

# Sterile neutrinos explain why

1. the first stars form so early
2. the universe produces more baryons than anti-baryons
3. pulsars' rapid kickout velocities
4. abundance pattern of r-process heavy elements
5. energetic supernova shocks

# Sterile neutrinos explain why

6. exotic dark matter halos are so smooth and symmetric
7. supermassive black holes form so early in cosmic history
8. why the best LCDM cosmic models require the addition of some warm dark matter

# Genesis

GENESIS 1:18

Genesis 1 teaches three different origins of life.

## The Beginning

1 In the beginning God created the heavens and the earth.  
2 Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters.

3 And God said, "Let there be light," and there was light.  
4 God saw that the light was good, and he separated the light from the darkness.

5 God called the darkness "night," and there was evening and there was morning—the first day.

6 And God saw that the light was good, and he separated the light from the darkness.

7 So God created the light and separated the light from the darkness, and God called the light "day," and the darkness "night."

8 And there was evening, and there was morning—the second day.

9 And God said, "Let the water under the sky be gathered to one place, and let dry ground appear." And it was so.

10 God called the dry ground "land," and the gathered waters he called "seas." And God saw that it was good.

11 And God said, "Let the water produce vegetation: seed-bearing plants and trees on the land that bear fruit with their various kinds. And it was so." 12 The land produced vegetation: plants bearing seed according to their kinds and trees bearing fruit with

seed according to their kinds. And God saw that it was good.

13 And there was evening and there was morning—the third day.

14 And God said, "Let there be light in the sky," and there was light.

15 And God called the light "day," and the darkness "night." And there was evening and there was morning—the fourth day.

16 God made two great lights—the greater light to govern the day and the lesser light to govern the night. He also made the stars.

18 to govern the day and the night, and to separate light from darkness. And God saw that it was good. 19 And there was evening, and there was morning—the fourth day.

20 And God said, "Let the water teem with living creatures, and let birds fly above the earth across the expanse of the sky." 21 So God created every living and moving thing with which the water teems, according to their kinds, and every winged bird according to its kind. And God saw that

it was good.

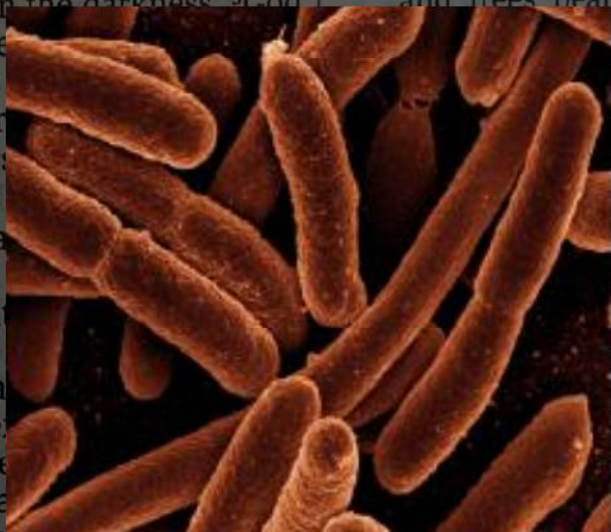
22 Then God said, "Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth, and all the creatures that move along the ground."

23 So God created man in his own image, in the image of God he created him; male and female he created them.

24 God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every creature that moves on the ground."

25 Then God said, "I give every seed-bearing plant on the face of the whole earth to you for food. They will be yours for food. 26 And to all the animals, and to all the birds of the air and all the creatures that move on the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.

27 God saw all that he had



\*26 Hebrew, Syriac all the wild animals

# Origins of Life



Hugh Ross  
Reasons To Believe

[www.reasons.org](http://www.reasons.org)



The world was formless  
and void.

Genesis 1:2



The Spirit of God was hovering  
[*rahap*] over the waters.

Genesis 1:2



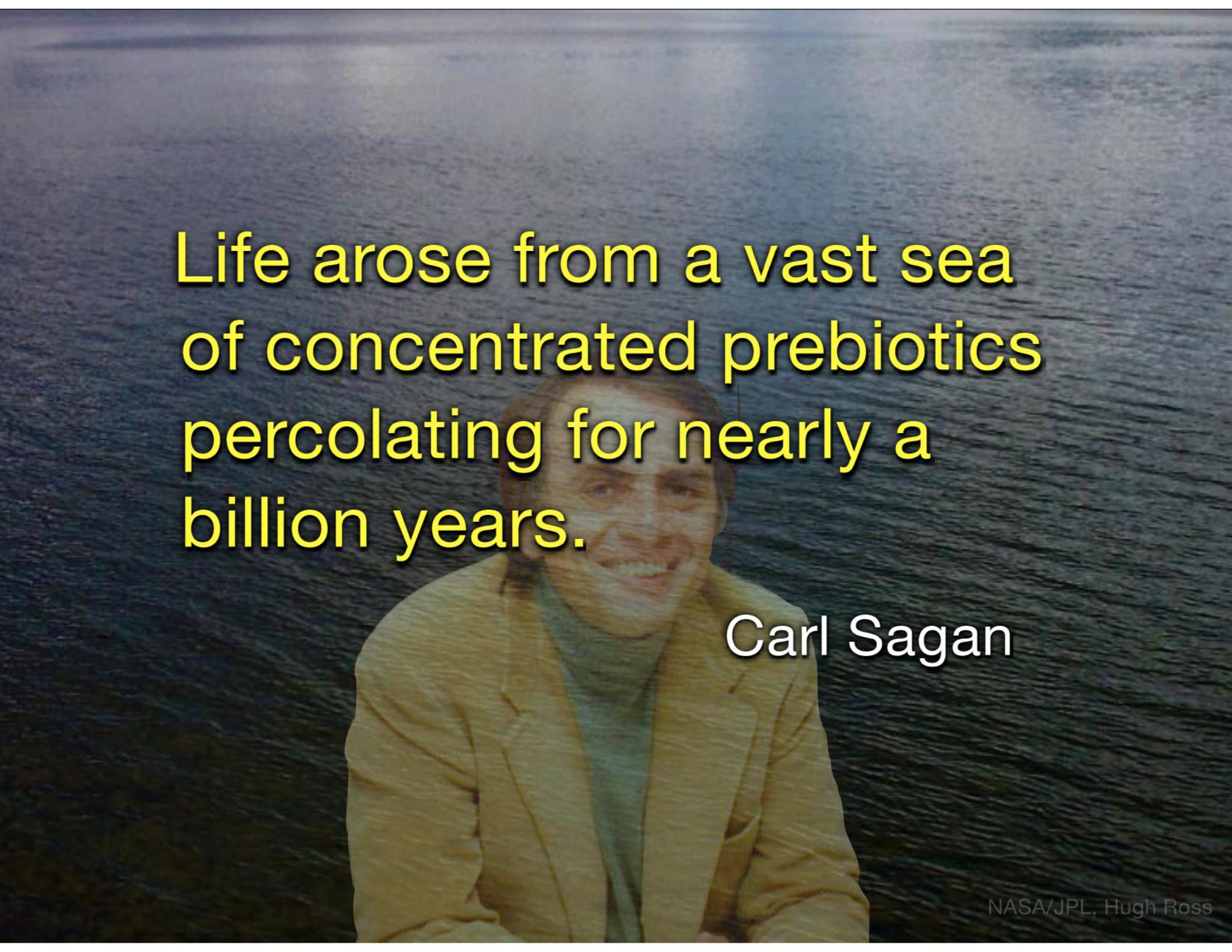
# Biblical Predictions

1. early
2. under hostile conditions
3. complex, diverse, abundant
4. miraculous, instantaneous
5. marine only



Life arose from a warm pond.

Charles Darwin



Life arose from a vast sea  
of concentrated prebiotics  
percolating for nearly a  
billion years.

Carl Sagan

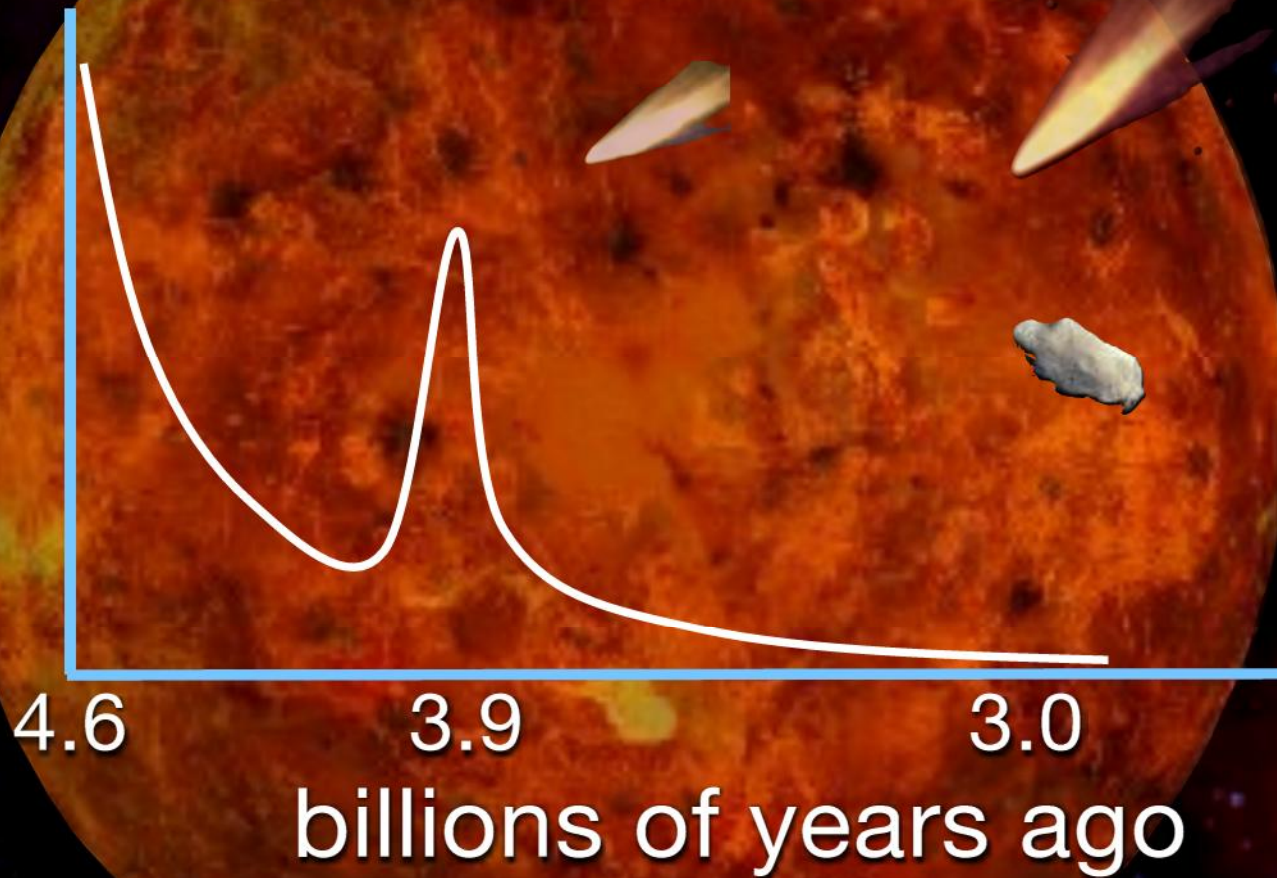
# Atheist Predictions

1. late, after enormous time
2. under benign conditions
3. huge, concentrated soup
4. abundant homochirals
5. one very simple species only

# Life Origin Paradoxes

- no time

# Late Heavy Bombardment



**Niles Eldredge**

**Evolutionist**



Photo: Denis Finnin, AMNH

“In the very oldest rocks that stand a chance of showing the signs of life, we find those signs. ... *Life is intrinsic to the earth!*”

# Life Origin Paradoxes

- no time
- no soup



# Lacking Prebiotics

- $^{12}\text{C}$  enriched kerogen
- $^{14}\text{N}$  enriched kerogen
- $^{32}\text{S}$  enriched sulfide deposits

# Life Origin Paradoxes

- no time
- no soup
- oxygen/uv crisis
- no homochirality source
- first life complexity

# Photosynthetic Life

3.7+ Gyr shale in Greenland shows a high U/Th ratio, proving that ocean water oxidized by oxygenic photosynthetic life precipitated the uranium.

—Rosing & Frei, *E&PSL* 217: 237-44

# Complex Ecosystem

- methanogens
- anoxygenic photoautotrophs
- oxygenic photoautotrophs
- multiple sulfate reducers

# Life from Mars?

- no time
- carbonate crisis
- uneroded craters
- oxygen/uv crisis
- no homochirality source

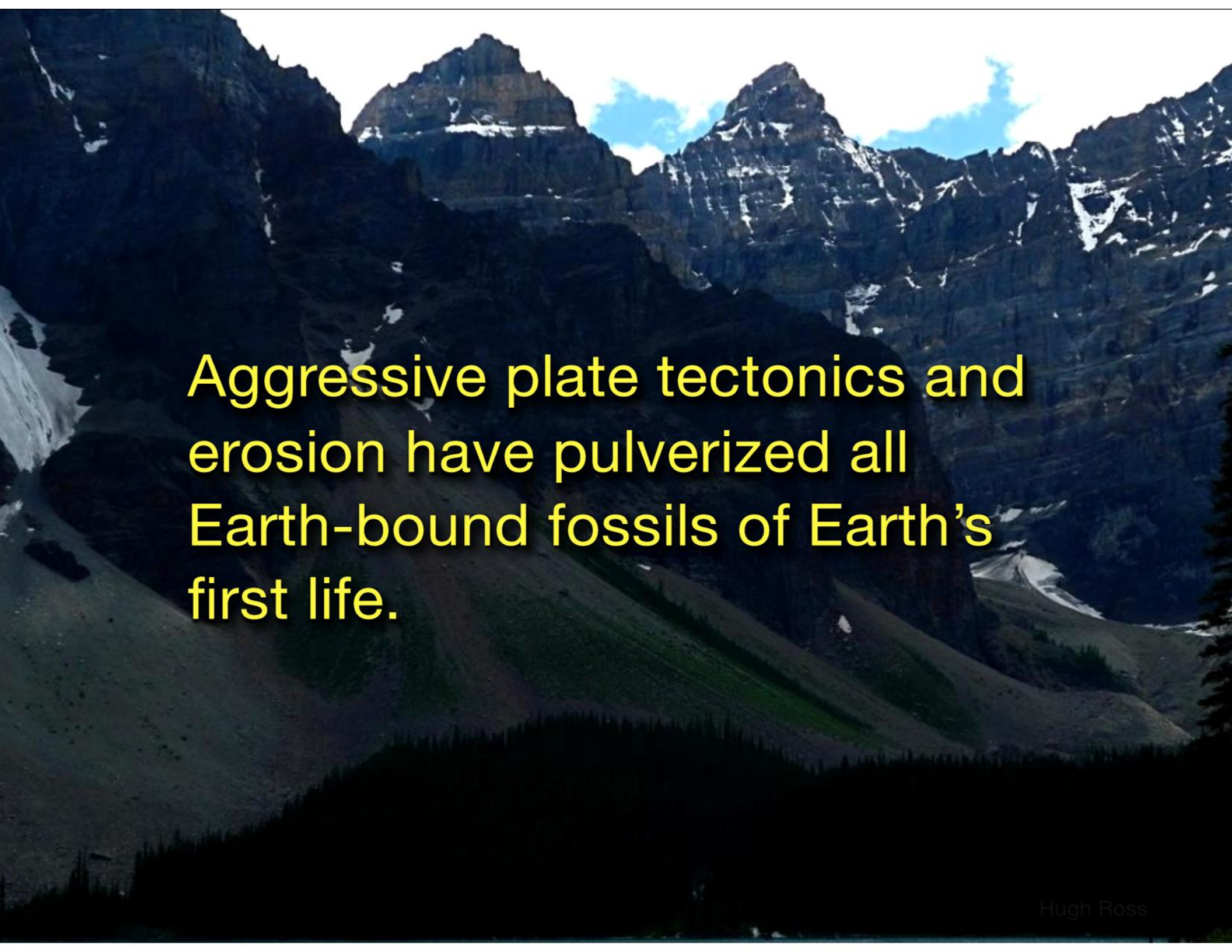


# risky prediction

**RTB:** Fossils of Earth's first life will prove to be abundant, 1-10 microns, complex, and diverse.


# risky prediction

**atheists:** Fossils of Earth's first life will prove to be rare, <0.2 microns, extremely simple, and limited to one species.




Aggressive plate tectonics and erosion have pulverized all Earth-bound fossils of Earth's first life.





However, huge amounts of Earth material were deposited on the moon's surface between 3.5 - 3.8 billion years ago.



Most of this material arrived via low-velocity collisions. Since that time, the moon has had very little geological activity.



Thus, we can recover pristine fossils of Earth's first life from the moon to determine whether RTB, atheists, or others are correct about life's origin.

# Life from Europa?

- thick ice
- oxidants/no oxidants paradox
- oxygen/uv crisis
- no homochirality source

# Interstellar Cloud Life?

- no ammonia
- no sugars
- no nucleobases
- no amino acids
- no homochirality source

# Interstellar Dust Transport?

- **x-ray & uv exposure**
- **long transport time**
- **atmospheric entry heating**

# Interstellar Rock Transport?

At best, only one interstellar rock  
lands on Earth every  $10^{16}$  years.

Jay Melosh (2001)



# Directed Panspermia?

- **origin of the aliens?**
- **How could they get here?**



What's left?

“hidden law  
of physics”

A white dove is shown in flight, its wings fully extended, hovering over a body of dark, rippling water. The dove is positioned in the upper center of the frame, facing left. The water below it is dark and textured with small waves.

What's left?

“The Spirit of God was hovering over the waters.”

FAZALE RANA & HUGH ROSS

# ORIGINS

*of*

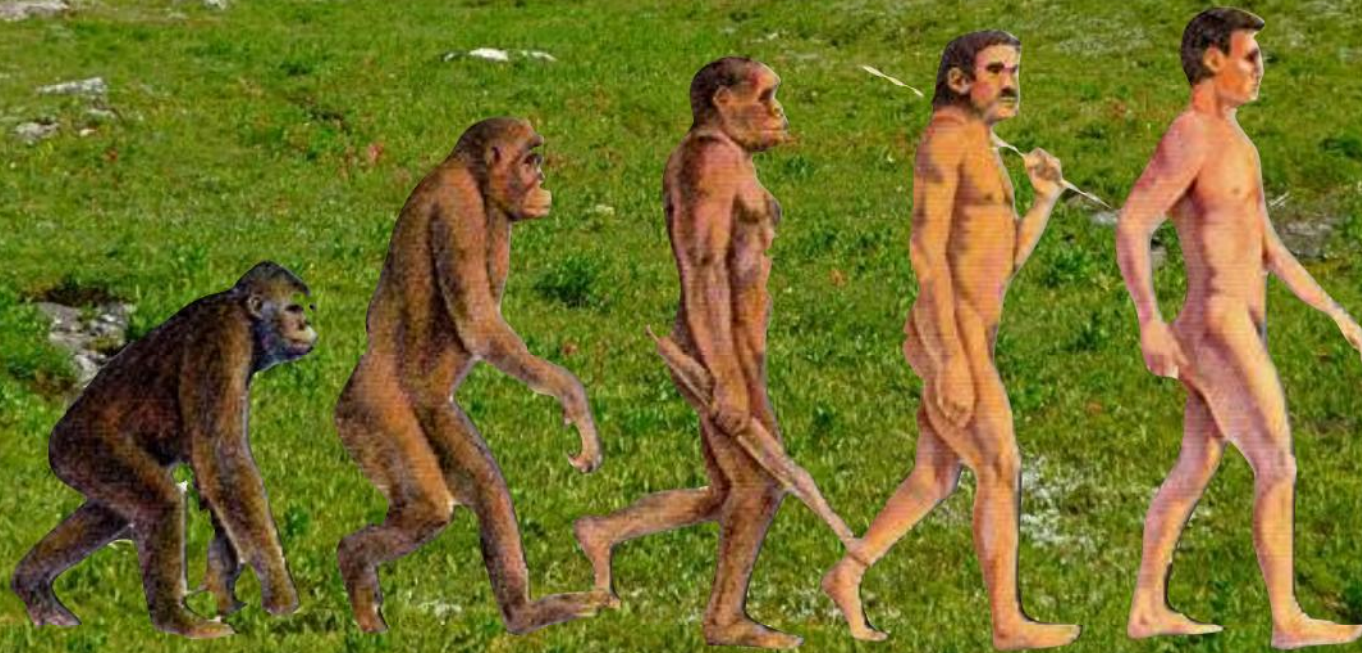
# LIFE

BIBLICAL AND  
EVOLUTIONARY MODELS  
FACE OFF

# Origin of Spiritual Life



# Origin of Humans?





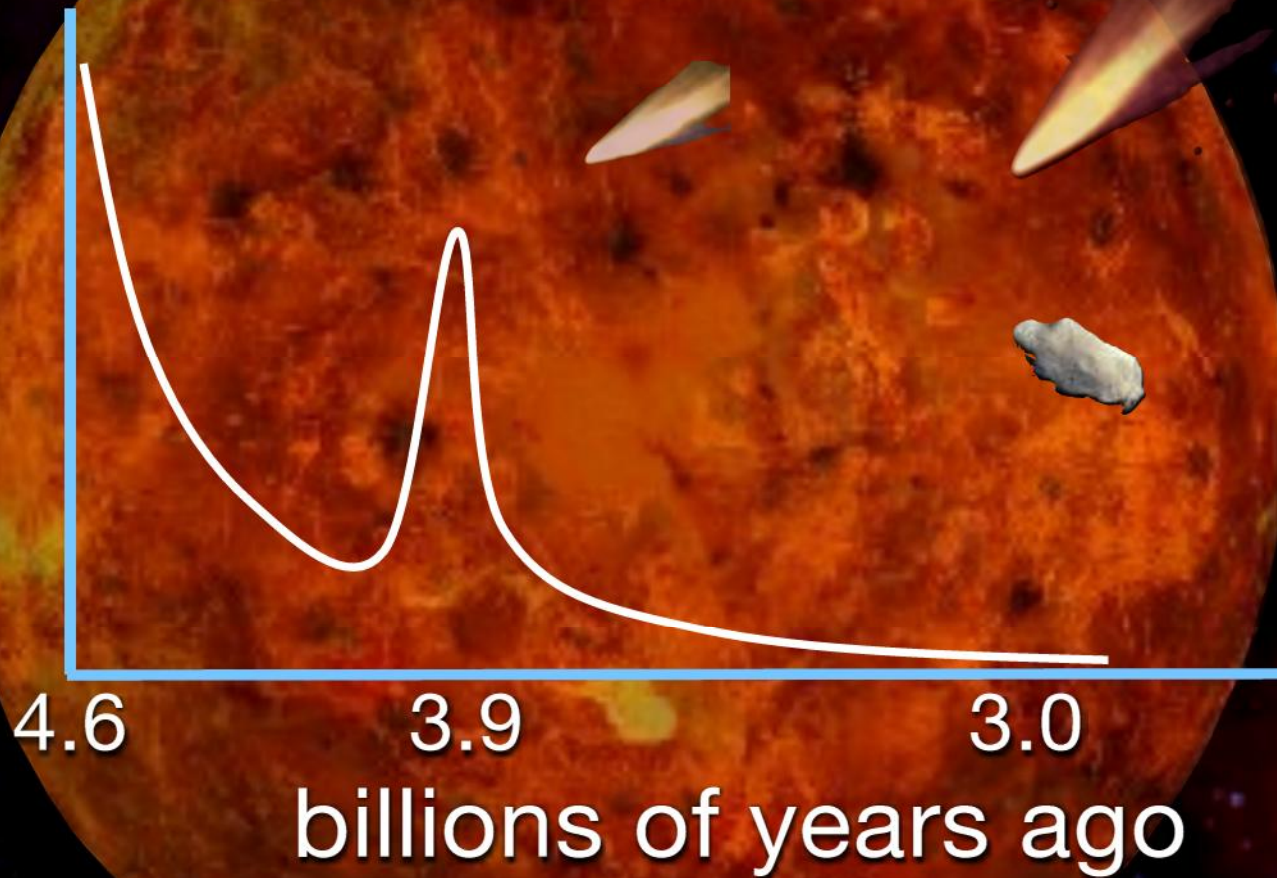
Ape-Human illustration copyright Jody F. Sjogren, 2000. Used with permission

