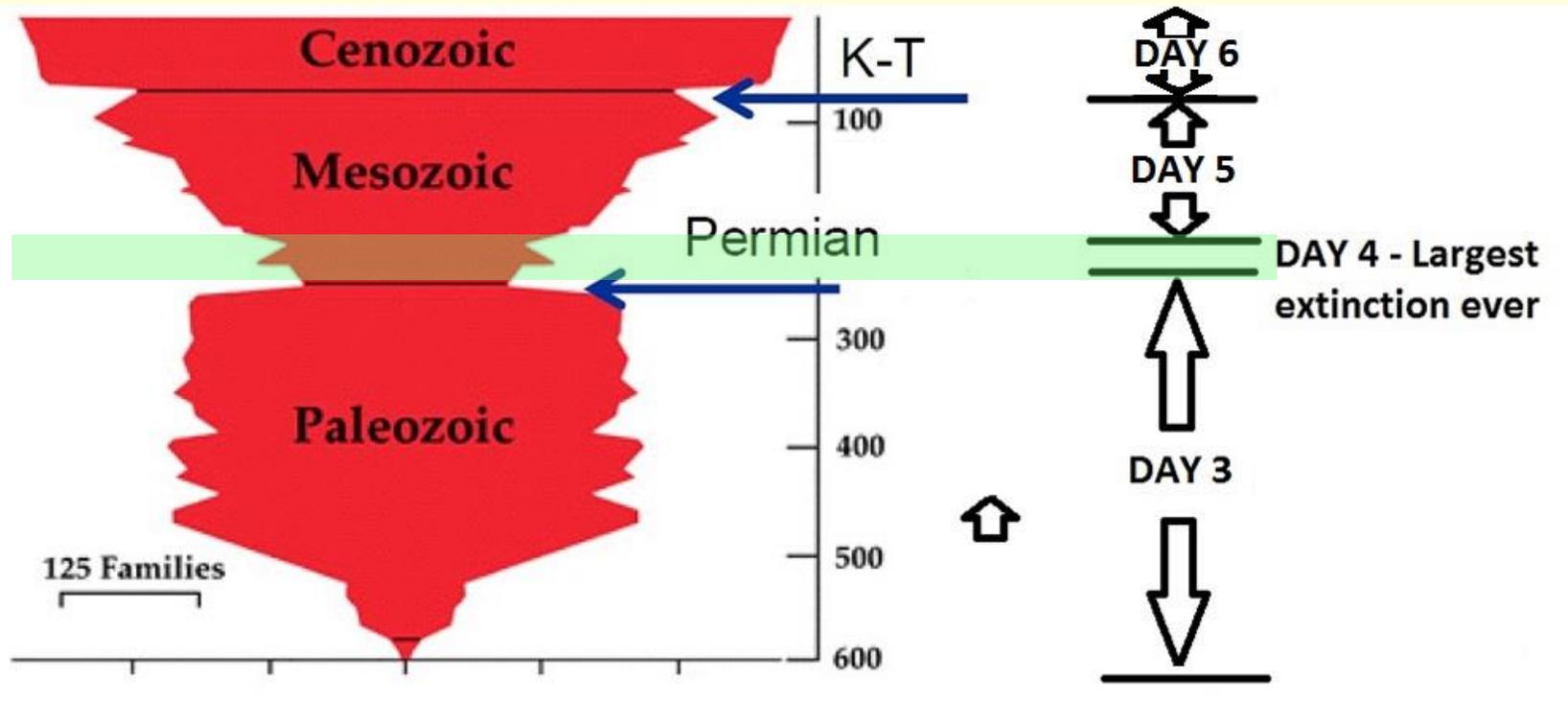
Day 4 – The largest extinction event ever *this was a short day*

- CO₂ depletion by land plant colonization was followed by the Day 4 *Permian extinction* a new chemical environment was established

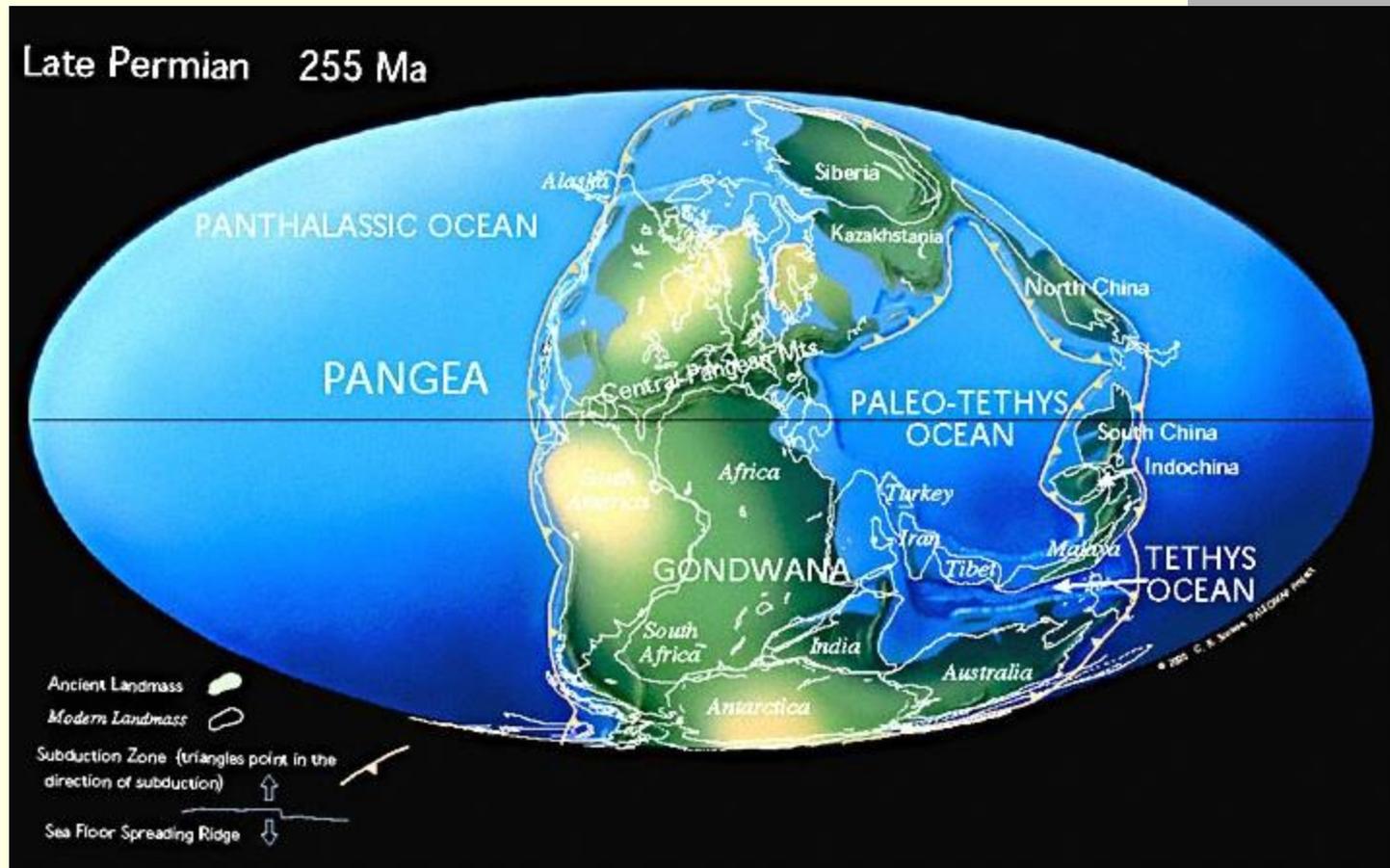


Berner, R.A., (Yale) "The rise of plants and their effect on weathering and CO₂," *Science* (276) 27 April 1997, p.544

Day 4 – The extinction record



Day 4 - Continents



Day 4

- The sun does indeed "rule the day" and continually powers life on earth while the silent partner in nurturing the life on earth is our highly unusual moon which "rules the night."
- Incredibly at this juncture the Bible specifically calls out these two powerful forces that were so critical to the course of life on earth.

Day 5

- Finally an Earth that begins to look familiar (*at least if dinosaurs seem familiar*)

Day 5

- Dinosaurs fascinate us as they did the inspired writer of Genesis. In almost everyone's imagination mentioning them spawns vivid images of these dread-inspiring beasts who once ruled earth. Dinosaurs belong to the fifth creative epoch and the original Hebrew employs awestruck language to describe them: "great monsters," "swarming sea creatures," and "winged creatures." The word "whales" in the Authorized Version is simply incorrect.

Day 5



<http://science.nationalgeographic.com/science/photos/triassic-period.html>

Day 5 – Dinosaur life on land



Day 5 Changes of consequence were taking place in the cycle of life

- Flowering tree and shrubs from which all our fruits and nuts come – flowers of the field
- Modern grasses adapted to new low-levels of carbon dioxide now spread throughout the earth. From these grasses come all our grains.
- For the first time the earth could grow a food resource capable of meeting the incredibly high energy demands of mammals and birds.

Flowering trees and shrubs producing fruits and nuts



Flowers an essential part of the ecosystem that add beauty



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True Grasses (C4) become important for the first time



Rice the most important C4 grass for world food production



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Day 5 – Dinosaurs knocked out with “one-two” punch