Hugh Ross

# Solar Luminosity



# Late Heavy Bombardment

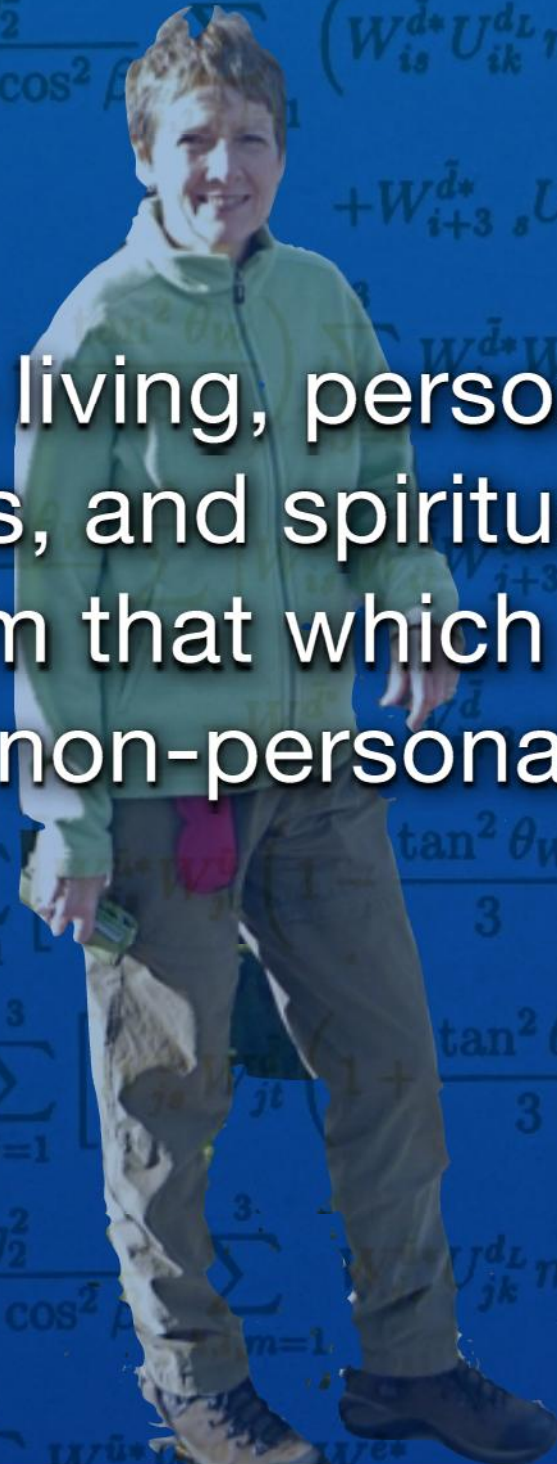




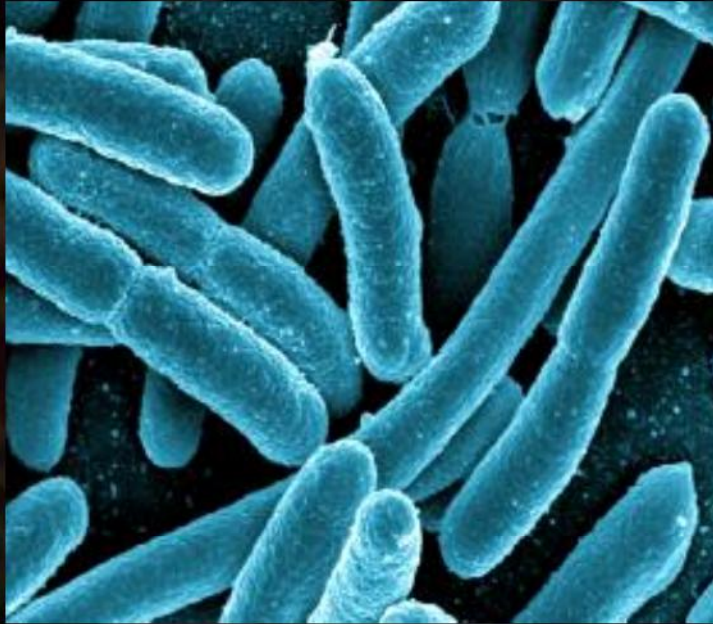
# Causality Laws

- Effects cannot be greater than their causes.
- The created cannot be greater than the creator.

Thus, the living, personal, soulish, conscious, and spiritual cannot come from that which is purely physical, non-personal, and non-living.



# Bacteria to Man?



# Bacteria to Man?

probability =  $10^{-1,000,000}$

—Francisco Ayala

probability =  $10^{-24,000,000}$

—Barrow, Carter, Tipler

# Over-Endowed

- mathematical analysis
- typing speed
- music playing, art expression
- prayer

# Bipedal Primates

- Fossil record is not a tree.
- Fossil record is a hedge.
- New finds add chaos to naturalistic models.

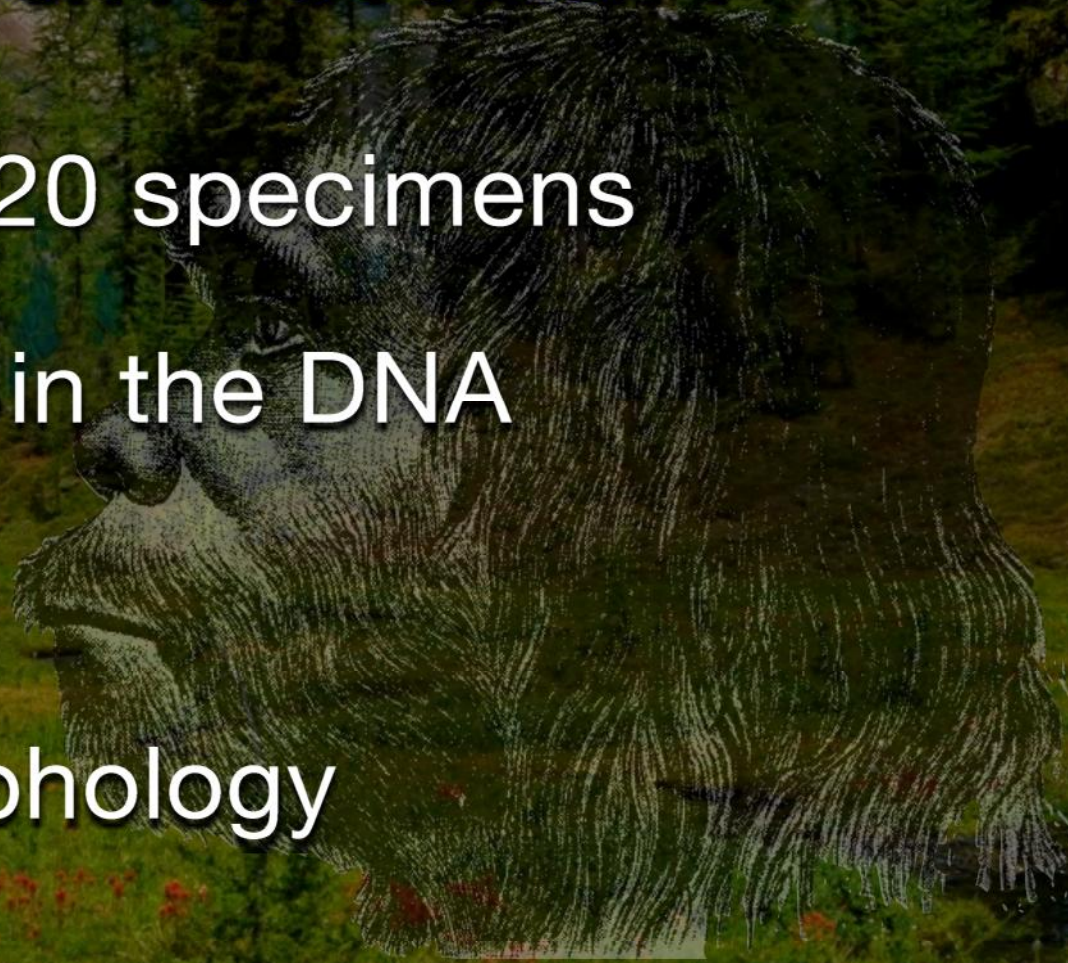
# Who is *Homo sapiens*?

- **not** human
- tropical Neanderthal types
- lived 80,000 - 170,000 years ago



# Who is Neanderthal?

- mDNA from 20 specimens
- no evolution in the DNA
- distinct DNA
- distinct morphology





# Who is *Homo erectus*?

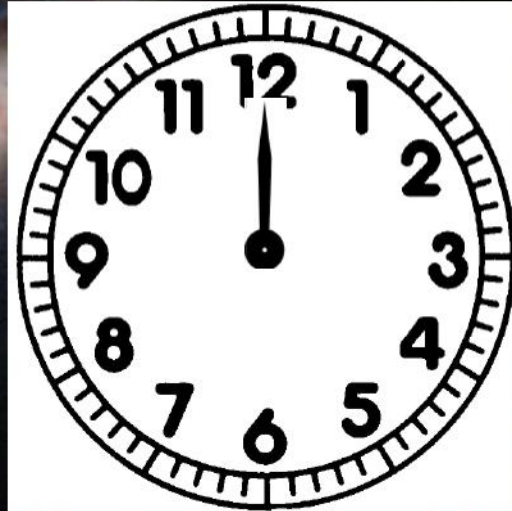
- 0.2 - 1.8 million years ago
- no DNA
- distinct morphology
- no evolution in morphology

# Large Mammal Extinctions



# Large Mammal Extinctions

|                  |      |
|------------------|------|
| Australia        | 94%  |
| South America    | 79%  |
| North America    | 73%  |
| Europe           | 30%  |
| Asia             | 14%  |
| subSahara Africa | 4.5% |



## Why now?

If all cosmic history were compressed into 24 hours, humans would have existed for just the last 0.3 seconds!

# Anthropic Inequality

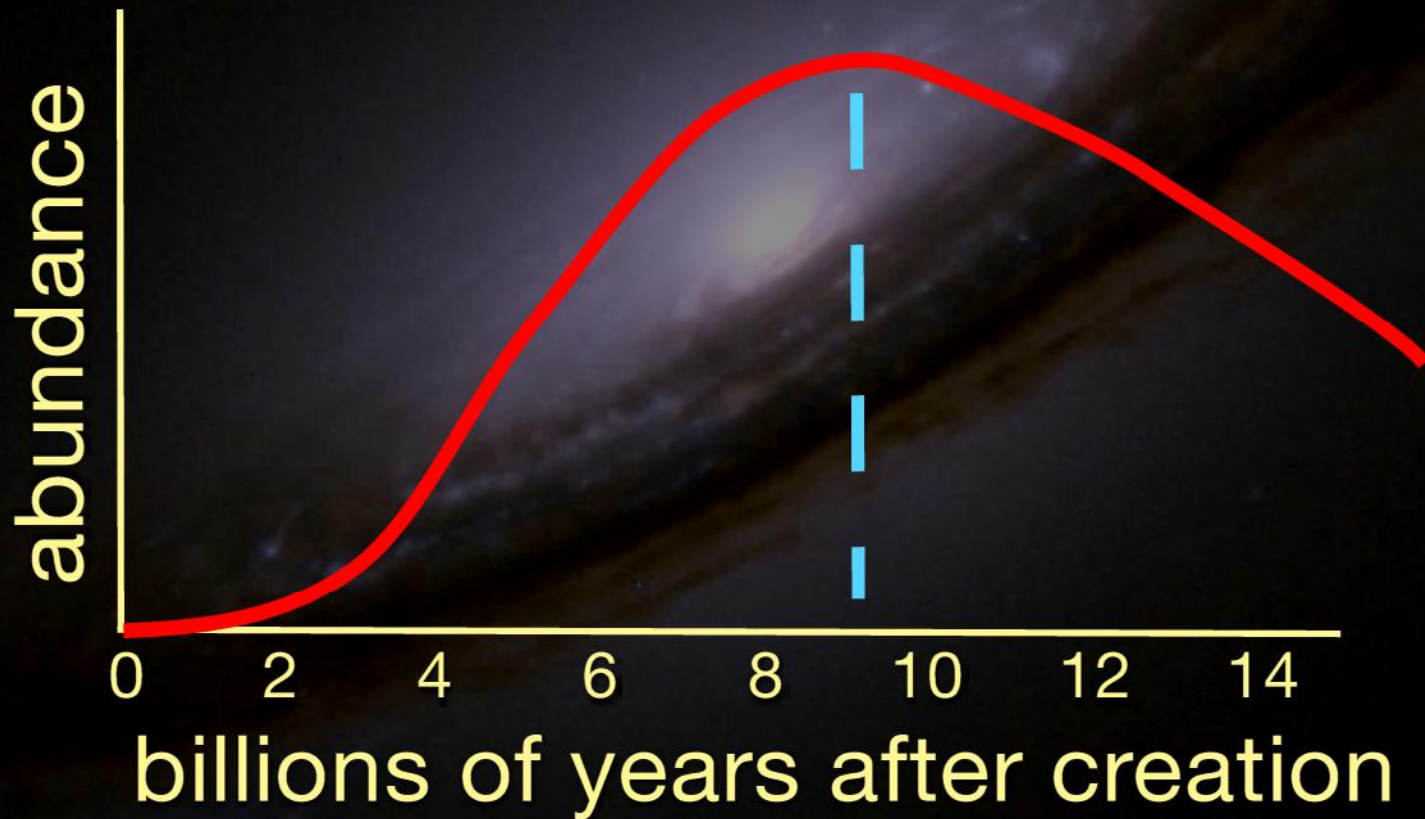
~14 billion year minimum  
to prepare a home for  
humanity