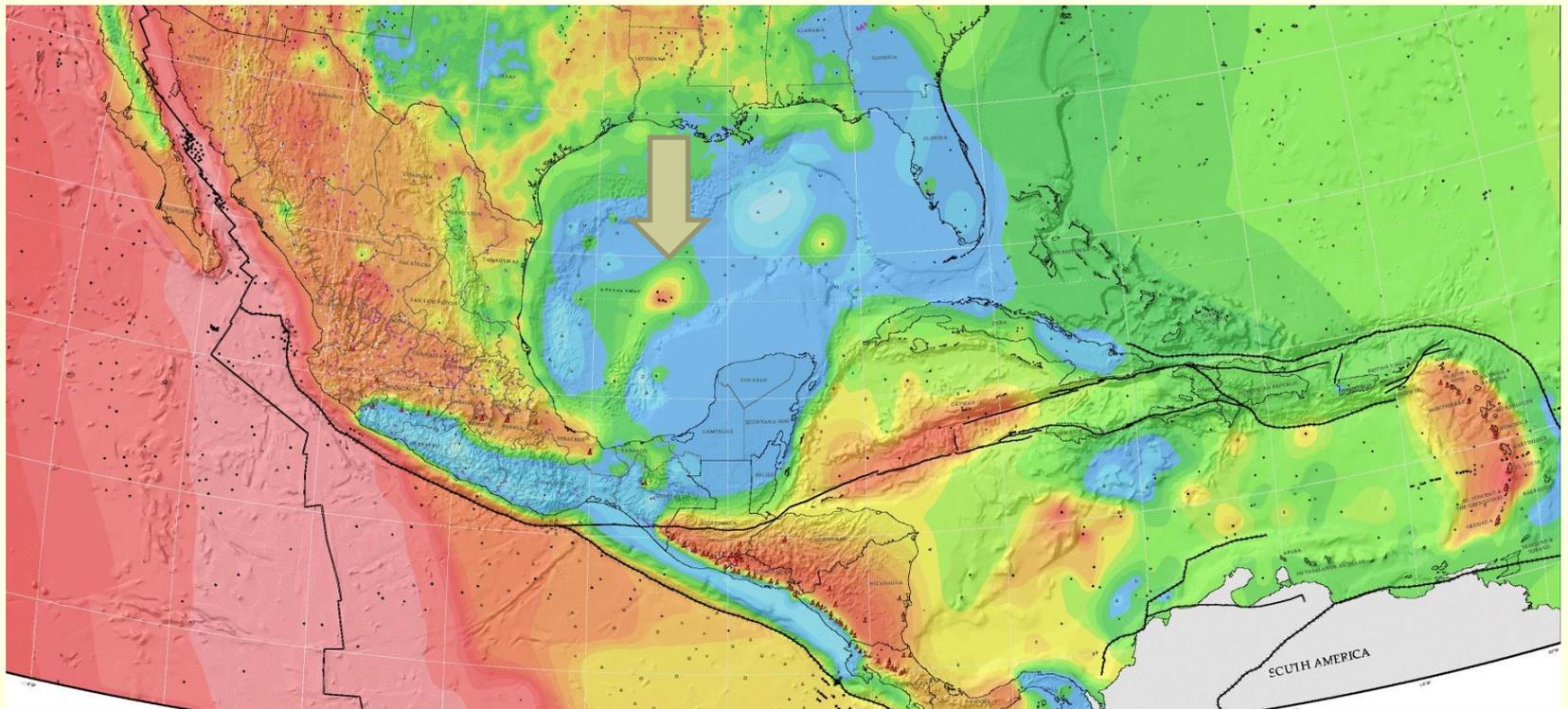
J. Qiu, SCIENCE 12 June 2015



With these critically important works accomplished, the world of the dinosaurs abruptly ended from world-wide devastation caused by a 10-km diameter asteroid. The equivalent of 300-million nuclear weapons Reasonable evidence suggests multiple events

Day 5 – Impact site

AAPG Geothermal Resources Map 2004

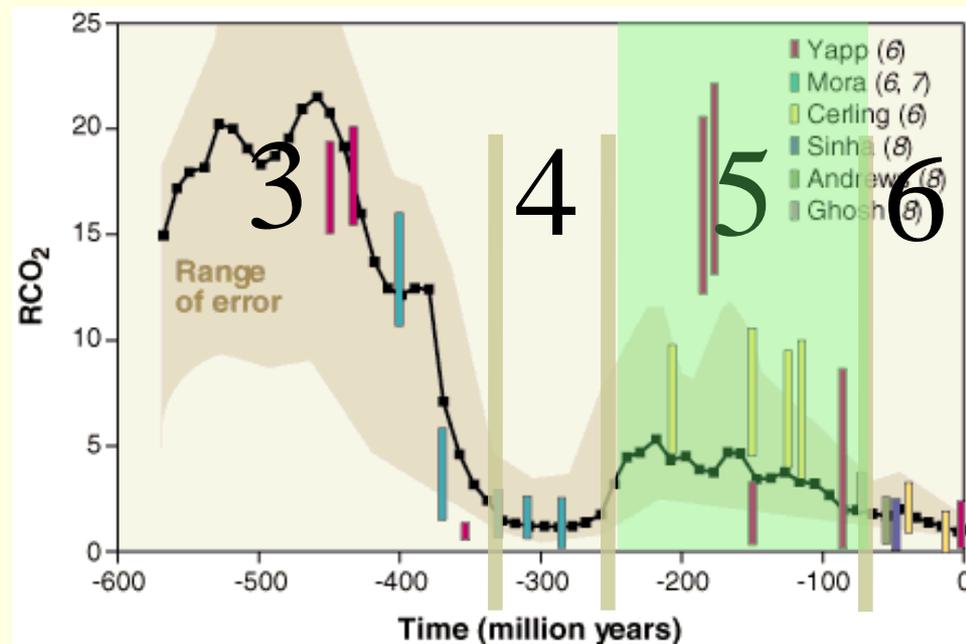


Day 5 – “*The dinosaurs are alive and well and singing in the trees*”

- And God created great sea-monsters, and every living creature that creepeth . . . *And every winged fowl.*”—Genesis 1:21