<41,000 year maximum  
longevity for cooperative  
civilization



# U & Th Abundance



# Oklo, Gabon



# Oklo, Gabon

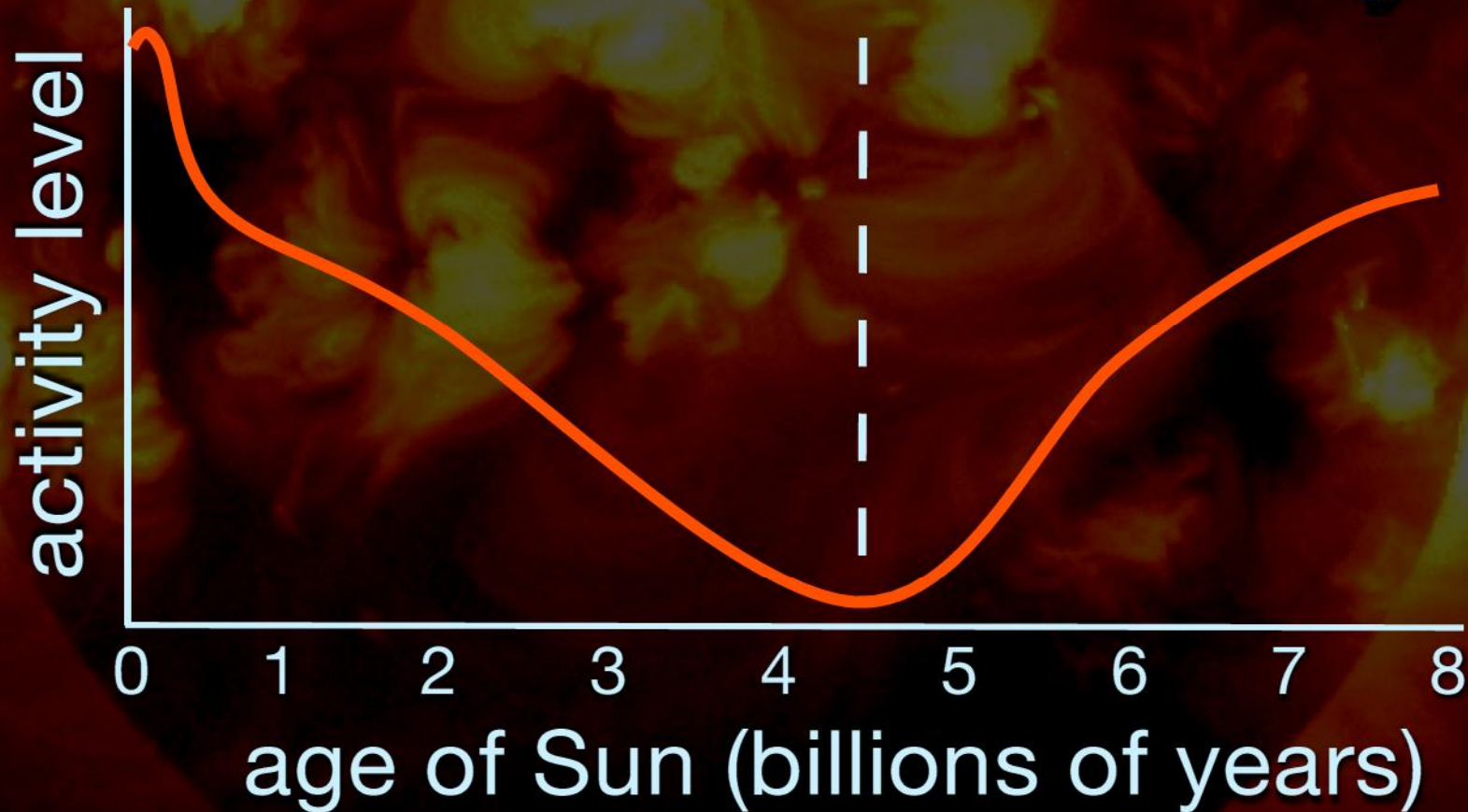




# Solar Luminosity



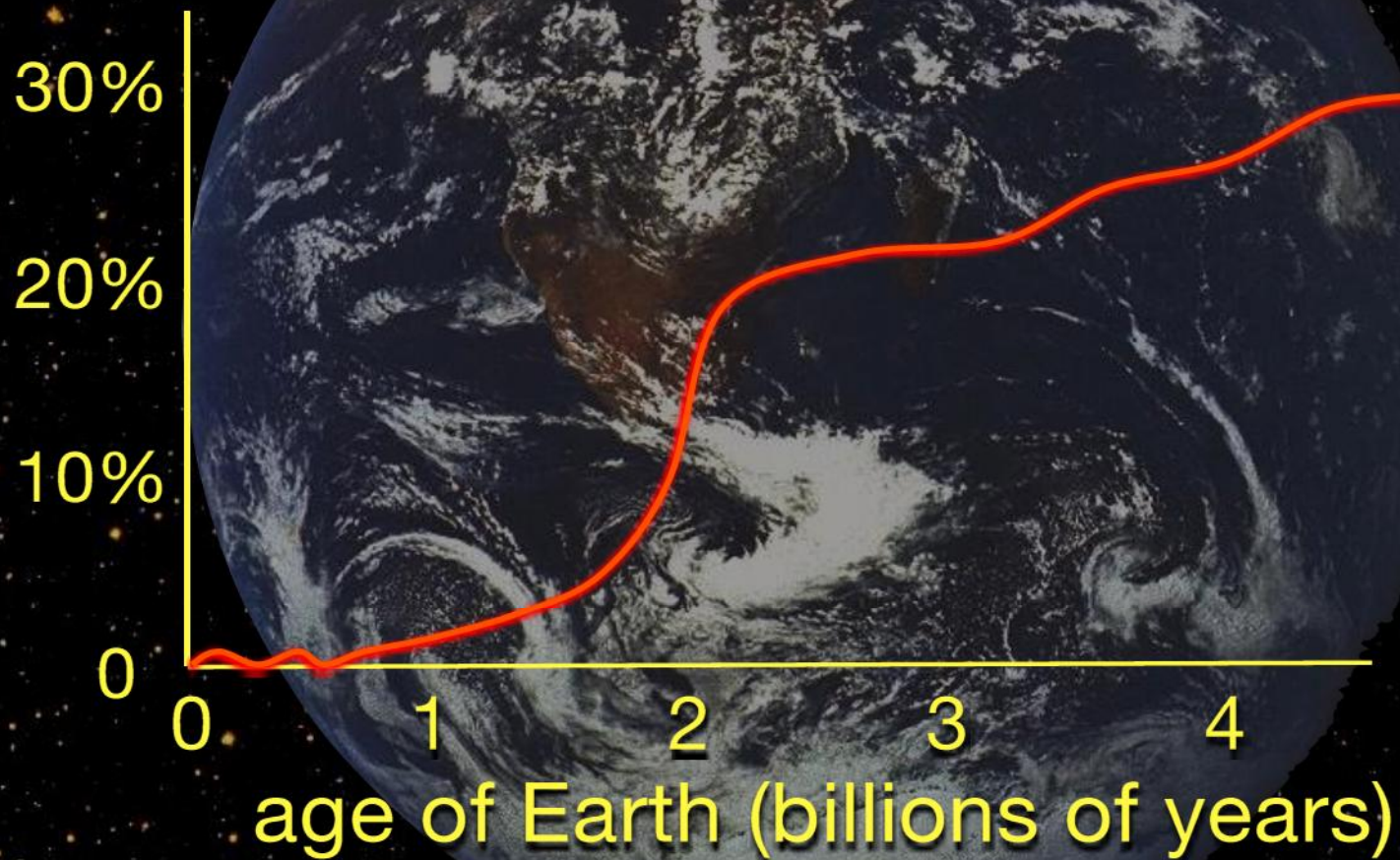
# Solar Flare Activity



# Solar Stability

- Sun has optimal mass.
- Flaring minimum occurs when Sun = 4.57 billion years old.
- Extreme solar stability lasts only 100,000 years.

# Growth of Continents



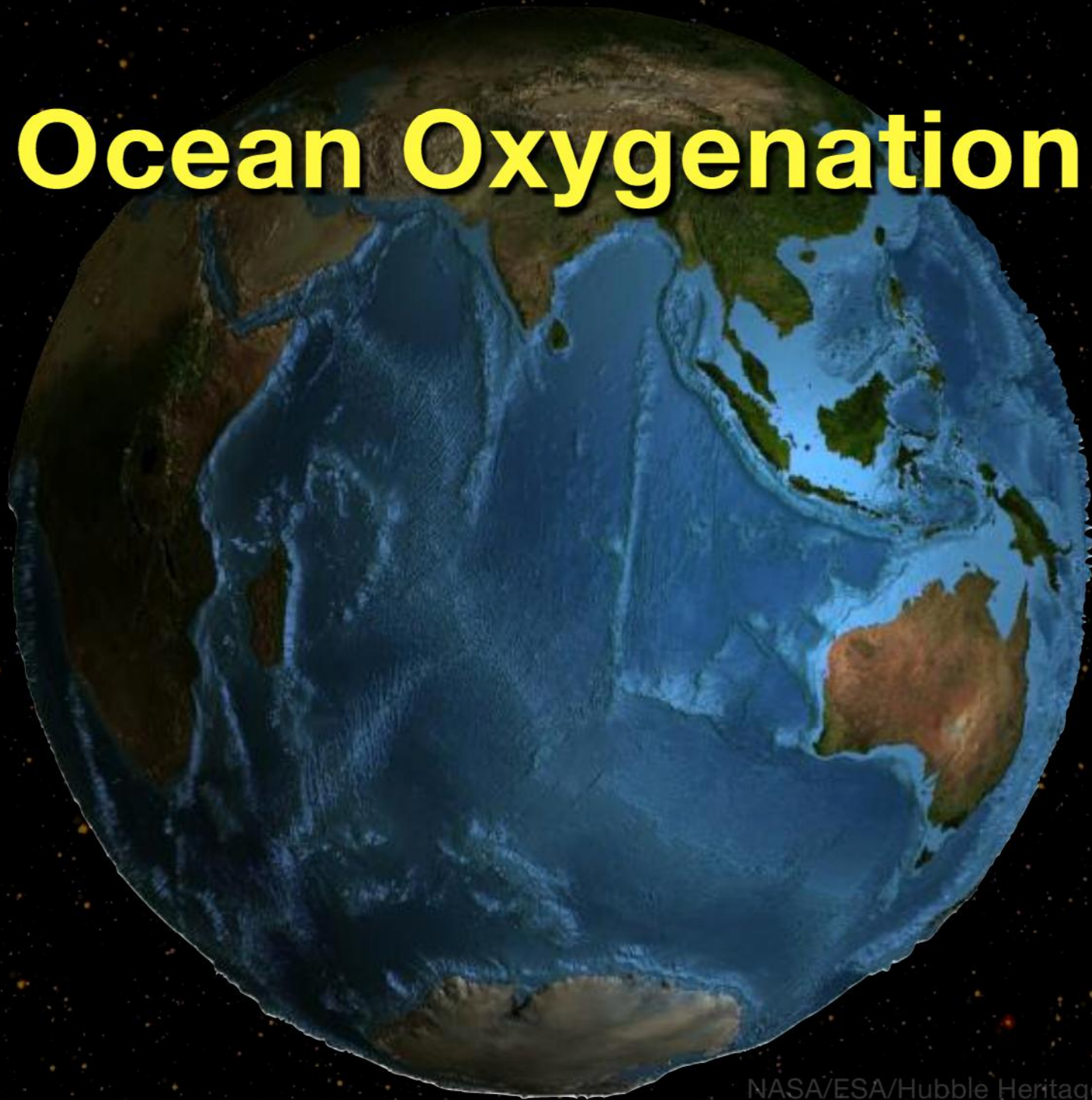
# Continent Orientation



# Ocean Oxygenation



# Ocean Oxygenation

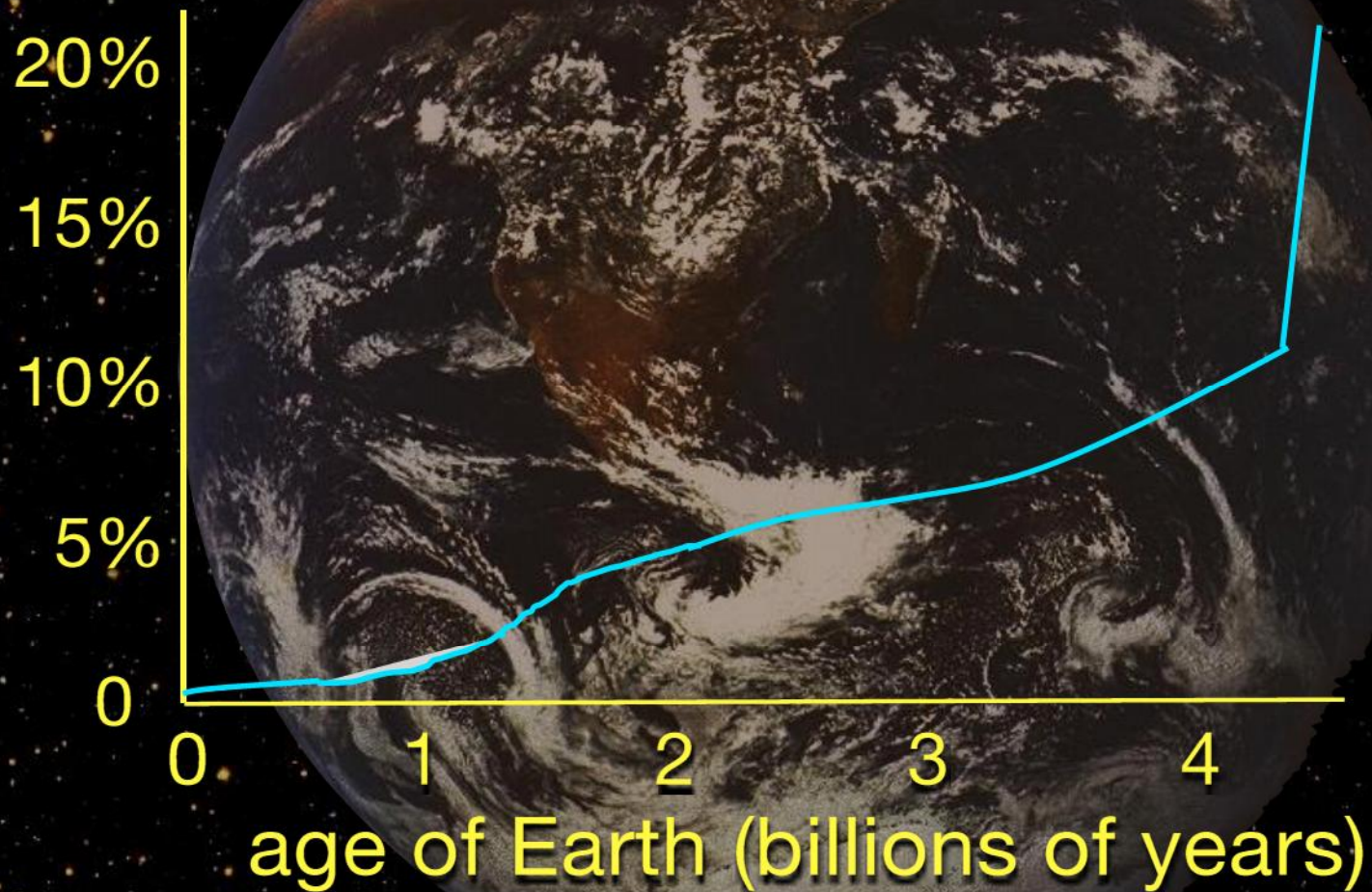


# Ice Age Timing

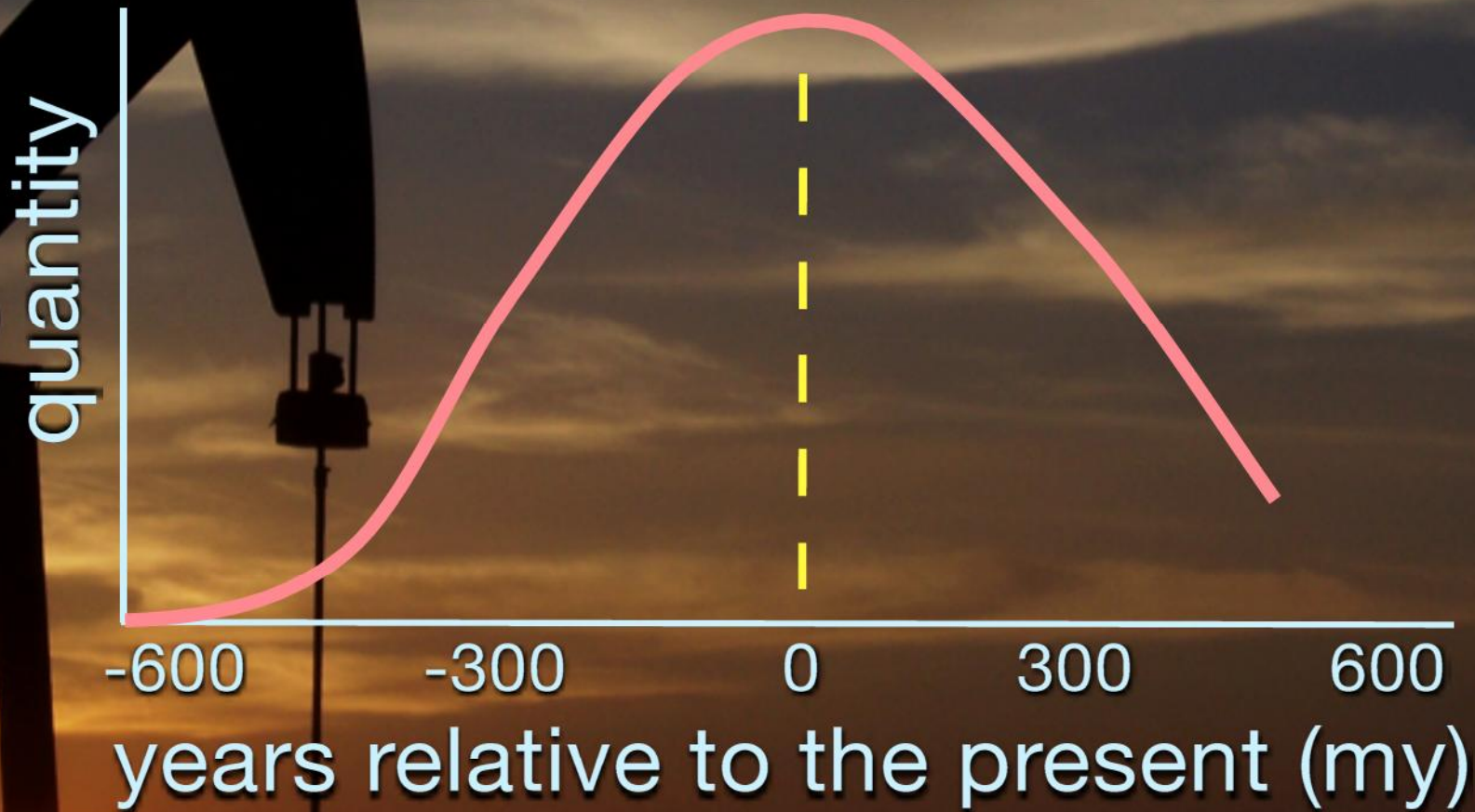




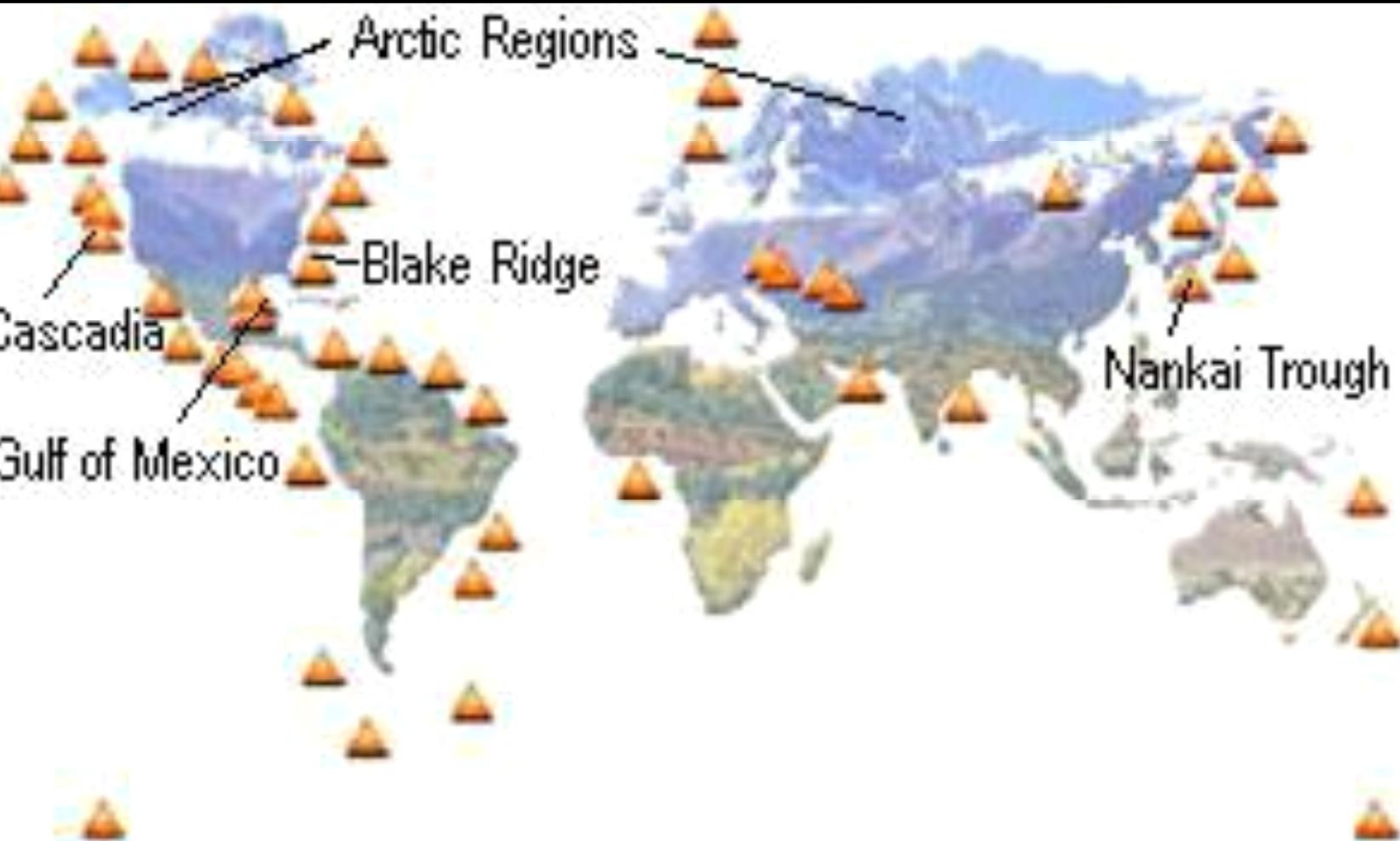
# Atmospheric Oxygen



# Mineable Petroleum



# Mineable Clathrates



# Wedding Ceremony Analogy







# Adam and Eve

God's *final* creation miracle

the *only* spiritual beings  
created on Earth

progenitors of *all* humans

earth, <sup>18</sup>to govern the day and the night, and to separate light from darkness. And God saw that it was good. <sup>19</sup>And there was evening, and there was morning—the fourth day.

kinds. And God saw that it was good.

<sup>26</sup>Then God said, "Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth and

<sup>27</sup>So God created man in his own image, in the image of God he created him; male and female he created them.

<sup>28</sup>God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground."

<sup>29</sup>Then God said, "I give you every seed-bearing plant on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. <sup>30</sup>And to all the beasts of the earth and all the birds of the air and all the creatures that move on the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.

<sup>31</sup>God saw all that he had

made, and it was very good. And there was evening, and there was morning—the sixth day.

<sup>2</sup> Thus the heavens and the earth were completed in all their vast array.

<sup>3</sup> And God blessed the seventh day and made it holy, because on it he rested from all his work of creating that he had done.

<sup>4</sup> This is the account of the heavens and the earth when they were created.

When the LORD God made the earth and the heavens—<sup>5</sup>and no shrub of the field had yet appeared on the earth<sup>b</sup> and no plant of the field had yet sprung up, for the LORD God had not sent rain on the earth<sup>b</sup> and there was no man to work the ground,<sup>6</sup> but streams<sup>c</sup> came up from the earth and watered the whole surface of the ground—<sup>7</sup>the LORD God formed the man<sup>d</sup> from the dust of the ground and breathed into his nostrils the breath of life, and the man became a living being.

<sup>8</sup> Now the LORD God had planted a garden in the east, in Eden; and there he put the man he had formed. <sup>9</sup> And the LORD God made all kinds of trees grow out of the ground—trees that were pleasing to the eye and good for food. In the middle of the garden were the tree of life and the tree of the knowledge of good and evil.

<sup>10</sup> A river watering the garden flowed from Eden; from there it was separated into four headwaters. <sup>11</sup> The name of the first is the Tigris; it winds through the entire land of Assyria. <sup>12</sup> The name of the second is the Euphrates; it winds through the entire land of Cush. <sup>13</sup> The name of the third is the Tigris; it runs along the east side of Assyria. <sup>14</sup> The name of the fourth river is the Euphrates.

<sup>15</sup> The LORD God took the man and put him in the Garden of Eden to work it and take care of it. <sup>16</sup> And the LORD God commanded the man, "You are free to eat from any tree in the garden; <sup>17</sup> but you must not eat from the tree of the knowledge of good and evil, for when you eat of it you will surely die."

<sup>18</sup> The LORD God said, "It is not good for the man to be alone. I will make a helper suitable for him."

<sup>19</sup> Now the LORD God had formed

# Biblical Date for Adam

## Dates for Abraham and Peleg permit calibration of Genesis 11 geneology.

<sup>26</sup> Hebrew, Syriac: all the wild animals

<sup>2</sup> Or ceased; also in verse 3 <sup>5</sup> Or land; also in verse 6 <sup>6</sup> Or mist <sup>7</sup> The Hebrew for man (adam) sounds like and may be related to the Hebrew for ground (adamah); it is also the name Adam (see Gen. 2:20). <sup>12</sup> Or good; pearls <sup>13</sup> Possibly southeast Mesopotamia

# Dividing of the World

Two sons were born to Eber:  
One was named Peleg,  
because in his time the earth  
was divided.” — Genesis 10:25

earth, <sup>18</sup>to govern the day and the night, and to separate light from darkness. And God saw that it was good. <sup>19</sup>And there was evening, and there was morning—the fourth day.

<sup>20</sup>And God said, "Let there be water teem with living creatures, and let birds fly above the earth across the expanse of the sky." <sup>21</sup>So God created the great creatures of the sea and every living and moving thing with which the waters teem according to their kinds, and every winged bird according to its kind. And God saw that it was good.

kinds. And God saw that it was good.

<sup>26</sup>Then God said, "Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock over all the earth,<sup>a</sup> and over all the animals that creep on the ground."

<sup>27</sup>So God created man in his own image, in the image of God he created him;

<sup>28</sup>God blessed them and said to them, "Be fruitful and increase in number and fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground."

<sup>29</sup>God said, "I give you the land and every tree that has fruit with seed in it. They will be yours for food. <sup>30</sup>And to all the beasts of the earth and all the birds of the air and all the creatures that move on the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.

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<sup>10</sup> A river watering the garden flowed from Eden; from there it was separated into four headwaters. <sup>11</sup> The name of the first is the Pishon; it winds through the entire land of Havilah, where there is gold. <sup>12</sup> (The gold of that land is good; aromatic resin<sup>e</sup> and onyx are also there.) <sup>13</sup> The name of the second river is the Gihon; it winds through the entire land of Cush.

<sup>14</sup> The name of the third river is the Tigris; it runs along the east side of the land of Shinar. And the fourth river is the Euphrates.

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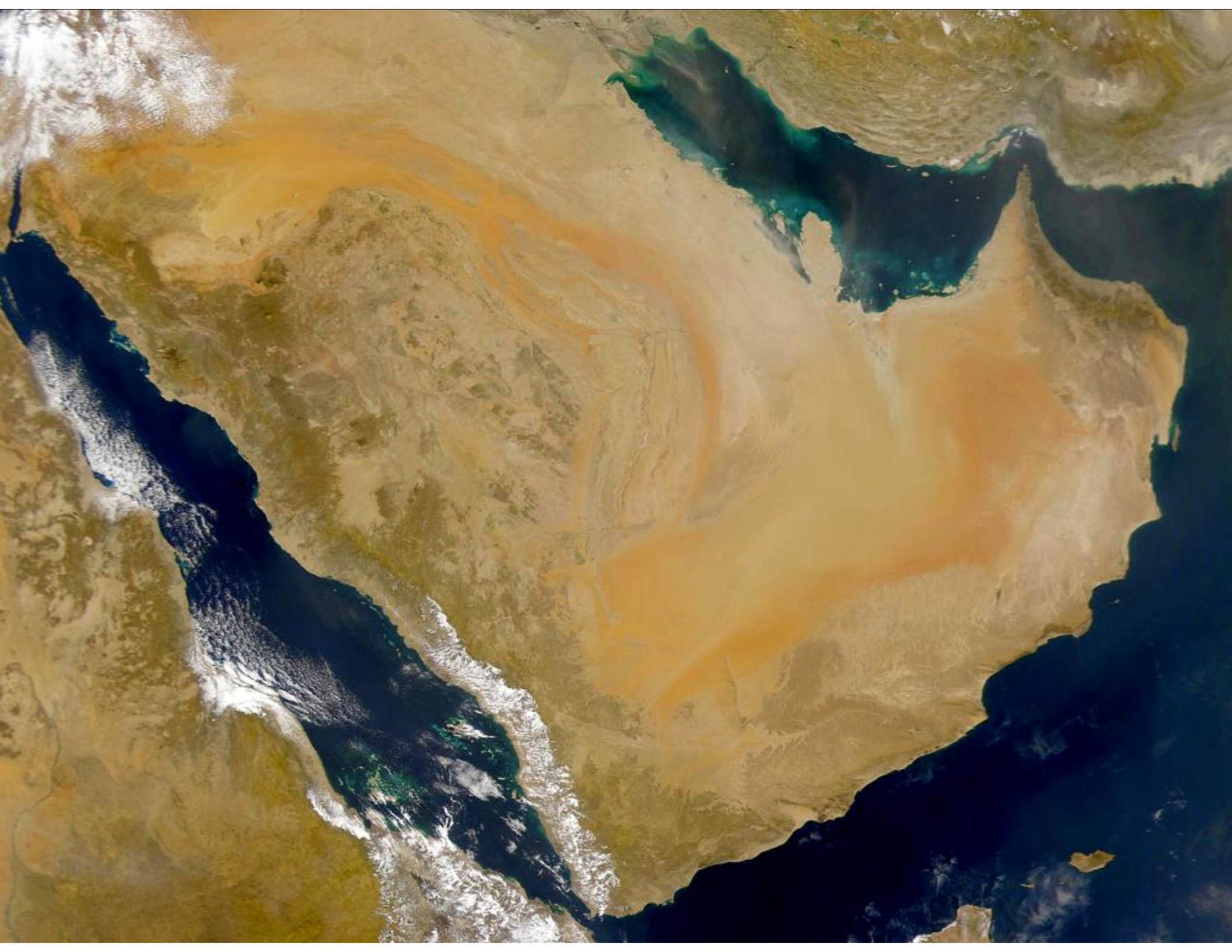
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# Bering Land Bridge

A map showing the Bering Land Bridge, a land connection between North America and Eurasia that existed 21,000 years ago. The landmass is colored in shades of yellow and orange, while the surrounding oceans are dark blue. The bridge spans the Bering Sea, connecting the eastern coast of Siberia to the western coast of North America.

21,000 years ago

# Bering Land Bridge

A map showing the Bering Land Bridge 11,500 years ago. The landmasses of Siberia and Alaska are connected by a wide land bridge. Key geographical features include Wrangel Island, the Chukotka Peninsula, the Seward Peninsula, Norton Sound, and the Pribilof Islands. Rivers such as the Anadyr R. and Yukon River are shown. The Beaufort Sea is to the north. A scale bar at the top left indicates 0, 200, and 400 km. Latitude lines for 60°, 65°, and 70° are marked on the right side.

11,500 years ago

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# Biblical Date for Adam

## Calibration of Genesis 11 geneology puts Adam's time at 60,000 ± 30,000 years ago.

<sup>20</sup>And God said, "Let the earth bring forth living creatures according to their kinds, and every winged bird according to its kind. And it was good. And God said, "Be fruitful and increase in number and fill the water with living creatures. Let the birds increase on the earth." <sup>23</sup>And there was evening, and there was morning—the fifth day.

<sup>27</sup>So God created man in his own image, in the image of God he created him; male and female he created them.

<sup>28</sup>God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and over the birds of the air and over every living creature that moves on the ground."

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And God blessed the seventh day and made it holy, because on that day he rested from all his work.

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# Biblical Date for Flood

## Dates for Abraham and Peleg permit calibration of Genesis 11 genealogy: Noah's flood = 40,000 ± 15,000 years ago.

earth, <sup>18</sup>to govern the day and the night, and to separate light from darkness. And God saw that it was good. <sup>19</sup>And there was evening, and there was morning—the fourth day.

kinds. And God saw that it was good.

<sup>26</sup>Then God said, "Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth, and over every creeping thing that creeps on the earth."

<sup>27</sup>So God created man in his own image, in the image of God he created him; male and female he created them.

<sup>28</sup>God blessed them and said to them, "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and over the birds of the air and over every living creature that moves on the ground."  
<sup>29</sup>Then God said, "Let every creature that moves on the face of the whole earth and every tree that has fruit with seed in it. They will be yours for food. <sup>30</sup>And to all the beasts of the earth and all the birds of the air and all the creatures that move on the ground—everything that has the breath of life in it—I give every green plant for food." And it was so.

<sup>31</sup>God saw all that he had

made, and it was very good. And there was evening, and there was morning—the sixth day.

<sup>2</sup> Thus the heavens and the earth were completed in all their vast array.

the seventh day God rested; so on the seventh day he rested<sup>a</sup> from all his work.

<sup>3</sup>And God blessed the seventh day and made it holy, because on that day he rested from all his work of creating that he had done.

<sup>4</sup>This is the account of the heavens and the earth when they were first created.

When the LORD God made the earth and the heavens—<sup>5</sup>and no man had yet sprung up<sup>b</sup>—for the LORD God had not sent rain on the earth<sup>b</sup> and there was no man to work the ground,<sup>6</sup> but streams<sup>c</sup> came up from the earth and watered the whole surface of the ground—<sup>7</sup>the LORD God formed the man<sup>d</sup> from the dust of the ground and breathed into his nostrils the breath of life, and the man became a living being.

<sup>8</sup>Now the LORD God had planted a garden in the east, in Eden; and there he put the man he had formed. <sup>9</sup>And the LORD God made all kinds of trees grow out of the ground—trees that were pleasing to the eye and good for food. In the middle of the garden were the tree of life and the tree of the knowledge of good and evil.

<sup>10</sup>A river watering the garden flowed from Eden; from there it was separated into four headwaters. <sup>11</sup>The name of the first is the Tigris; it winds through the entire land of Assyria. <sup>12</sup>The name of the second river is the Euphrates; it winds through the entire land of Cush. <sup>13</sup>The name of the third river is the Tigris; it runs along the east side of Assyria. And the fourth river is the Euphrates.

<sup>15</sup>The LORD God took the man and put him in the Garden of Eden to work it and take care of it. <sup>16</sup>And the LORD God commanded the man, "You are free to eat from any tree in the garden; <sup>17</sup>but you must not eat from the tree of the knowledge of good and evil, for when you eat of it you will surely die."

<sup>18</sup>The LORD God said, "It is not good for the man to be alone. I will make a helper suitable for him."

<sup>19</sup>Now the LORD God had formed

<sup>a</sup>26 Hebrew, Syriac all the wild animals

<sup>a</sup>2 Or ceased; also in verse 3 <sup>b</sup>5 Or land; also in verse 6 <sup>c</sup>6 Or mist <sup>d</sup>7 The Hebrew for man (adam) sounds like and may be related to the Hebrew for ground (adamah); it is also the name Adam (see Gen. 2:20). <sup>e</sup>12 Or good; pearls <sup>f</sup>13 Possibly southeast Mesopotamia

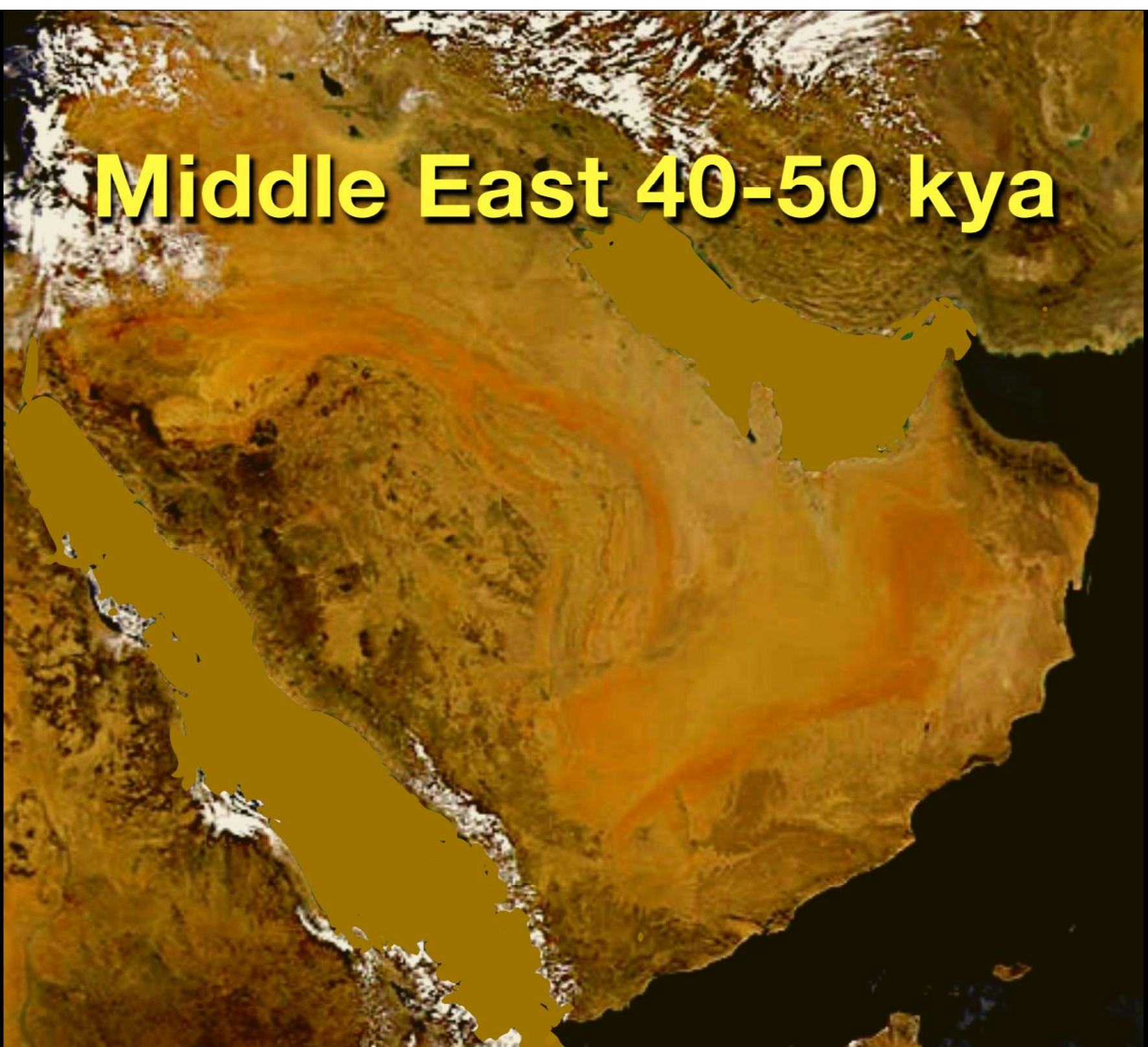
A satellite-style map of the Middle East and surrounding regions. The map shows the Mediterranean Sea to the north, the Red Sea to the east, and the Gulf of Aden to the south. The landmasses are colored in shades of brown and tan, representing arid terrain. Three labels are overlaid on the map in white, bold, sans-serif font. 'Asshur' is located in the upper central part of the map, over the Taurus and Zagros mountain ranges. 'Havilah' is located in the central part of the map, over the Arabian Peninsula. 'Cush' is located in the lower part of the map, over the Nile River valley in Egypt and Sudan. The Nile River is visible as a dark, winding line through the desert.

**Asshur**

**Havilah**

**Cush**

# Middle East 40-50 kya







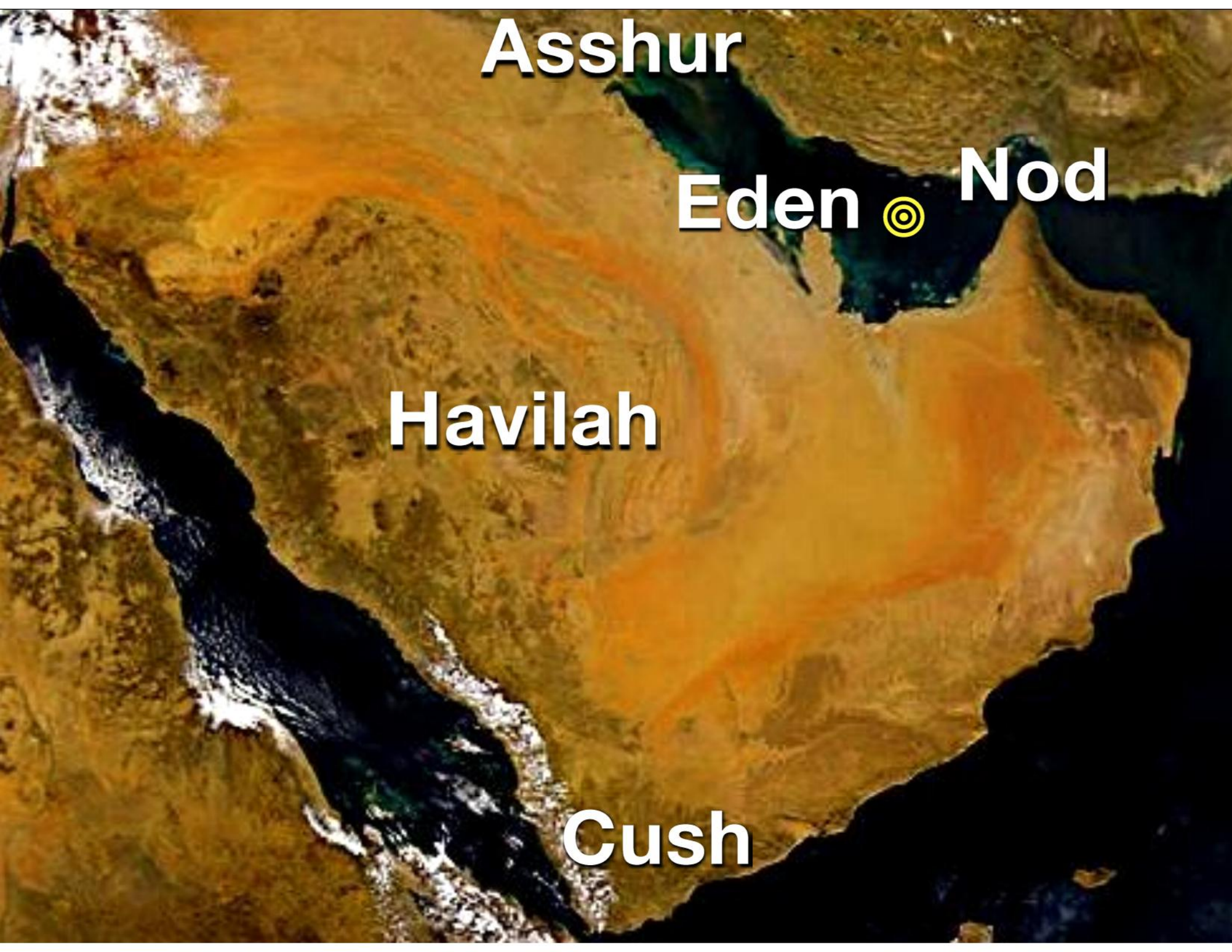
**Asshur**

**Eden** 

**Nod**

**Havilah**

**Cush**



**Asshur**

**Eden**  **Nod**

**Havilah**

**Cush**

# Biblical Date for Adam

Dates for Abraham and Peleg permit calibration of Genesis 11 genealogy: Adam's birthday = 60,000 ± 30,000 years ago.

earth, <sup>18</sup>to govern the day and the night, and to separate light from darkness. And God saw that it was good. <sup>19</sup>And there was evening, and there was morning—the fourth day.