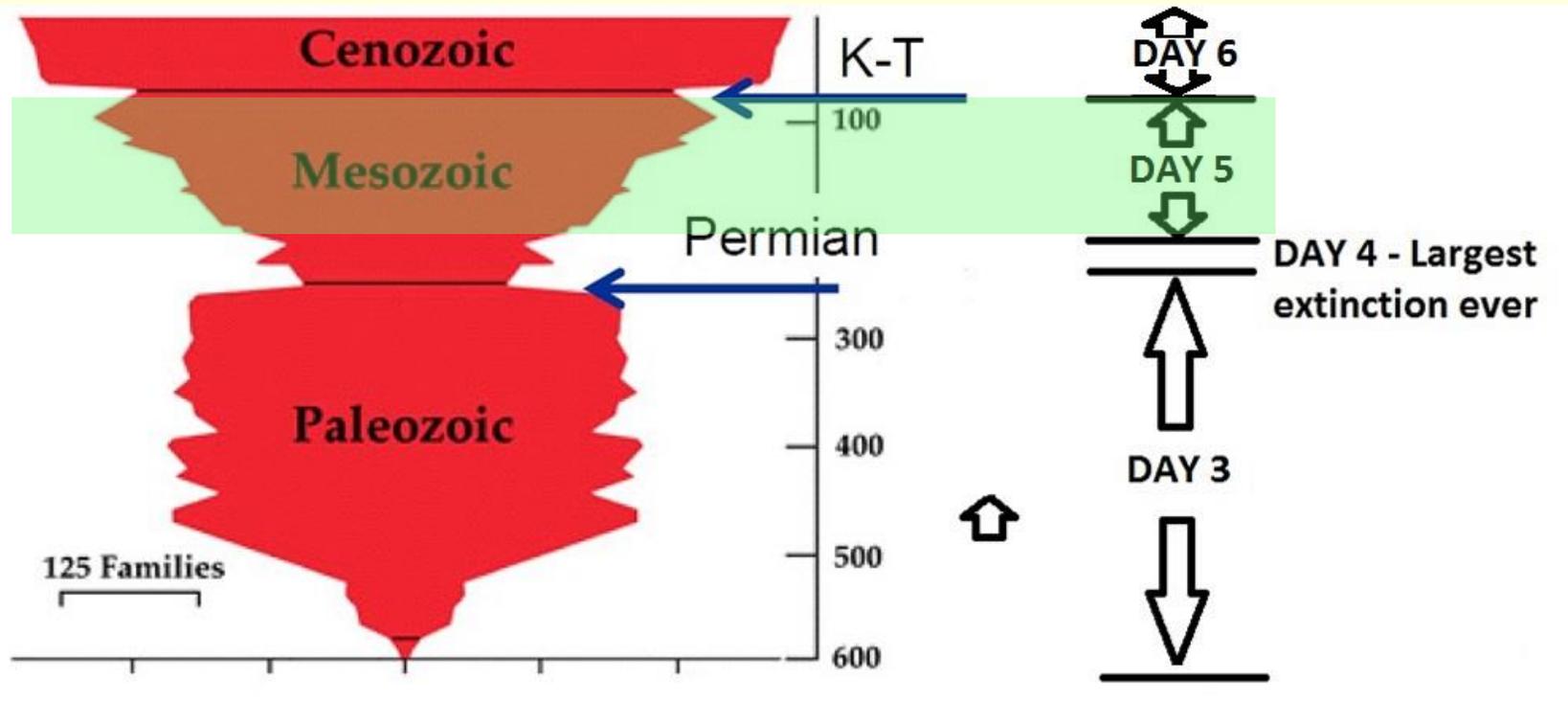


Day 5 – The atmospheric record

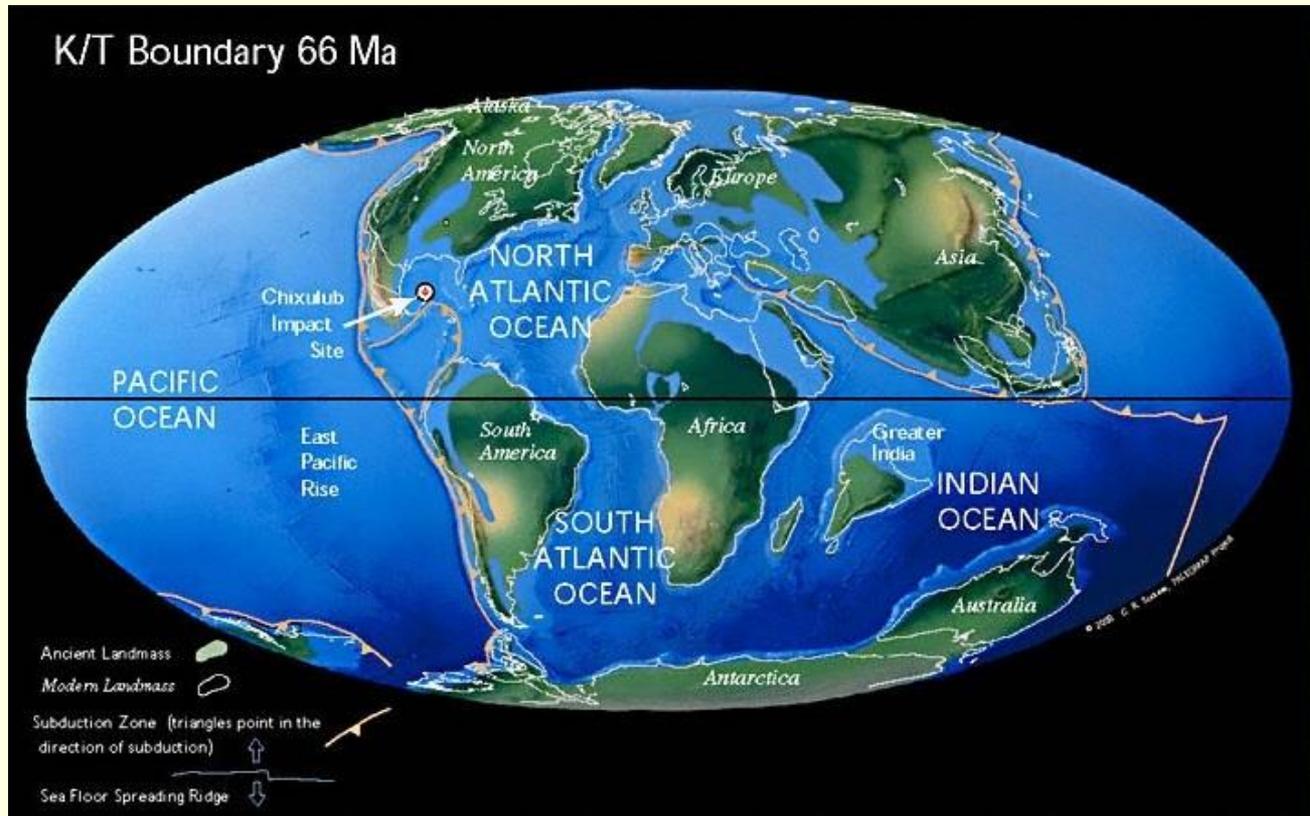


Berner, R.A., (Yale) "The rise of plants and their effect on weathering and CO₂," Science (276) 27 April 1997, p.544

Day 5 – The extinction record



Day 5 - Continents



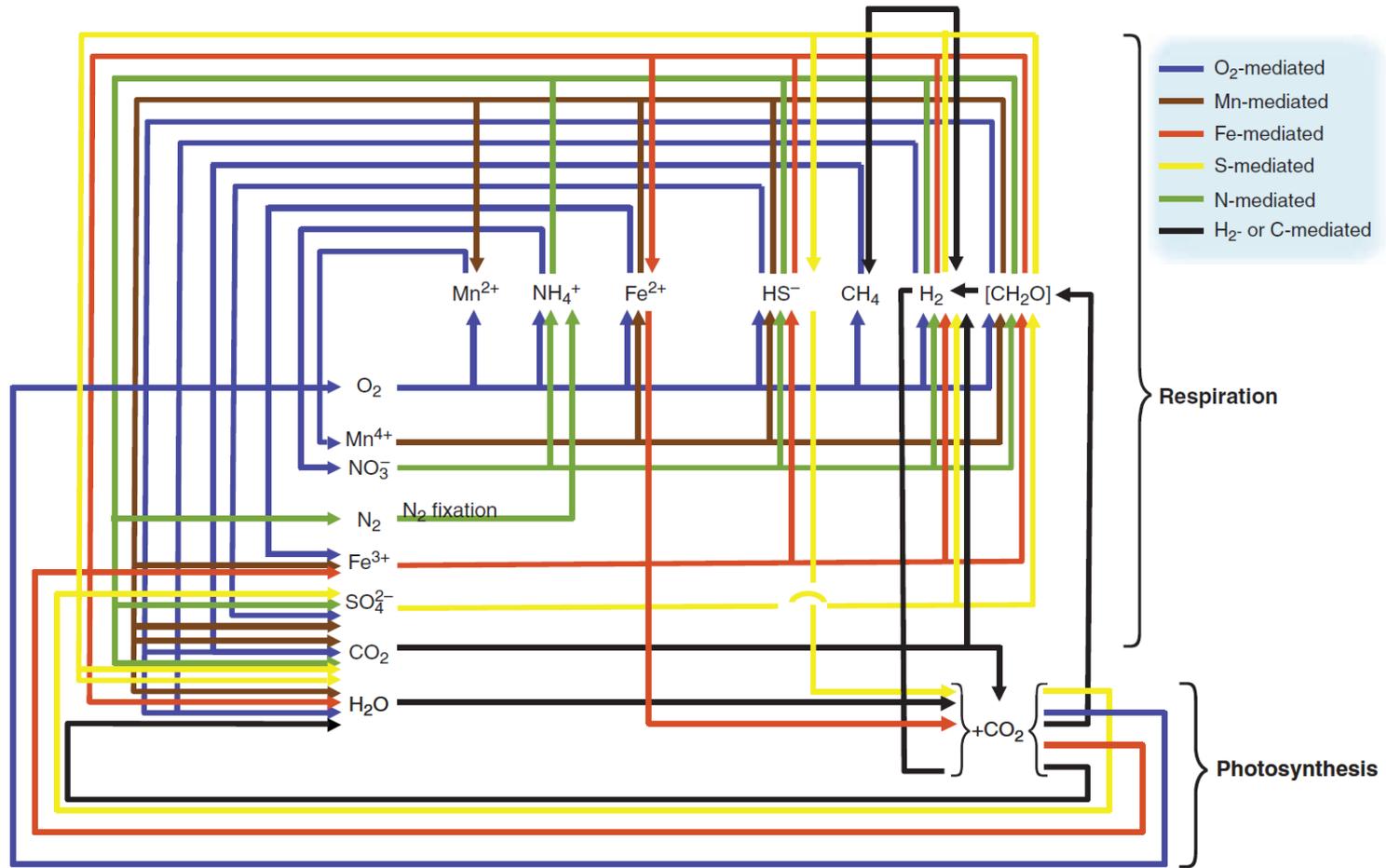
The bull's eye marks the location of the Chicxulub impact site. The impact of a 10 mile wide comet caused global climate changes that killed the dinosaurs and many other forms of life. By the Late Cretaceous the oceans had widened, and India approached the southern margin of Asia.