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# Cultural Big Bangs

art and music 33,000 BP

jewelry 40,000 BP

clothing 40,000 BP

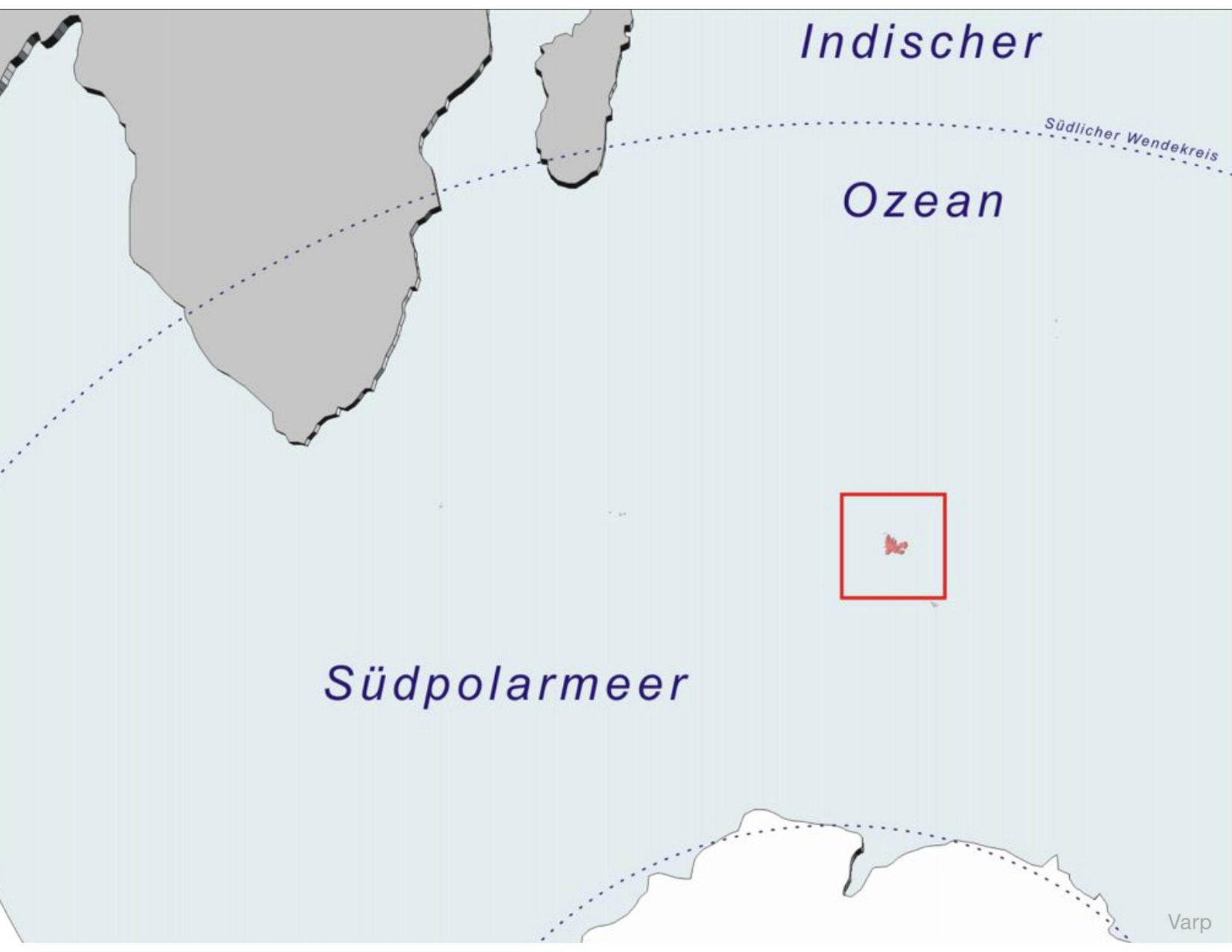
language 40,000 BP

complex tools 40,000 BP

# Chromosome 21

Only three haplotypes (sets of mutated nucleotides) describe 80% of the human population.

So few indicates a recent origin for humanity.



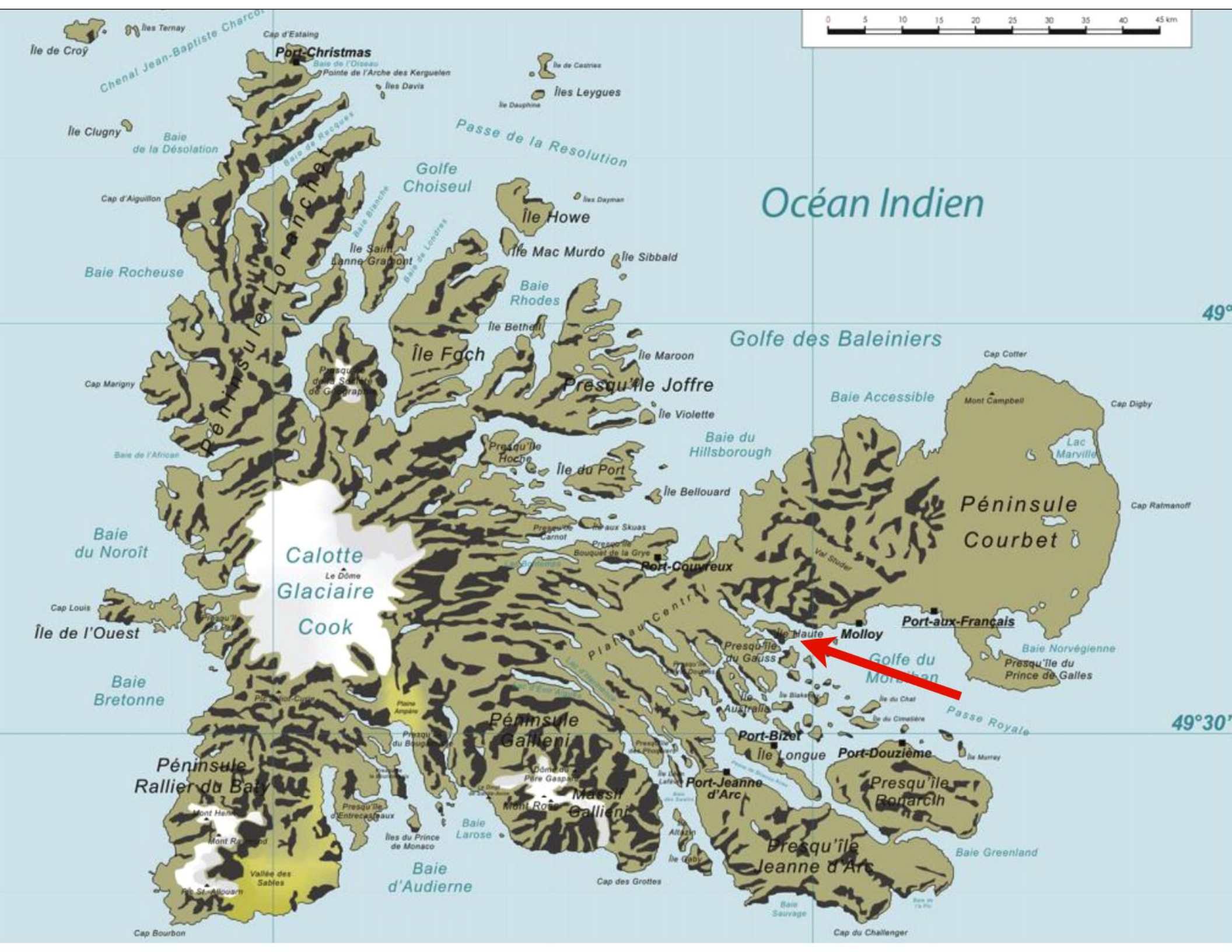
*Indischer*

*Südlicher Wendekreis*

*Ozean*

*Südpolarmeer*

Varp



Océan Indien

49°

49°30'















The 7,000 Sumatran orangutans showed more genetic diversity than the 45,000 orangutans in Borneo.

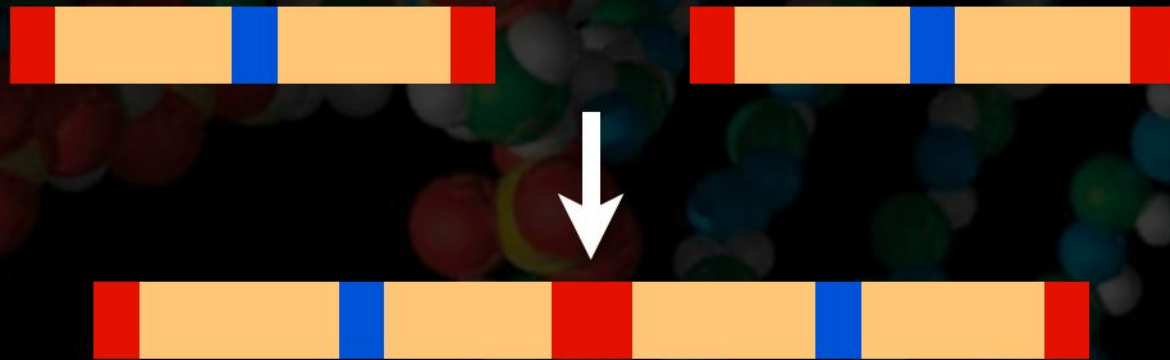


“We don’t fully understand the relationship between genetic diversity and population size.”

—William Arnos, quoted by John Milton in *Nature News*, Jan. 26, 2011

# Chromosome 2

natural fusion of two  
ancestral chromosomes?





# Vitamin C

Did an evolutionary accident cause humans, simians, guinea pigs, and fruit-eating bats to lose the ability to make vitamin C?

# Junk DNA?

Only 2% of the human genome codes for proteins. Is the other 98% the accumulated junk from hundreds of millions of years of evolution?



# Useful “Junk”

- pseudogenes
- SINES
- LINES
- endogenous retroviruses
- LTRs



# Useful “Junk”

pseudogenes: protect protein-coding genes from breakdown or malfunction

# Useful “Junk”

**SINES:** protect the cell from stress; regulate the expression of protein-coding genes

# Useful “Junk”

**LINES:** some inactivate the X-chromosome so as to prevent genetic disorders; others turn off one of the two genes inherited from the organism’s parents

# Useful “Junk”

endogenous retroviruses: some disrupt the life-cycle of invading retroviruses; others function as protein-coding genes

# Useful “Junk”

**LTRs:** some protect the organism from retroviral attacks; others regulate the expression of certain protein-coding genes



# **DNA Tests for the Garden of Eden Hypothesis**

# Mitochondrial DNA

- descent from one/a few females
- lived near juncture of Africa, Asia, and Europe
- lived ~150,000 BP (with heteroplasmy, ~50,000 BP)
- insignificant mDNA evolution



# Y-Chromosome DNA

- descent from one/a few males
- lived near juncture of Africa, Asia, and Europe
- lived 42,000 - 56,000 BP
- insignificant yDNA evolution

# younger Adam paradox

Stable kits show mDNA - yDNA  
date = a few thousand years.

How can the first woman live  
thousands of years before the  
first man?



A painting depicting Noah's Ark. Noah, an elderly man with a long white beard, stands in the center, gesturing towards the sky with his hands raised. He is surrounded by people, some of whom are carrying animals. A large, vibrant rainbow arches across the sky above the ark. The scene is set on a hillside overlooking a body of water.

# Noah resolution

The yDNA stops at **Noah**,  
while the mDNA could  
extend back to **Eve**.

A man and a woman are sitting on a grassy mountain slope. The man is on the left, wearing a blue jacket, and the woman is on the right, wearing a light-colored jacket. They are both smiling. The background features a vast mountain range with snow-capped peaks under a blue sky with light clouds. The text "I am fearfully and wonderfully made." is overlaid in yellow with a black outline.

I am fearfully and  
wonderfully made.

— Psalm 139:14

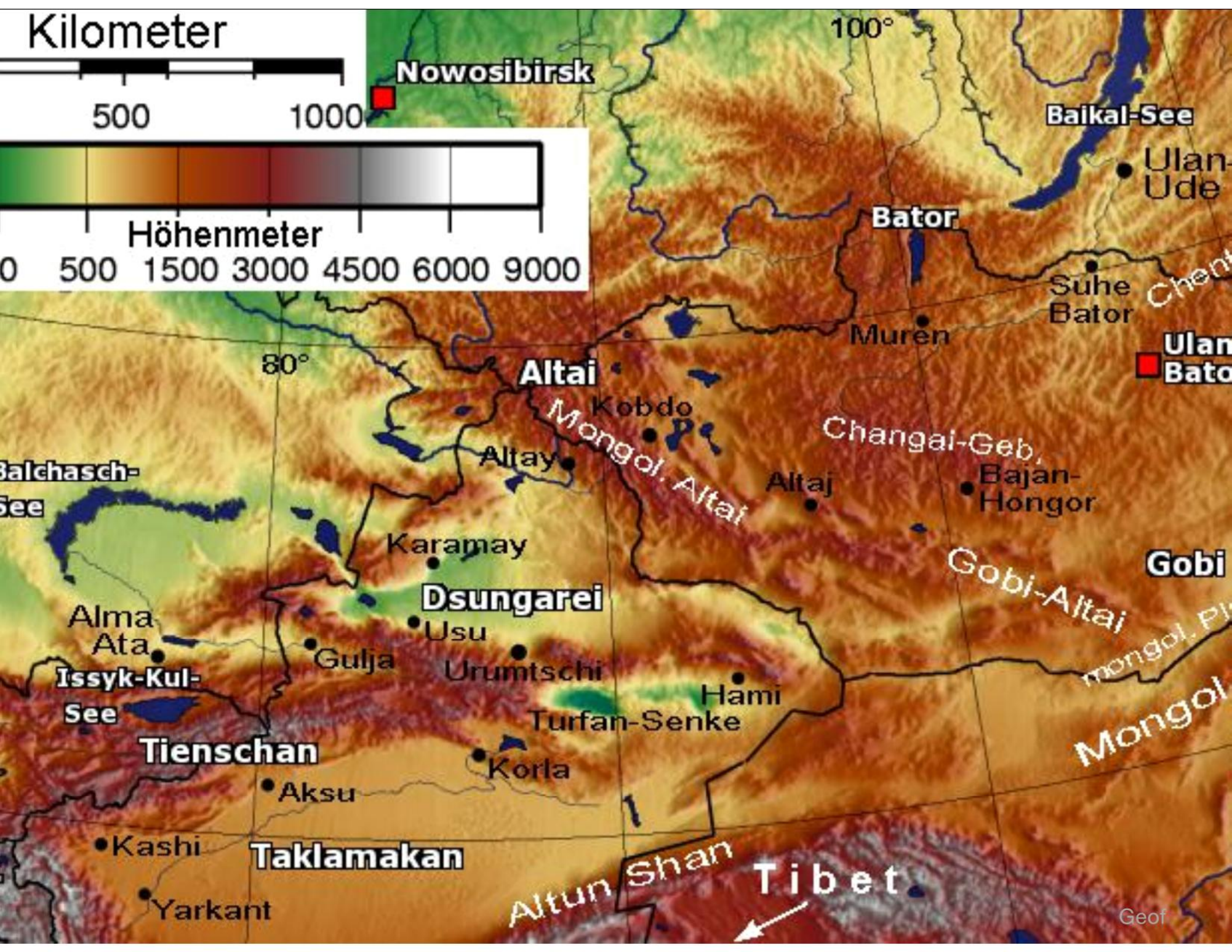
FAZALE RANA WITH HUGH ROSS

# WHO *was* ADAM?

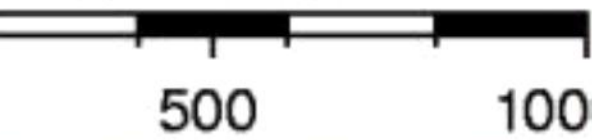
A CREATION MODEL APPROACH TO THE ORIGIN OF MAN

Hugh Ross

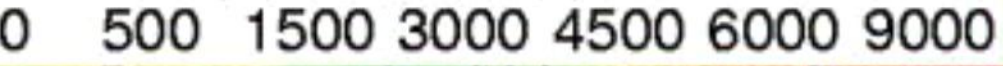




Kilometer



Höhenmeter



Nowosibirsk

Baikal-See

Ulan Ude

Bator

Suhe Bator

Ulan Bator

Altai

Kobdo

Altaj

Changai-Geb.