Day 6

- "Let the earth bring forth the living soul after his kind, cattle, and creeping thing, and beast." —Genesis 1:24
- The fertile work of the first five epochs of creation successfully brought into existence many interwoven life cycles. These cycles now maintained the atmosphere, temperature, and movement of chemicals essential to life.

Global, interconnected network of the biologically mediated cycles for hydrogen, carbon, nitrogen, oxygen, sulfur, and iron. A large portion of these microbially mediated processes are associated only with anaerobic habitats

The Microbial Engines That Drive Earth's Biogeochemical Cycles, Paul G. Falkowski, *Science* 320, 1034 (2008)



Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.35-36

- *Let us not contend for more than the Scripture record demands.* The Bible does not assert that God created separately and individually the myriad kinds of fish and reptiles; but merely that divine influence, or spirit, brooded, and by divine purpose the sea *brought forth* its creatures of various kinds.

Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.35-36

- *The processes are not declared* — one species may, under different conditions, have developed into another; or from the same original protoplasm different orders of creatures may have developed under differing conditions. *No man knoweth, and it is unwise to be dogmatic.*

Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.35-36

- *It is not for us to dispute that even the protoplasm of the Paleozoic slime may not have come into existence through chemical action of the highly mineralized waters of those seas.* What we do claim is, that all came about as results of divine intention and arrangement, and, hence, were divine creations, whatever were the channels and agencies. And we claim that this is shown by the facts of nature no less than by the words of Genesis;

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- ...that however the creatures of the sea were produced, they were brought to the condition in which each is, of its own kind--where the lines of species cannot be overridden. *This is God's work, by whatever means brought about.*

Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.37

- *Here, again, we need not quarrel needlessly with Evolutionists.* We will concede that, if God chose, he could have brought all the different species of animal life into being by a development of one from the other, or he could have developed each species separately from the original protozoan slime.

Volume 6 – *The New Creation*, Pastor Russell – Chapter 1, p.37

- *We know not what method he adopted, for it is revealed neither in the Bible nor in the rocks.* It is, however, clearly revealed that in whatever way God chose to accomplish it, he has *fixed* animal species, each “after his kind” in such a manner that they do not change; in such a manner that the ingenuity of the human mind has not succeeded in assisting them to change.

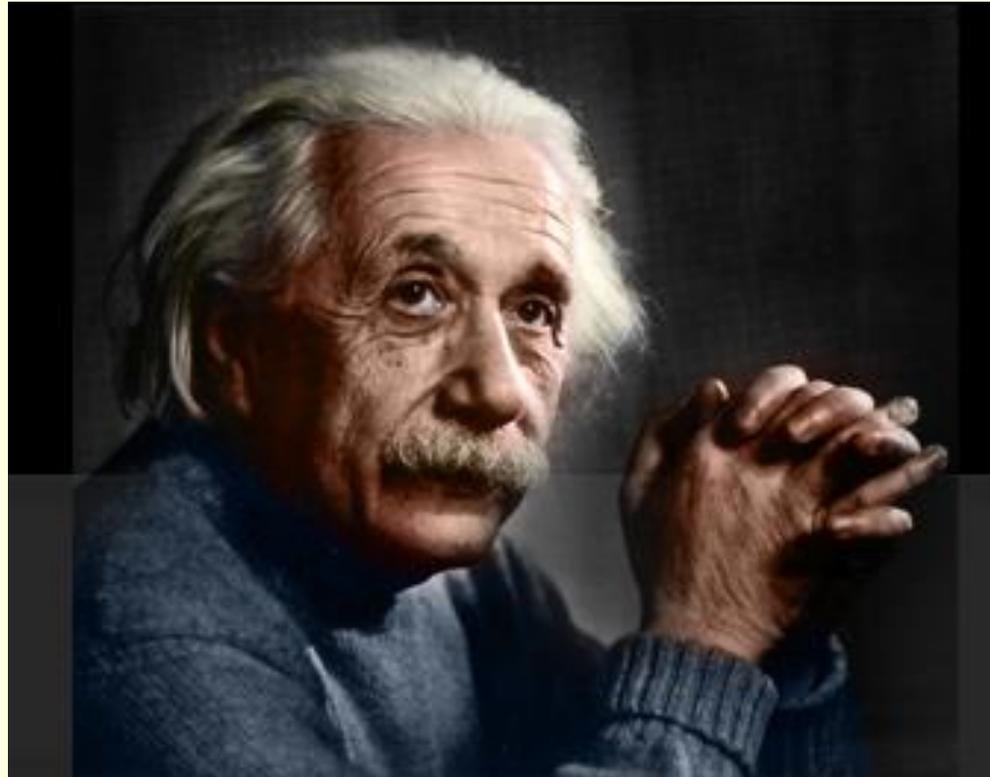
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Photodrama - 1914

- The conflict between Evolution and the Bible has been sharp. Nevertheless, unnecessary friction has been generated. Only in respect to man does the Bible declare a special, direct creation of God. *The statements of Genesis in respect to the lower creatures rather favor something along the lines of specialized Evolution.*

“Subtle is the Lord, but malicious he is not.” — *Albert Einstein*



“Raffiniert ist der Herrgott, aber boshaft ist er nicht „

Day 6

- Microorganisms and insects, which generally escape our attention except as nuisances, are integral to these cycles and continue to constitute the bulk of earth's life. And yet we cannot feel the sense of kinship with these creatures that we do with mammals.