Bajan-Hongor

Balchasch-See

Gobi

Dsungarei

Gobi-Altai

Alma Ata

Karamay

Issyk-Kul-See

Gulja

Usu

Urumtschi

Hami

Turfan-Senke

Tienschan

Korla

Aksu

Kashi

Taklamakan

Yarkant

Altun Shan

Tibet

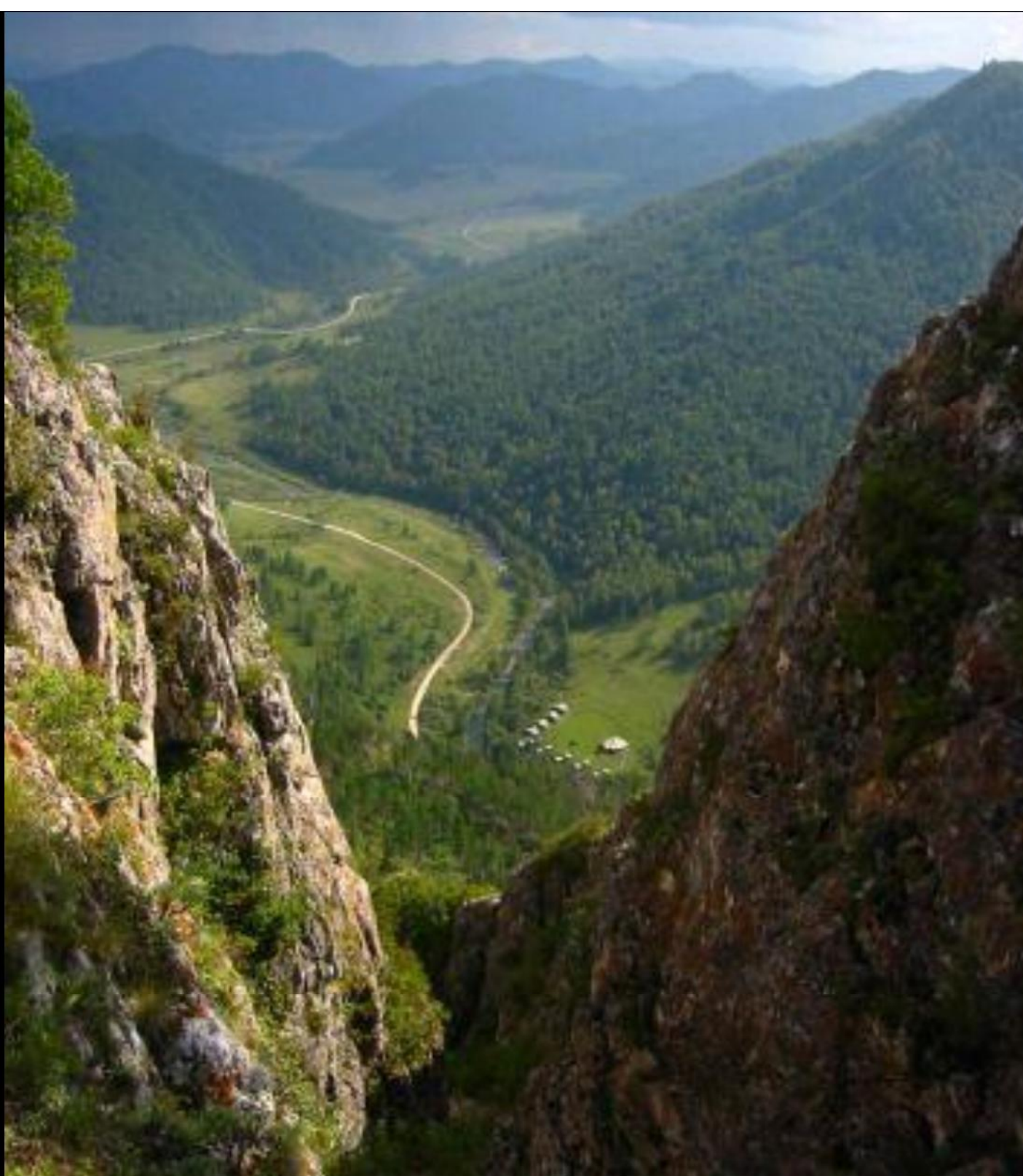
Geof



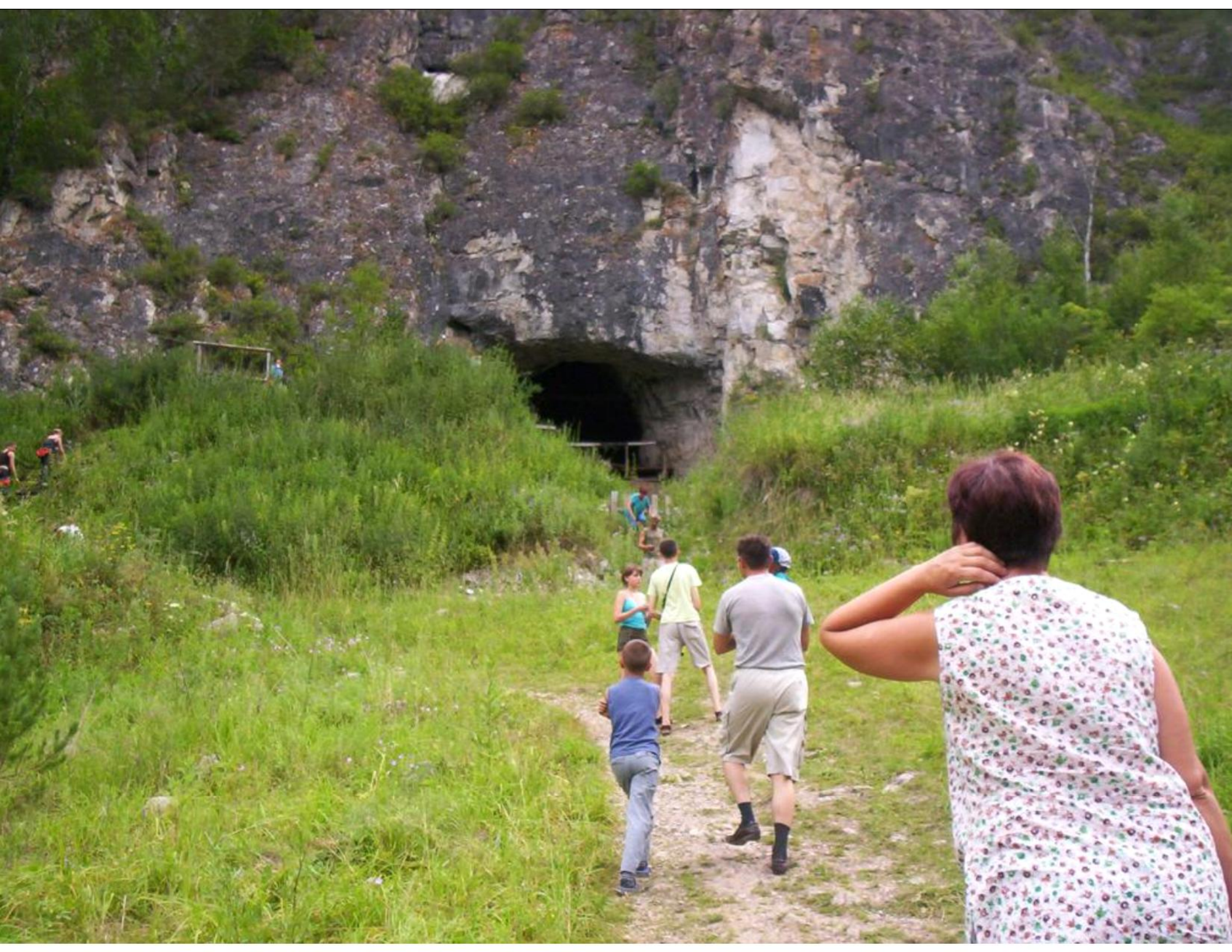






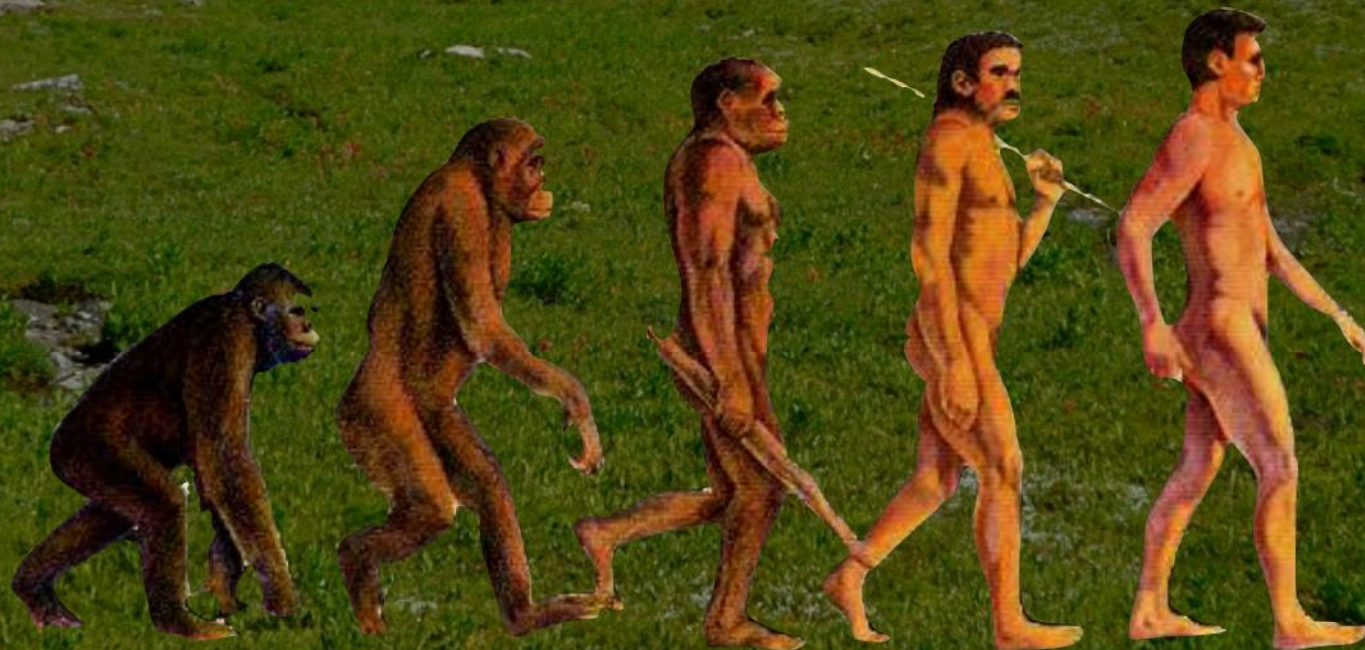








# Nucleotide Differences (relative to present-day humans)



# Nucleotide Differences (relative to present-day humans)

|                        |      |
|------------------------|------|
| ● average among humans | 30   |
| ● Neanderthals         | 202  |
| ● Denisova hominin     | 385  |
| ● chimpanzees          | 1462 |



# Science

7 May 2010 | \$10



**The Neandertal Genome**

 AAAS

# Science

7 May 2010 | \$10

- two articles
- two commentaries
- main article: 12 pages
- commentaries: 5 pages
- podcasts; video
- all **FREE!**

The Neanderthal Genome

# Vindija Cave, Croatia

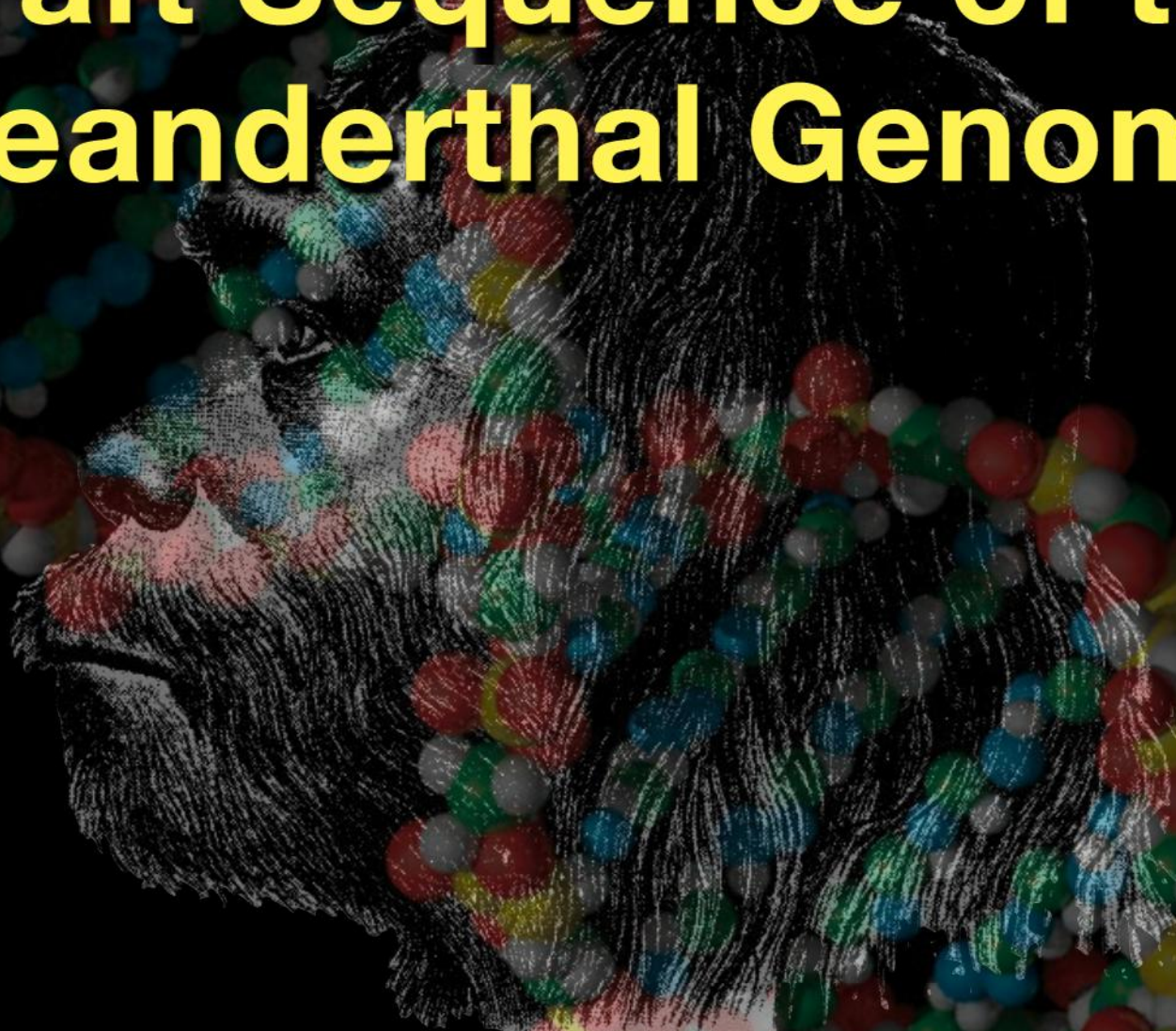


# Vindija Cave, Croatia





# Draft Sequence of the Neanderthal Genome



# Draft Sequence of the Neanderthal Genome

- first draft of 2/3 of the genome
- “We will never have a finished sequence for the Neanderthal the way we have for a mouse.”

—Svante Pääbo

# Human-Neanderthal Interbreeding?





# Human-Neanderthal Interbreeding?

compared DNA of three female Neanderthals to five present-day humans (French European, Han Chinese, Papua New Guinean, San South African, and a Yoruba West African)

# Human-Neanderthal Interbreeding?

- Analysis of mtDNA in 20 Neanderthal specimens shows inbreeding did **not** occur.
- Nuclear DNA is more sensitive to a weak inbreeding signal.

# Human-Neanderthal Interbreeding?

- the most parsimonious explanation
- alternate explanation: incomplete genetic homogenization

# Human-Neanderthal Interbreeding?

- if true: Europeans, Asians, and Pacific Islanders interbred but not sub-Saharan Africans.
- if true: Interbreeding occurred before the great migrations.

# Human-Neanderthal Interbreeding?

- if true: could account for where humanity got its racial diversity (3 of 6 genes carrying multiple substitutions are for skin properties) — Genesis 11:1-9

# Human-Neanderthal Interbreeding?

- if true: may account for incidence of type II diabetes, Down's Syndrome, autism, and schizophrenia.

# Human-Neanderthal Interbreeding?

- if true: interbreeding occurred at a very low frequency, indicative of a strong cultural taboo
- if true: level is too low to have any impact on human biology or the human soul/spirit

# Creation/Evolution Debate Impact



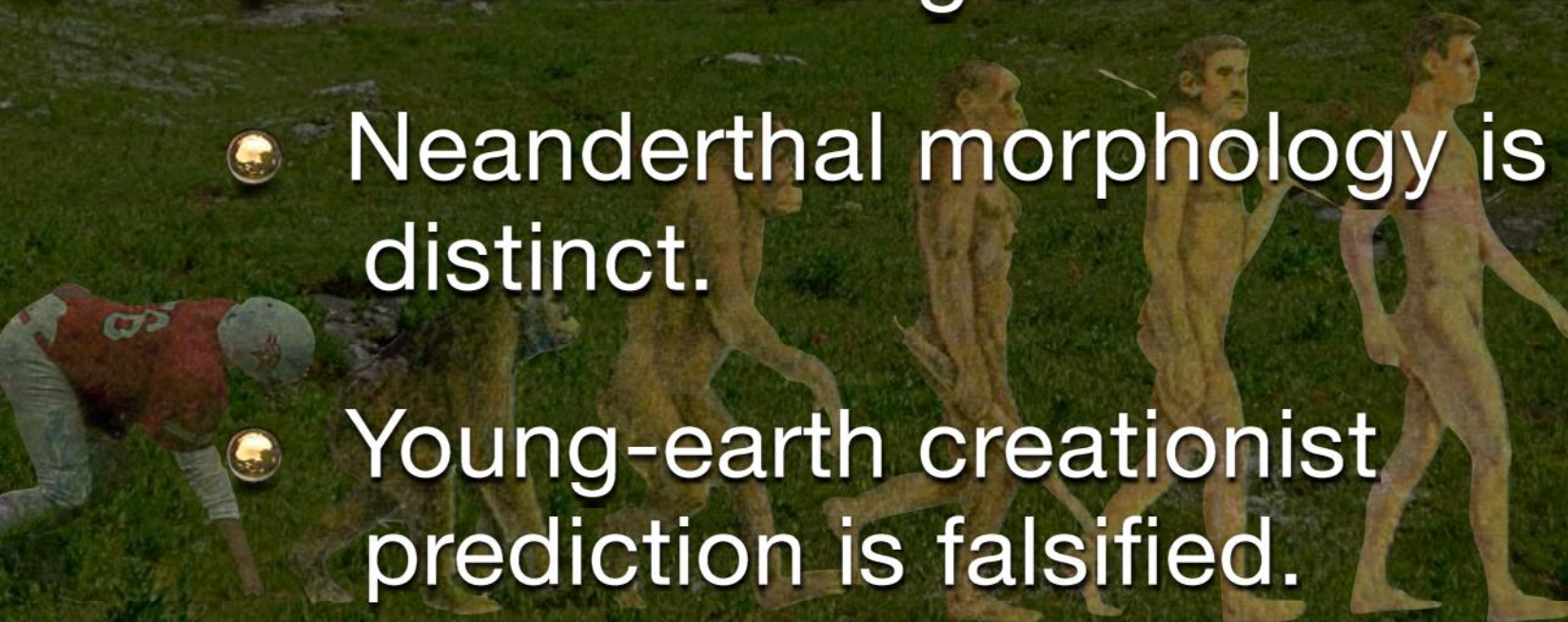
Ape-Human illustration copyright Jody F. Sjogren, 2000. Used with permission

High Cross



# Creation/Evolution Debate Impact

- Neanderthal genome is distinct.
- Neanderthal morphology is distinct.
- Young-earth creationist prediction is falsified.



# Creation/Evolution Debate Impact

- very few apparent mutations for either humans or Neanderthals
- Evolutionary dates for human-Neanderthal common ancestor markedly conflict (270-850 kyr).

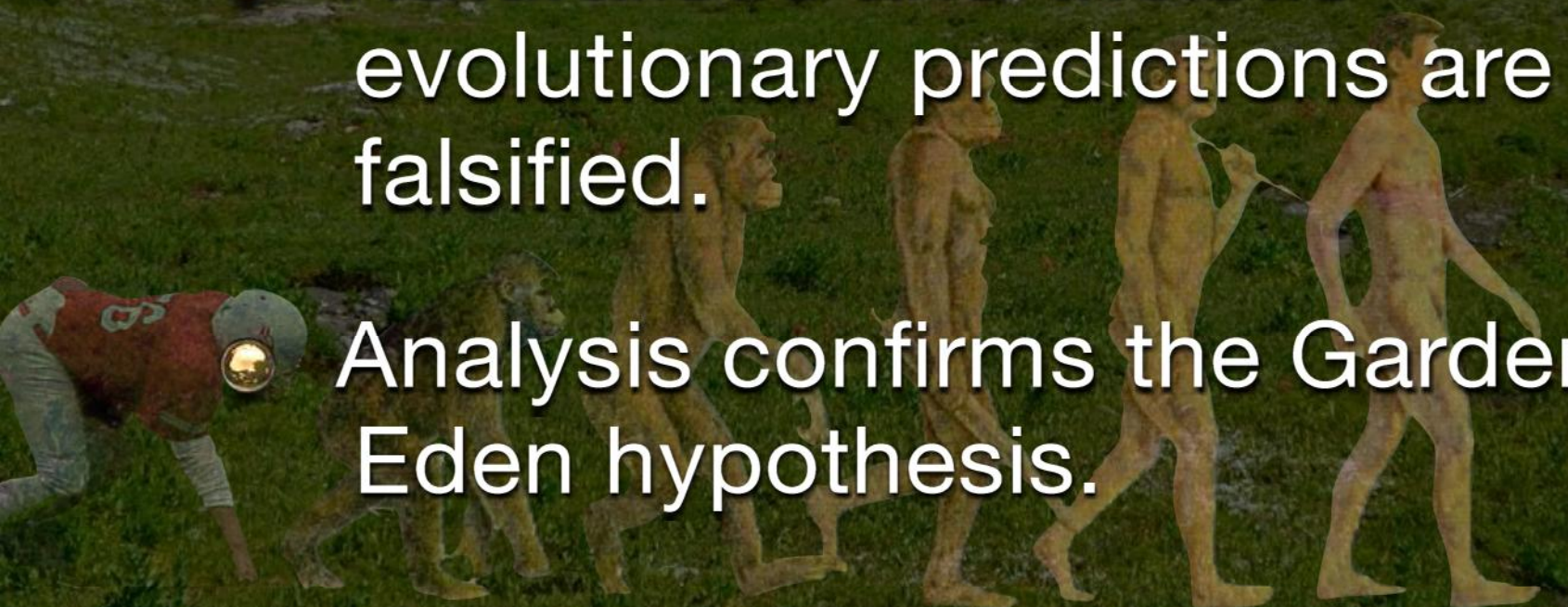
# Creation/Evolution Debate Impact

- only 78 “evolutionary” substitutions during the last 300 kyr

- 70-kyr-old Neanderthal genome can't be distinguished from 40-kyr-old Neanderthal genomes.

# Creation/Evolution Debate Impact

- Naturalistic and theistic evolutionary predictions are falsified.
- Analysis confirms the Garden of Eden hypothesis.



the birds increase on the earth." <sup>23</sup>And there was evening, and there was morning—the fifth day. <sup>24</sup>And God said, "Let the land produce living creatures according to their kinds: livestock, creatures that move along the ground, and wild animals, each according to its kind." And it was so. <sup>25</sup>God made the wild animals according to their kinds, the livestock according to their kinds, and all the creatures that move along the ground according to their kinds. And God saw that it was good.

<sup>26</sup>Then God said, "Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth, and over all the creatures that move along the ground."

I will put enmity between you and the woman, and between your offspring and hers. He will crush your head and you will strike his heel.

<sup>27</sup>So God created man in his own image, in the image of God he created him, male and female he created them.

<sup>28</sup>God blessed them and said to them, "Be fruitful and increase in number upon the earth; subdue it. Rule over the fish of the sea and the birds of the air and over every creeping creature that moves along the ground." God said, "I give you every seed-bearing plant on the whole earth and every tree that has fruit with seed in it. They will be yours for food. <sup>30</sup>And to all the beasts of the earth and all the birds of the air and all the creatures that move on the ground—everything that has the breath of life—I give you. I also give you every creeping creature on the ground." <sup>31</sup>God saw that what he had done was very good. And there was evening, and there was morning—the sixth day.

<sup>2</sup> Thus the heavens and the earth were completed in all their vast array. <sup>3</sup>By the seventh day God had finished his work that he had done, and on the seventh day he rested from all his labor. <sup>4</sup>And God blessed the seventh day and made it holy, because on it he rested from all the work of creating that he had done.

**Adam and Eve**  
 This is the account of the heavens and the earth when they were created.

When the LORD God made the earth and the heavens, no shrub of the field had yet appeared on the earth and no plant of the field had yet sprung up; the LORD God had not sent rain on the earth and there was no man to work the ground, but streams came up from the earth and watered the whole surface of the ground. <sup>7</sup>And the LORD God formed man from the dust of the ground and breathed into his nostrils the breath of life, and man became a living being.

<sup>8</sup>Now the LORD God had planted a garden in the east, in Eden; and there he put the man he had formed. <sup>9</sup>And the LORD God made all kinds of trees grow out of the ground—trees that were pleasing to the eye and good for food. In the middle of the garden were the tree of life and the tree of the knowledge of good and evil.

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<sup>15</sup>The LORD God took the man and put him in the Garden of Eden to work it and take care of it. <sup>16</sup>And the LORD God commanded the man, "You are free to eat from any tree in the garden; but you must not eat from the tree of the knowledge of good and evil, for when you eat of it you will surely die."

<sup>17</sup>The LORD God said, "It is not good for the man to be alone. I will make a helper for him." <sup>18</sup>So the LORD God caused the man to fall into a deep sleep, and he took one of the man's ribs and closed up the place with flesh. <sup>19</sup>Then the LORD God made a woman from the rib he had taken out of the man, and he brought her to the man.

<sup>20</sup>The man said, "This now is bone of my bone and flesh of my flesh; she shall be called 'woman,' for she was taken out of man."

<sup>21</sup>The LORD God said, "Very good. Now the man and his wife were both naked, and they felt no shame."

<sup>22</sup>The man and his wife were both naked, and they felt no shame.

**The Fall of Man**

<sup>3</sup> Now the serpent was more crafty than any of the wild animals the LORD God had made. He said to the woman, "Did God really say, 'You must not eat from any tree in the garden?'"

<sup>4</sup>The woman said to the serpent, "We may eat fruit from the trees in the garden, but God did say, 'You must not eat fruit from the tree that is in the middle of the garden, and you must not touch it, or you will die.'"

<sup>5</sup>"You will not surely die," the serpent said to the woman. "For God knows that when you eat of it your eyes will be opened and you will be like God, knowing good and evil."

<sup>6</sup>When the woman saw that the fruit of the tree was good for food and pleasing to the eye, and also desirable for gaining wisdom, she took some and ate it. She also gave some to her husband, who was with her, and he ate it.

<sup>7</sup>Then the eyes of both of them were opened, and they realized they were naked.

<sup>12</sup> Or good; pearls <sup>13</sup> Possibly southeast Mesopotamia <sup>20</sup> Or man  
<sup>21</sup> Or took part of the man's side <sup>22</sup> Or part  
<sup>23</sup> The Hebrew for woman sounds like the Hebrew for man

cf Acts 17:24

matar sed

Lev. 11:21-31

day

creation of Eve

in Eden

from man + woman

impossible

+ Eve + God

<sup>26</sup> Hebrew, Syriac all the wild animals of <sup>33</sup> Or ceased <sup>35</sup> Or land; also in verse 6 <sup>46</sup> Or mist  
<sup>27</sup> The Hebrew for man (adam) sounds like and may be derived from the Hebrew for ground (adamah); it is also the name Adam (see Gen. 2:20).

are to take every kind of food that is to be eaten and store it away as food for you and for them."