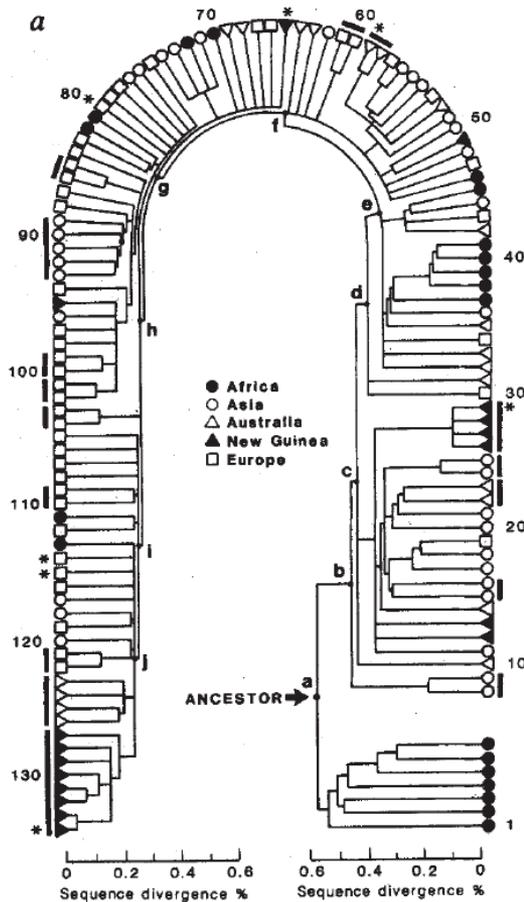
Day 6 - Mammals



- And yet we cannot feel the sense of kinship with these creatures that we do with mammals. It is to the sixth day that the familiar mammals now come to prominence.



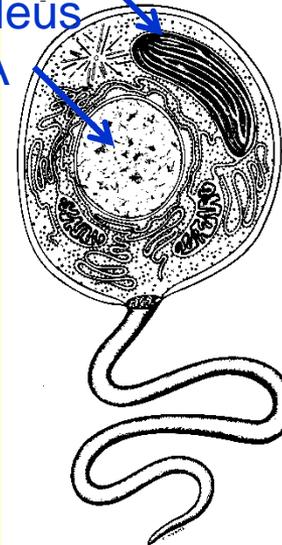
“Eve” — One of the most important developments of the last 20 years



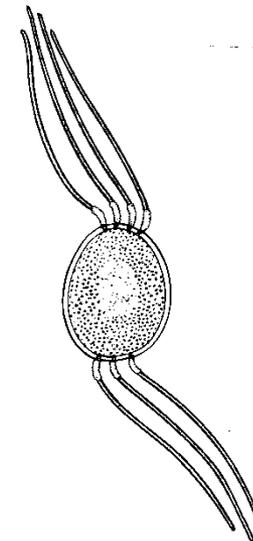
Rebecca L. Cann*, Mark Stoneking & Allan C. Wilson
Department of Biochemistry, University of California, Berkeley,
California 94720, USA

Mitochondrial DNA and human evolution — Nature 1 Jan 1987

Mitochondrial
DNA
Nucleus
DNA



Eukaryote



Prokaryote

Mitochondrial DNA dating is problematic

Science 2 January 1998: Vol. 279. no. 5347, pp. 28 – 29 RESEARCH NEWS — *Calibrating the Mitochondrial Clock*, Ann Gibbons

“MITOCHONDRIAL DNA APPEARS TO MUTATE MUCH FASTER THAN EXPECTED, PROMPTING NEW DNA FORENSICS PROCEDURES ***AND RAISING TROUBLING QUESTIONS ABOUT THE DATING OF EVOLUTIONARY EVENTS***”

Mitochondrial DNA dating is problematic

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- “...heteroplasmy [a mixture of genomes] is caused by [Mitochondrial DNA] mutations, this unexpectedly high incidence [of heteroplasmy] suggests that mtDNA mutates much more often than previously *estimated--as much as 20-fold faster*, according to *two studies* that are causing a stir. Other studies have not found such rapid mutation rates...”

DNA mutation clock proves tough to set

Geneticists meet to work out why the rate of change in the genome is so hard to pin down.

NATURE - Volume 519 Number 7542 pp129-256 Ewen Callaway 10 March 2015

“A slower molecular clock worked well to harmonize genetic and archaeological estimates for dates of key events in human evolution, such as migrations out of Africa and around the rest of the world. But calculations using the slow clock gave nonsensical results when extended further back in time — positing, for example, that the most recent common ancestor of apes and monkeys could have encountered dinosaurs. Reluctant to abandon the older numbers completely, many researchers have started hedging their bets in papers, presenting multiple dates for evolutionary events depending on whether mutation is assumed to be fast, slow or somewhere in between.”

The evolutionary context of the first hominins

Bernard Wood & Terry Harrison; Nature 470, 347–352 (17 February 2011)

- ...We are not advocating that researchers abandon trying to draw inferences about the phylogenetic relationships of hominins at the finest scale possible. However, we do suggest that those who present and accept these hypotheses need to be aware that such inferences, especially ones about stem taxa, are likely to be inherently prone to refutation and subsequent revision.