<sup>22</sup>Noah did everything just as God commanded him.

**7** The LORD then said to Noah, "Go into the ark, you and your whole family, because I have found you righteous in this generation. <sup>2</sup>Take with you seven<sup>a</sup> of every kind of clean animal, a male and its mate, and two of every kind of unclean animal, a male and its mate, <sup>3</sup>and also seven of every kind of bird, male and female, to keep their various kinds alive throughout the earth. <sup>4</sup>Seven days from now I will send rain on the earth for forty days and forty nights, and I will wipe from the face of the earth every living creature I have made."

<sup>5</sup>And Noah did all that the LORD commanded him.

<sup>6</sup>Noah was six hundred years old when the floodwaters came on the earth. <sup>7</sup>And Noah and his wife and his sons and their wives with him came to the ark to escape the waters of the flood. <sup>8</sup>Animals of every kind—clean animals, if birds of every kind, and every animal that moves along the ground, male and female, came to Noah and entered the ark, as God had commanded Noah. <sup>10</sup>And after the seven days the floodwaters came on the earth.

<sup>11</sup>In the six hundredth year of Noah's life, on the seventeenth day of the second month, on that day the floodgates of the heavens were opened, and the floodgates of the heavens poured out rain for forty days and forty nights.

<sup>12</sup>On that very day Noah and his sons, Shem, Ham and Japheth, together with his wife and the wives of his three sons, entered the ark. <sup>13</sup>They had with them every kind of animal—stock according to their kinds, every bird of every kind, and every animal that moves along the ground, every bird of every kind and every animal that has the breath of life in them came to Noah and entered the ark. <sup>14</sup>The animals going in were male and female of every living thing, as God had commanded Noah. Then the LORD shut him in.

<sup>17</sup>For forty days the rain kept falling on the earth, and as the waters increased the ark rose high above the earth. <sup>18</sup>The waters rose and increased greatly on the earth, and the ark floated on the surface of the water.

<sup>19</sup>They rose greatly on the earth, and all the high mountains under the entire heavens were covered. <sup>20</sup>The waters rose and covered the mountains to a depth of more than twenty fathoms. <sup>21</sup>Every living thing that moves along the ground perished—birds of every kind and every animal that moves along the ground, and all mankind. <sup>22</sup>Everything on dry land that had the breath of life in its nostrils died. <sup>23</sup>Every living thing on the face of the earth was wiped out; men and animals and the creatures that move along the ground and the birds of the air were wiped from the earth. Only Noah was left, and those with him in the ark.

<sup>24</sup>The waters flooded the earth for a hundred and fifty days.

**8** But God remembered Noah and all the wild animals and the livestock that were with him in the ark, and he sent a wind over the earth and the waters receded. <sup>2</sup>Now the springs of the deep and the floodgates of the heavens had been closed, and the rain had stopped falling from the sky. <sup>3</sup>The water receded steadily from the earth. At the end of the hundred and fifty days the water had

<sup>a</sup>2 Or seven pairs; also in verse 3 <sup>b</sup>20 Hebrew fifteen cubits (about 6.9 meters)  
<sup>c</sup>20 Or rose more than twenty feet, and the mountains were covered

reading notes: 335 days cf 2 Kings 19:57

gone down, <sup>4</sup>and on the seventeenth day of the seventh month the ark came to rest on the mountains of Ararat. <sup>5</sup>The waters continued to recede until the tenth month, and on the first day of the tenth month the tops of the mountains became visible.

<sup>6</sup>After forty days Noah opened the window he had made in the ark <sup>7</sup>and sent out a raven, and it kept flying back and forth until the water had dried up from the earth. <sup>8</sup>Then he sent out a dove to see if the water had receded from the surface of the ground. <sup>9</sup>But the dove could find no place to set its feet because there was water over all the surface of the earth; so it returned to Noah in the ark. He reached out his hand and took the dove and brought it back to himself in the ark. <sup>10</sup>He waited seven more days and again sent out the dove from the ark. <sup>11</sup>When the dove returned to him in the evening, there in its beak was a freshly plucked olive leaf. <sup>12</sup>Noah knew that the waters had receded from the earth. <sup>13</sup>He waited seven more days and sent the dove out again, but this time it did not return to him.

<sup>13</sup>By the first day of the first month of Noah's six hundred and first year, the water had dried up from the earth. Noah then removed the covering from the ark and saw that the surface of the ground was dry. <sup>14</sup>By the twenty-seventh day of the second month the earth was completely dry.

<sup>15</sup>The LORD said to Noah, "Come out of the ark, you and your wife and your sons and their wives. <sup>17</sup>Bring out every kind of living creature that is with you—the birds, the animals, and all the creatures that move along the ground—so they can multiply on the earth and be fruitful and increase in number upon it."

<sup>18</sup>So Noah and his wife and his sons and his sons' wives. <sup>19</sup>All the animals and all the creatures that move along the ground and all the birds—everything that moves on the earth—came out of the ark, one kind after another.

<sup>20</sup>Then Noah built an altar to the LORD and, taking some of all the clean animals and birds, offered burnt offerings to him. <sup>21</sup>The LORD smelled the pleasing odor and said to himself, "Never again will I curse the ground because of man, even though every inclination of his heart is evil from childhood. And never again will I destroy all living creatures, as I have done,

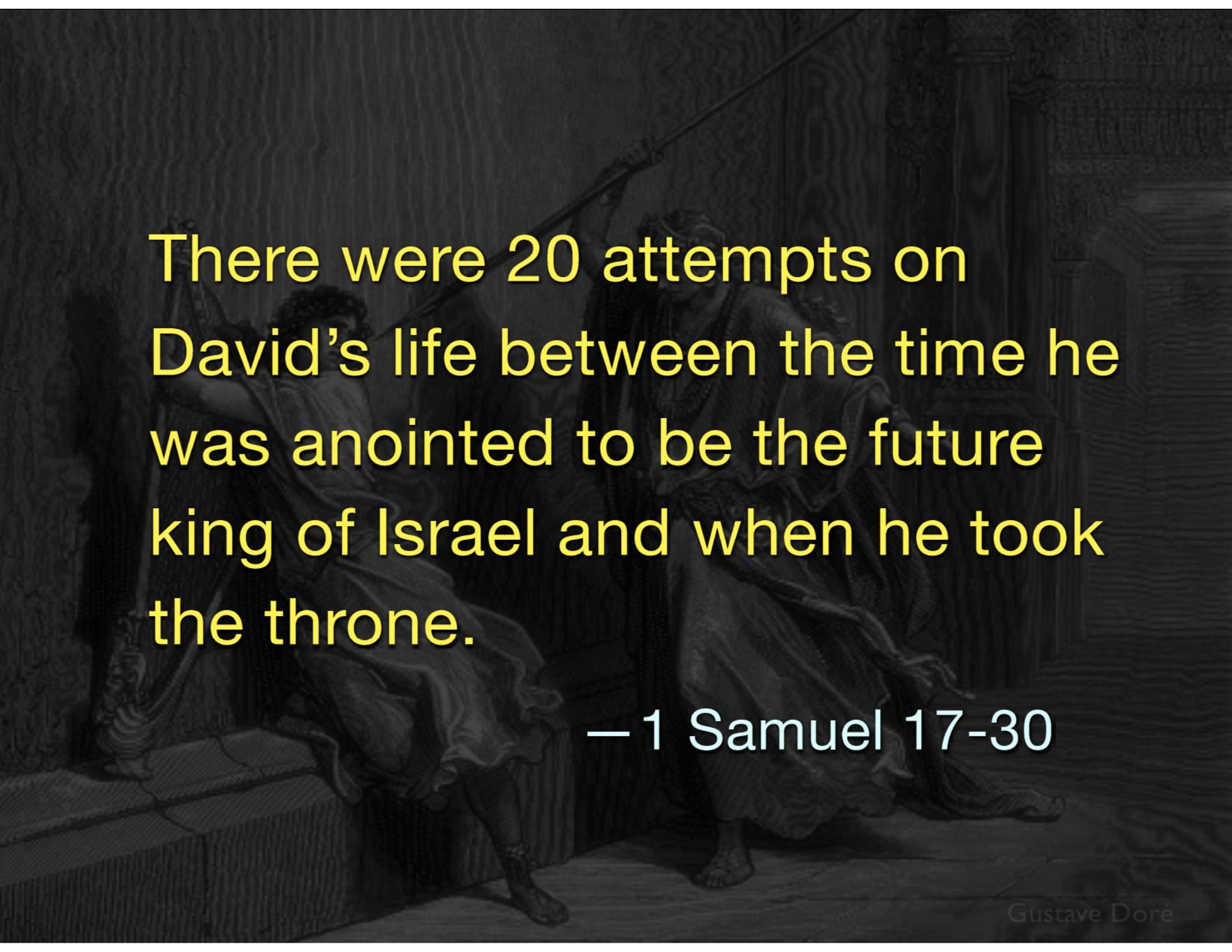
<sup>22</sup>As long as the earth endures, in the Flood God saved all living creatures that have the breath of life. <sup>23</sup>From that time on, I will establish my covenant with you and your descendants and with every wild animal that has the breath of life. I will put my rainbow in the clouds, and the rainbow will appear after a rain, to remind me of my covenant and to mark the seasons. From that time on, there will be summer and winter, day and night, and the seasons will never cease."

<sup>24</sup>God's Covenant With Noah. <sup>25</sup>God said to Noah and his sons, "Be fruitful and increase in number and fill the earth. <sup>26</sup>The fear and dread of you will fall upon all the beasts of the earth and all the birds of the air, upon every creature that moves along the ground, and upon all the fish of the sea; they are given into your hands. <sup>27</sup>Everything that lives and moves will be food for you. Just as I gave you the green plants, I now give you everything. <sup>28</sup>But you must not eat meat that has its lifeblood still in it. <sup>29</sup>And for your

<sup>29</sup>increase in number and fill the earth. <sup>30</sup>The fear and dread of you will fall upon all the beasts of the earth and all the birds of the air, upon every creature that moves along the ground, and upon all the fish of the sea; they are given into your hands. <sup>31</sup>Everything that lives and moves will be food for you. Just as I gave you the green plants, I now give you everything. <sup>32</sup>But you must not eat meat that has its lifeblood still in it. <sup>33</sup>And for your

<sup>a</sup>21 Or man, for <sup>b</sup>22 As long as the earth endures, in the Flood God saved all living creatures that have the breath of life. <sup>c</sup>23 From that time on, I will establish my covenant with you and your descendants and with every wild animal that has the breath of life. <sup>d</sup>24 God's Covenant With Noah. <sup>e</sup>25 God said to Noah and his sons, "Be fruitful and increase in number and fill the earth. <sup>f</sup>26 The fear and dread of you will fall upon all the beasts of the earth and all the birds of the air, upon every creature that moves along the ground, and upon all the fish of the sea; they are given into your hands. <sup>g</sup>27 Everything that lives and moves will be food for you. Just as I gave you the green plants, I now give you everything. <sup>h</sup>28 But you must not eat meat that has its lifeblood still in it. <sup>i</sup>29 And for your



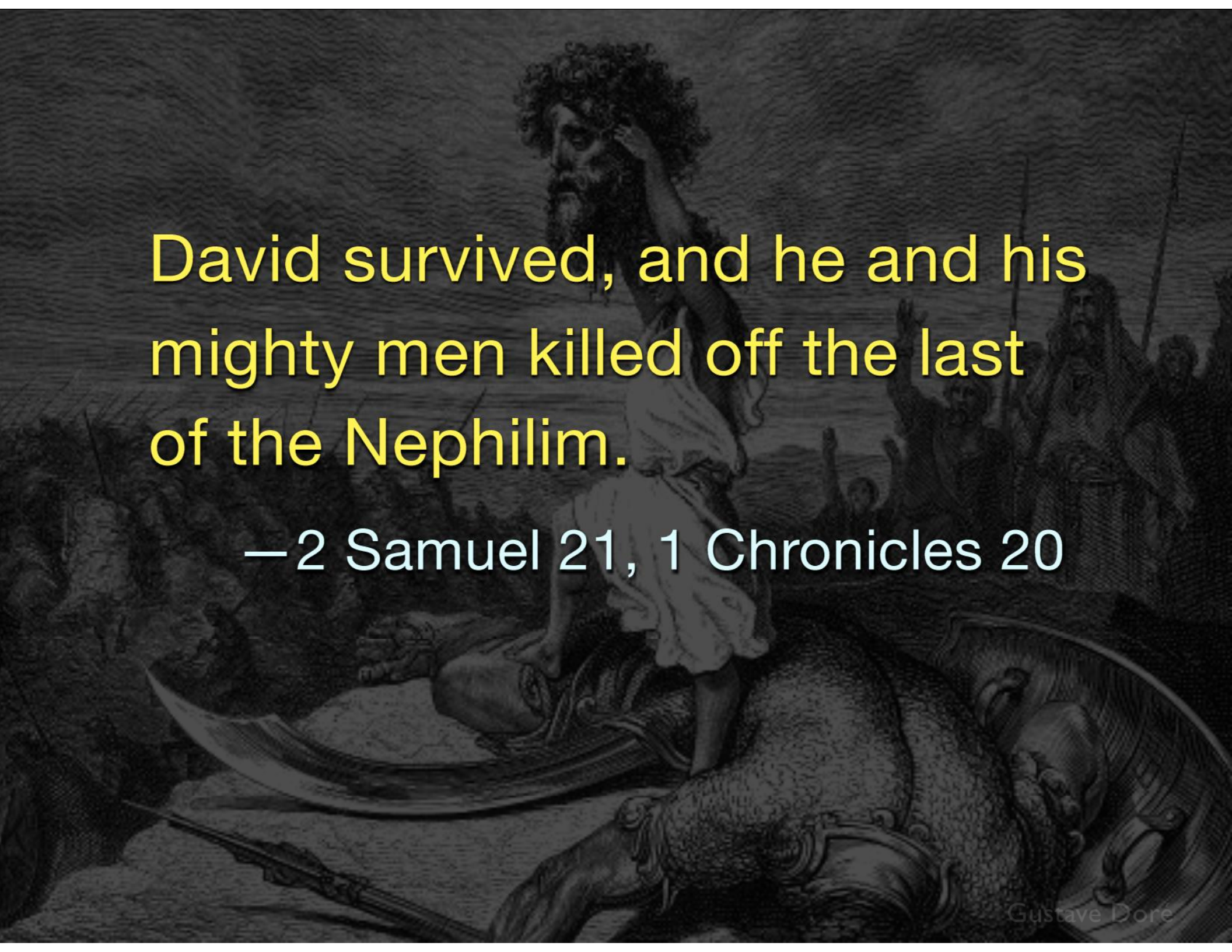


There were 20 attempts on David's life between the time he was anointed to be the future king of Israel and when he took the throne.

— 1 Samuel 17-30







David survived, and he and his  
mighty men killed off the last  
of the Nephilim.

—2 Samuel 21, 1 Chronicles 20

840 years and had other sons and daughters. <sup>14</sup>Altogether, Kenan lived 910 years, and then he died.

<sup>15</sup>When Mahalalel had lived 65 years, he became the father of Jared. <sup>16</sup>And after he became the father of Jared, Mahalalel lived 830 years and had other sons and daughters. <sup>17</sup>Altogether, Mahalalel lived 895 years, and then he died.

<sup>18</sup>When Jared had lived 162 years, he became the father of Enoch. <sup>19</sup>And after he became the father of Enoch, Jared lived 800 years and had other sons and daughters. <sup>20</sup>Altogether, Jared lived 962 years, and then he died.

<sup>21</sup>When Enoch had lived 65 years, he became the father of Methuselah. <sup>22</sup>And after he became the father of Methuselah, Enoch walked with God 300 years and had other sons and daughters. <sup>23</sup>Altogether, Enoch lived 365 years. <sup>24</sup>Enoch walked with God; then he was no more, because God took him away. Ge 6:9; Mic 6:8; Heb 11:5

<sup>25</sup>When Methuselah had lived 187 years, he became the father of Lamech. <sup>26</sup>And after he became the father of Lamech, Methuselah lived 782 years and had other sons and daughters. <sup>27</sup>Altogether, Methuselah lived 969 years, and then he died.

<sup>28</sup>When Lamech had lived 182 years, he had a son. <sup>29</sup>He named him Noah<sup>a</sup> and said, "He will comfort us in the labor and painful toil

of our hands caused by the ground the LORD has cursed." <sup>30</sup>After Noah was born, Lamech lived 595 years and had other sons and daughters. <sup>31</sup>Altogether, Lamech lived 777 years, and then he died. Ro 8:20; Ge 10:1

### The Flood

**6** When men began to increase in number on the earth and daughters were born to them, <sup>2</sup>the sons of God saw that the daughters of men were beautiful, and they married them as they pleased. <sup>3</sup>Then the LORD said, "My Spirit will not contend with<sup>b</sup> man forever, for he is mortal; his days will be a hundred and twenty years."

<sup>4</sup>The Nephilim were on the earth in those days—and also afterward—when the sons of God went to the daughters of men and had children by them. They were the heroes of old, men of renown.

<sup>5</sup>The LORD saw how great man's wickedness on the earth had become, and that every inclination of the thoughts of his heart was only evil all the time. <sup>6</sup>The LORD was grieved that he had made man on the earth, and his heart was filled with pain. <sup>7</sup>So the LORD said, "I will wipe mankind, whom I have created, from the face of the earth—men and animals, and creatures that move along the ground, and

birds of the air—for I am grieved that I have made them." <sup>8</sup>But Noah found favor in the eyes of the LORD.

<sup>9</sup>This is the account of Noah.

<sup>10</sup>Noah was a righteous man, blameless among the people of his generation, and he walked with God. <sup>11</sup>Noah had three sons: Shem, Ham and Japheth. Ge 5:22; Heb 11:7

<sup>12</sup>Now the earth was corrupt in God's sight and was full of violence. <sup>13</sup>God saw how corrupt the earth had become, for all the people on earth had corrupted their ways. <sup>14</sup>So the LORD said to Noah, "I am going to wipe out everything I have made on earth, because I have found them corrupt. <sup>15</sup>I am surely going to destroy both them and the earth. <sup>16</sup>So make yourself an ark of cypress<sup>a</sup> wood; make rooms in it and coat it with pitch inside and out. <sup>17</sup>This is how you are to build it: The ark is to be 450 feet long, 75 feet wide and 45 feet high.<sup>b</sup> <sup>18</sup>Make a roof for it and finish<sup>c</sup> the ark to within 18 inches<sup>d</sup> of the top. Put a door in the side of the ark and make lower, middle and upper decks. <sup>19</sup>I am going to bring floodwaters on the earth to destroy all life under the heavens, every creature that has the breath of life in it. Everything on earth will perish. <sup>20</sup>But I will establish my covenant with you, and you will enter the

ark—you and your sons and your wife and your sons' wives with you. <sup>21</sup>You are to bring into the ark two of all living creatures, male and female, to keep them alive with you. <sup>22</sup>Two of every kind of animal and of every kind of bird that moves along the ground will come to you to be kept alive. <sup>23</sup>You are to take every kind of food that is to be eaten and store it away as food for you and for them." Ge 9:9-16

<sup>24</sup>Noah did everything just as God commanded him. Ge 7:5,9,16

**7** The LORD then said to Noah, "Go with your wife and your whole family, because I have found you righteous in this generation. <sup>2</sup>Take with you seven<sup>e</sup> of every kind of clean animal, a male and its mate, and two of every kind of unclean animal, a male and its mate, <sup>3</sup>and also seven of every kind of bird, male and female, to keep their various kinds alive throughout the earth. <sup>4</sup>Seven days from now I will send rain on the earth for forty days and forty nights, and I will wipe from the face of the earth every living creature I have made." Ge 6:9; Heb 11:7

<sup>5</sup>And Noah did all that the LORD commanded him. Ge 6:22

<sup>6</sup>Noah was six hundred years old when the floodwaters came on the earth. <sup>7</sup>And Noah and his sons

<sup>a</sup>14 The meaning of the Hebrew for this word is uncertain. <sup>b</sup>15 Hebrew 300 cubits long, 50 cubits wide and 30 cubits high (about 140 meters long, 23 meters wide and 13.5 meters high) <sup>c</sup>16 Or Make its opening for light by finishing <sup>d</sup>16 Hebrew a cubit (about 0.5 meter) <sup>e</sup>2 Or seven pairs; also in verse 1

# Who are the sons of God?

## Both angels and humans can take the title, sons of God.

840 years and had other sons and daughters. <sup>14</sup>Altogether, Kenan lived 910 years, and then he died.

<sup>15</sup>When Mahalalel had lived 65 years, he became the father of Jared. <sup>16</sup>And after he had lived 830 years and had other sons and daughters. <sup>17</sup>Altogether, Mahalalel lived 895 years, and then he died.

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<sup>28</sup>When Lamech had lived 182 years, he had a son. <sup>29</sup>He named him Noah<sup>a</sup> and said, "He will comfort us in the labor and painful toil

of our hands caused by the ground the LORD has cursed." <sup>30</sup>After Noah was born, Lamech lived 595 years and had other sons and daughters.