Our “Most recent common ancestor” only a few [5] thousand years back

Modelling the recent common ancestry of all living humans

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If a common ancestor of all living humans is defined as an individual who is a genealogical ancestor of all present-day people, the most recent common ancestor (MRCA) for a randomly mating population would have lived in the very recent past¹⁻³. However, the random mating model ignores essential aspects of population substructure, such as the tendency of individuals to choose mates from the same social group, and the relative isolation of geographically separated groups. Here we show that recent common ancestors also emerge from two models incorporating substantial population substructure. One model, designed for simplicity and theoretical insight, yields explicit mathematical results through a probabilistic analysis. A more elaborate second model, designed to capture historical population dynamics in a more realistic way, is analysed computationally through Monte Carlo simulations. These analyses suggest that the genealogies of all living humans overlap in remarkable ways in the recent past. In particular, the MRCA of all present-day humans lived just a few thousand years ago in these models. Moreover, among all individuals living more than just a few thousand years earlier than the MRCA, each present-day human has exactly the same set of genealogical ancestors.

Nature -- 30 September 2004,
p562-566

Our purpose here is *Not* to treat the
intervening night of sin



Day 7— “*The night of sin*” closes
with the dawn of a new day



Day 7 — Will bring man through crisis and back into harmony with God



You open your hand, and
satisfy the desire of every
living thing.

The LORD is ...

holy in all
his works

Psalm 145:16-17

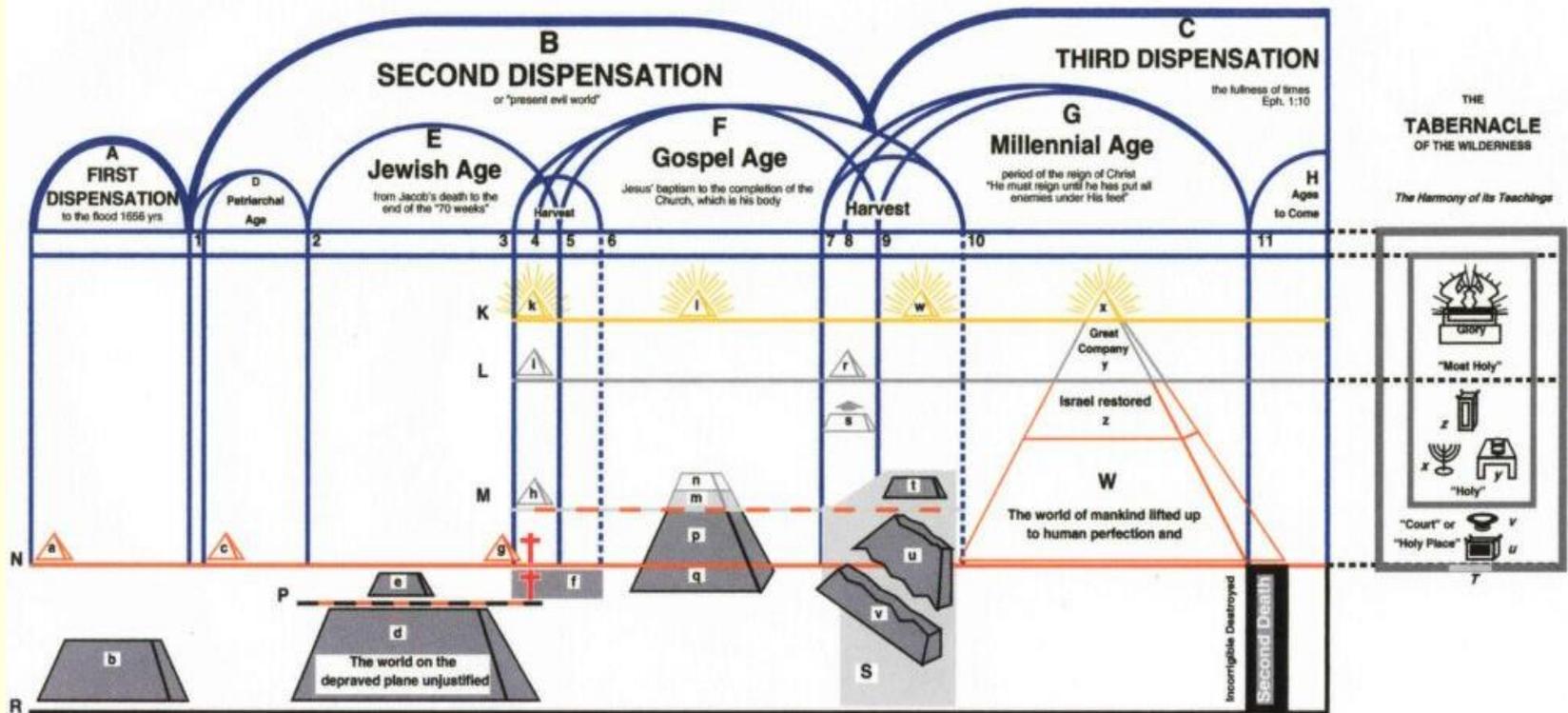


Photo Credit: Grant Glendinning FLICKR



**Ultimately the Earth is
God's Loving Gift to Man
– Let us treat this gift with respect**

A Harmony with the Chart of the Ages



May the Lord add His Blessing



For reference please see:

Herald Magazine “Genesis and Geophysics” (July 2000):

http://www.heraldmag.org/2000/00ja_5.htm

Herald Magazine “The Earth” (July 2006):

http://www.heraldmag.org/2006/06ja_2.htm