<sup>31</sup>Altogether, Lamech lived 777 years, and then he died. <sup>32</sup>After he had lived 500 years, he became the father of Shem, Ham and Japheth.

*The Flood*

<sup>1</sup>When men began to increase in number on the earth, the daughters of men were beautiful, and they married any of them whom they chose.

<sup>2</sup>Then the LORD said, "My Spirit will not contend with<sup>b</sup> man forever, for he is mortal<sup>c</sup>; his days will be a hundred and twenty years."

<sup>3</sup>The Nephilim were on the earth in those days—and also afterward—when the sons of God went to the daughters of men and had children by them. They were the heroes of old, men of renown.

<sup>4</sup>The LORD saw how wickedness on the earth had become, and that every inclination of the thoughts of his heart was only evil all the time.

<sup>5</sup>The LORD was grieved that he had made man on the earth, and his heart was filled with pain. <sup>6</sup>So the LORD said, "I will wipe mankind, whom I have created, from the face of the earth—men and animals, and creatures that move along the ground, and

birds of the air—for I am grieved that I have made them." <sup>7</sup>But Noah found favor in the eyes of the LORD.

<sup>8</sup>This is the account of Noah.

<sup>9</sup>Noah was a righteous man, blameless among the people of his time, and he walked with God. <sup>10</sup>Noah had three sons: Shem, Ham and Japheth.

<sup>11</sup>Now the earth was corrupt in God's sight and was full of violence. <sup>12</sup>So God said to Noah, "I am going to put an end to all people on earth because of their violence because of them. I am surely going to bring deluge and flood them away."

<sup>13</sup>So God said to Noah, "I am going to put an end to all people on earth because of their violence because of them. I am surely going to bring deluge and flood them away."

<sup>14</sup>So Noah did as the LORD commanded him. <sup>15</sup>Noah was six hundred years old when the floodwaters came on the earth.

<sup>16</sup>Noah and his sons with him entered the ark with him, his wife and the wives of his sons with him. <sup>17</sup>Two of every kind of clean animal, a male and its mate, and two of every kind of unclean animal, a male and its mate, and every kind of bird, male and female, came to Noah and entered the ark.

<sup>18</sup>Noah was six hundred years old when the floodwaters came on the earth. <sup>19</sup>Noah and his sons with him entered the ark with him, his wife and the wives of his sons with him.

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# Who are the sons of God?

Gen. 6:2

Matt. 5:9

Rom. 8:21

Gen. 6:4

John 1:12

Rom. 9:8

Job 1:6

John 11:52

Gal. 3:26

Job 2:1

Rom. 8:14

Phil. 2:15

Job 38:7

Rom. 8:16

1 John 3

Hos. 1:10

Rom. 8:19

1 John 5

<sup>a</sup>29 Noah sounds like the Hebrew for comfort. <sup>b</sup>3 Or My spirit will not remain in <sup>c</sup>3 Or corrupt

<sup>14</sup> The meaning of the Hebrew for this word is uncertain. <sup>15</sup> Hebrew 300 cubits long, 50 cubits wide and 30 cubits high (about 140 meters long, 23 meters wide and 13.5 meters high) <sup>16</sup> Or Make an opening for light by finishing <sup>17</sup> Hebrew a cubit (about 0.5 meter) <sup>18</sup> Or seven pairs; also in verse 1

# Son of Man, Son of God





# Son of Man, Son of God

Jesus insisted on the title “Son of Man” before His resurrection and the “Son of God” after His resurrection.

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<sup>31</sup>Altogether, Lamech lived 777 years and then he died. Ro 8:20  
<sup>32</sup>When Noah was 600 years old, he became the father of Shem, Ham and Japheth. Ge 10:1

### The Flood

**6** When men began to increase in number on the earth and daughters were born to them, <sup>2</sup>the sons of God saw that the daughters of men were beautiful, and they married them as they chose. <sup>3</sup>Then the LORD said, "My Spirit will not contend with<sup>b</sup> man forever, for he is mortal; his days will be a hundred and twenty years."

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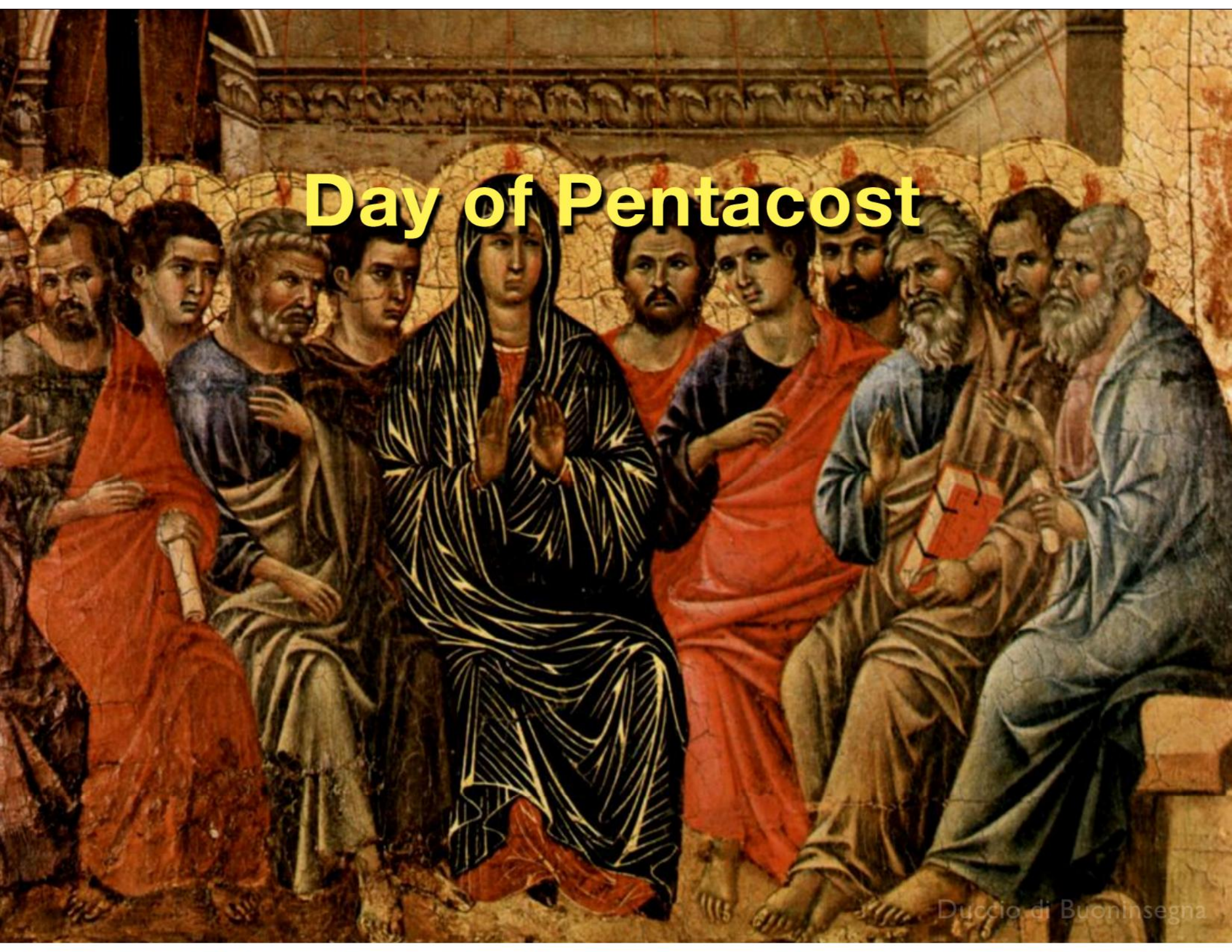
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# Day of Pentacost

## Only after Pentacost did Jesus' followers become sons of God.

# Day of Pentacost





# Day of Pentacost

The image is a reproduction of the painting 'The Pentecost' by Duccio di Buoninsegna. It depicts the Virgin Mary seated in the center, surrounded by the twelve apostles. They are all seated in a room with a tiled floor and a decorative frieze on the wall. The Holy Spirit is represented by a dove and tongues of fire above the group. The painting is in the style of the Sienese school, with soft colors and a focus on the figures' expressions.

Only after Pentacost did Jesus' followers become sons of God.





Day of Atonement

<sup>26</sup>The LORD said to Moses, <sup>27</sup>"The tenth day of this seventh month is the Day of Atonement. Hold a sacred assembly and deny yourselves,<sup>4</sup> and present an offering made to the LORD by fire. <sup>28</sup>Do no work on that day, because it is the Day of Atonement, when atonement is made for you before the LORD your God. <sup>29</sup>Anyone who does not deny himself on that day must be cut off from his people. <sup>30</sup>I will destroy from among his people anyone who does any work on that day. <sup>31</sup>You shall do no work at all. This is to be a lasting ordinance for the generations to come. <sup>32</sup>I will do no work on that day, because it is a sabbath of rest for you, and you must deny yourselves. From the evening of the ninth day of the month until the following evening you are to observe the fast."

Feast of Tabernacles

<sup>33</sup>The LORD said to Moses, <sup>34</sup>"Say to the Israelites: 'On the fifteenth day of the seventh month the LORD's festival of Tabernacles begins, and it lasts for seven days. <sup>35</sup>The LORD's festival is a sacred assembly; you shall not do any work, but you shall present offerings made to the LORD by fire. <sup>36</sup>On the first day is a sacred assembly, and you shall present an offering made to the LORD by fire. It is the day of the beginning of the feast, which you are to proclaim as a sacred assembly for seven days. <sup>37</sup>These are the LORD's appointed feasts, which you are to proclaim as sacred assemblies for your generations. <sup>38</sup>On the first day you are to take choice fruit from the trees, and palm fronds, leafy branches and poplars, and rejoice before the LORD your God for seven days. <sup>39</sup>Celebrate this as a festival to the LORD for seven days each year. This is to be a lasting ordinance for the generations to come; celebrate it in the seventh month. <sup>40</sup>Live in booths for seven days: All native-born Israelites are to live in booths <sup>41</sup>so your descendants will know that I had the Israelites live in booths when I brought them out of Egypt. I am the LORD your God.'"

<sup>42</sup>So Moses announced to the Israelites the appointed feasts of the LORD

Oil and Bread Set Before the LORD

**24** The LORD said to Moses, <sup>25</sup>"Command the Israelites to bring you clear oil of pressed olives for the light so that the lamps may be kept burning continually. <sup>26</sup>Outside the curtain of the Testimony in the Tent of Meeting Aaron is to tend the lamps before the LORD from evening till morning continually. This is to be a lasting ordinance for the generations to come. <sup>27</sup>The lamps on the pure gold lampstand before the LORD must be tended continually. <sup>28</sup>Take fine flour and bake twelve loaves of bread, using two-tenths of an ephah<sup>5</sup> for each loaf. <sup>29</sup>Set them in two rows, six in each row, on the table of

<sup>4</sup>Or and fast; also in verses 29 and 32  
<sup>5</sup>Or These loaves are in addition to the LORD's Sabbaths, and these offerings are  
<sup>6</sup>That is, probably about 4 quarts (about 4.5 liters)

pure gold before the LORD. <sup>7</sup>Along each row put some pure incense as a memorial portion to represent the bread and to be an offering made to the LORD by fire. <sup>8</sup>This bread is to be set out before the LORD regularly, Sabbath after Sabbath, on behalf of the Israelites, as a lasting covenant. <sup>9</sup>It belongs to Aaron and his sons, who are to eat it in a holy place, because it is a most holy part of their regular share of the offerings made to the LORD by fire."

A Blasphemer Stoned

<sup>10</sup>Now the son of an Israelite mother and an Egyptian father went out among the Israelites. He fought with an Israelite. <sup>11</sup>The Egyptian cursed the LORD with a curse, so they brought him to Moses. (His mother's name was Shelomith, the daughter of Dibri the Danite.) <sup>12</sup>They put him in custody until the will of the LORD should be made clear to them. <sup>13</sup>Then the LORD said to Moses: <sup>14</sup>"Take the blasphemer outside the camp. All who hear him shall lay hands on his head, and the entire assembly shall stone him. <sup>15</sup>Speak to the Israelites: 'If anyone curses his God, he will be held responsible; <sup>16</sup>anyone who blasphemes the name of the LORD must be put to death. The entire assembly must stone him. Whether an alien or native-born, when he blasphemes the Name, he must be put to death. <sup>17</sup>'If anyone takes the life of a human being, he must be put to death. <sup>18</sup>Anyone who takes the life of someone's animal must make restitution—life for life. <sup>19</sup>Whoever injures his neighbor, whatever he has done must be done to him: <sup>20</sup>fracture for fracture, eye for eye, tooth for tooth. As he has injured the other, so he is to be injured. <sup>21</sup>Whoever kills an animal must make restitution, but whoever kills a man must be put to death. <sup>22</sup>You are to have the same law for the alien and the native-born. I am the LORD your God.'"

<sup>23</sup>They brought the blasphemer outside the camp and stoned him. The Israelites did as the LORD commanded Moses.

The Sabbatical Year

**25** The LORD said to Moses on Mount Sinai, <sup>26</sup>"Speak to the Israelites and say to them: 'When you enter the land I am going to give you, the land shall rest for you seven years. <sup>27</sup>For six years you shall sow your fields, and for six years you shall prune your vineyards and gather their crops. <sup>28</sup>But in the seventh year the land is to have a sabbath of rest, a sabbath to the LORD. Do not sow your fields or prune your vineyards. <sup>29</sup>Do not reap what grows of itself or harvest the grapes of your untended vines. The land is to have a year of rest. <sup>30</sup>Whatever the land yields during the sabbath year will be food for you—for yourself, your manservant and maidservant, and the hired worker and temporary resident who live among you, <sup>31</sup>as well as for your livestock and the wild animals in your land. Whatever the land produces may be eaten.

The Year of Jubilee

<sup>32</sup>"Count off seven sabbaths of years—seven times seven years—so that the seven sabbaths of years amount to a period of forty-nine years. <sup>33</sup>Then have the trumpet sounded everywhere on the tenth day of the seventh month; on the Day of Atonement sound the trumpet throughout your land. <sup>34</sup>Consecrate the fiftieth year and proclaim liberty throughout the land to all its inhabitants. It shall be a jubilee for you; each one of you is to return to his family property

For this reason, and because of the angels, the woman ought to have a sign of authority on her head.

— 1 Corinthians 11:10

Day of Atonement

<sup>26</sup>The LORD said to Moses, <sup>27</sup>"The tenth day of this seventh month is the Day of Atonement. Hold a sacred assembly and deny yourselves,<sup>4</sup> and present an offering made to the LORD by fire. <sup>28</sup>Do no work on that day, because it is the Day of Atonement, when atonement is made for you before the LORD your God. <sup>29</sup>Anyone who does not deny himself on that day must be cut off from his people. <sup>30</sup>I will destroy from among his people anyone who does any work on that day. <sup>31</sup>You shall do no work at all. This is to be a lasting ordinance for the generations to come. <sup>32</sup>From the evening of the ninth day of the month until the following evening you are to observe it.

Feast of Tabernacles

<sup>33</sup>The LORD said to Moses, <sup>34</sup>"Say to the Israelites: 'On the fifteenth day of the seventh month the LORD has commanded that the Israelites observe a seven-day festival. <sup>35</sup>The first day is a day of sacred assembly; do no work. <sup>36</sup>For seven days present offerings made to the LORD by fire, and on the eighth day hold a sacred assembly and present an offering made to the LORD by fire. It is the closing assembly; do no regular work. <sup>37</sup>'These are the days when you are to proclaim sacred assemblies. <sup>38</sup>These are the offerings required for each day. <sup>39</sup>These offerings are in addition to those for the LORD's Sabbaths and in addition to the gifts and whatever you have vowed and all the freewill offerings you give to the LORD. <sup>40</sup>'So beginning with the first day, until the eighth day, you are to gather the crops of the land, celebrate the festival to the LORD for seven days; the first day is a day of rest, and the eighth day also is a day of rest. <sup>41</sup>On the first day you are to take branches of palm trees, and palm fronds, leafy branches and boughs of willow trees, and rejoice before the LORD your God for seven days. <sup>42</sup>Celebrate this as a festival to the LORD for seven days; it is to be a lasting ordinance for the generations to come; celebrate it in the seventh month. <sup>43</sup>Live in booths for seven days: All native-born Israelites are to live in booths <sup>44</sup>so you will know that I had the Israelites live in booths when I brought them out of Egypt. <sup>45</sup>I am the LORD your God.' <sup>46</sup>So Moses announced to the Israelites the appointed feasts of the LORD.

Oil and Bread Set Before the LORD

**24** The LORD said to Moses, <sup>2</sup>"Command the Israelites to bring you clear oil of pressed olives for the light so that the lamps may be kept burning continually. <sup>3</sup>Outside the curtain of the Testimony in the Tent of Meeting Aaron is to tend the lamps before the LORD from evening till morning continually. This is to be a lasting ordinance for the generations to come. <sup>4</sup>The lamps on the pure gold lampstand before the LORD must be tended continually. <sup>5</sup>"Take fine flour and bake twelve loaves of bread, using two-tenths of an ephah<sup>5</sup> for each loaf. <sup>6</sup>Set them in two rows, six in each row, on the table of

<sup>4</sup>27 Or and fast; also in verses 29 and 32  
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<sup>5</sup>5 That is, probably about 4 quarts (about 4.5 liters)

pure gold before the LORD. <sup>7</sup>Along each row put some pure incense as a memorial portion to represent the bread and to be an offering made to the LORD by fire. <sup>8</sup>This bread is to be set out before the LORD regularly, Sabbath after Sabbath, on behalf of the Israelites, as a lasting covenant. <sup>9</sup>It belongs to Aaron and his sons, who are to eat it in a holy place, because it is a most holy part of their regular share of the offerings made to the LORD by fire."

A Blasphemer Stoned

<sup>10</sup>Now the son of an Israelite mother and an Egyptian father went out among the Israelites. He cursed his father, an Israelite. <sup>11</sup>His son said, "I will curse my father as the LORD with a curse; so they caught him to Moses. (His mother's name was Shelomith, the daughter of Dibri the Danite.) <sup>12</sup>They put him in custody until the will of the LORD should be made clear to them.

<sup>13</sup>Then the LORD said to Moses, <sup>14</sup>"Take the blasphemer outside the camp. All those who hear him are to hear the LORD's voice. <sup>15</sup>On the day the LORD speaks to the Israelites, if anyone curses his God, he will be held responsible; <sup>16</sup>anyone who blasphemes the name of the LORD must be put to death. The entire assembly must stone him. Whether an alien or native-born, when he blasphemes the name of the LORD, he must be put to death.

<sup>17</sup>Anyone who kills the life of an animal must make restitution—life for life. <sup>18</sup>If anyone injures his neighbor, whatever he has done must be done to him: <sup>19</sup>fracture for fracture, eye for eye, tooth for tooth. As he has injured the other, so he is to be injured. <sup>20</sup>Whoever kills a man must make restitution—life for life. <sup>21</sup>Whoever kills a man or a beast must have the same law. <sup>22</sup>The alien and the native-born—I am the LORD your God."

<sup>23</sup>Then Moses spoke to the Israelites, and they took the blasphemer outside the camp and stoned him. The Israelites did as the LORD commanded Moses.

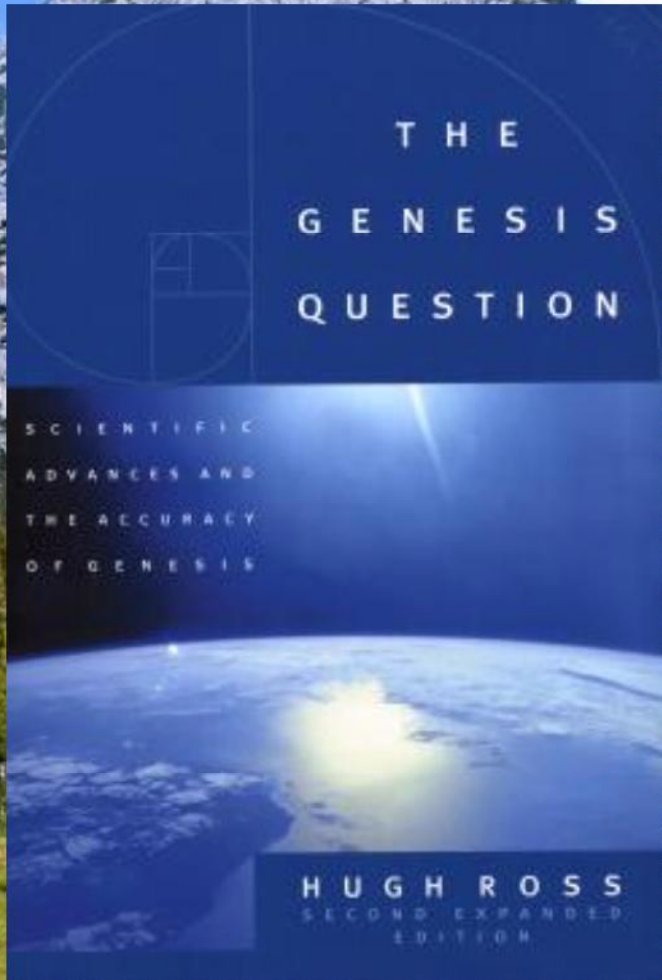
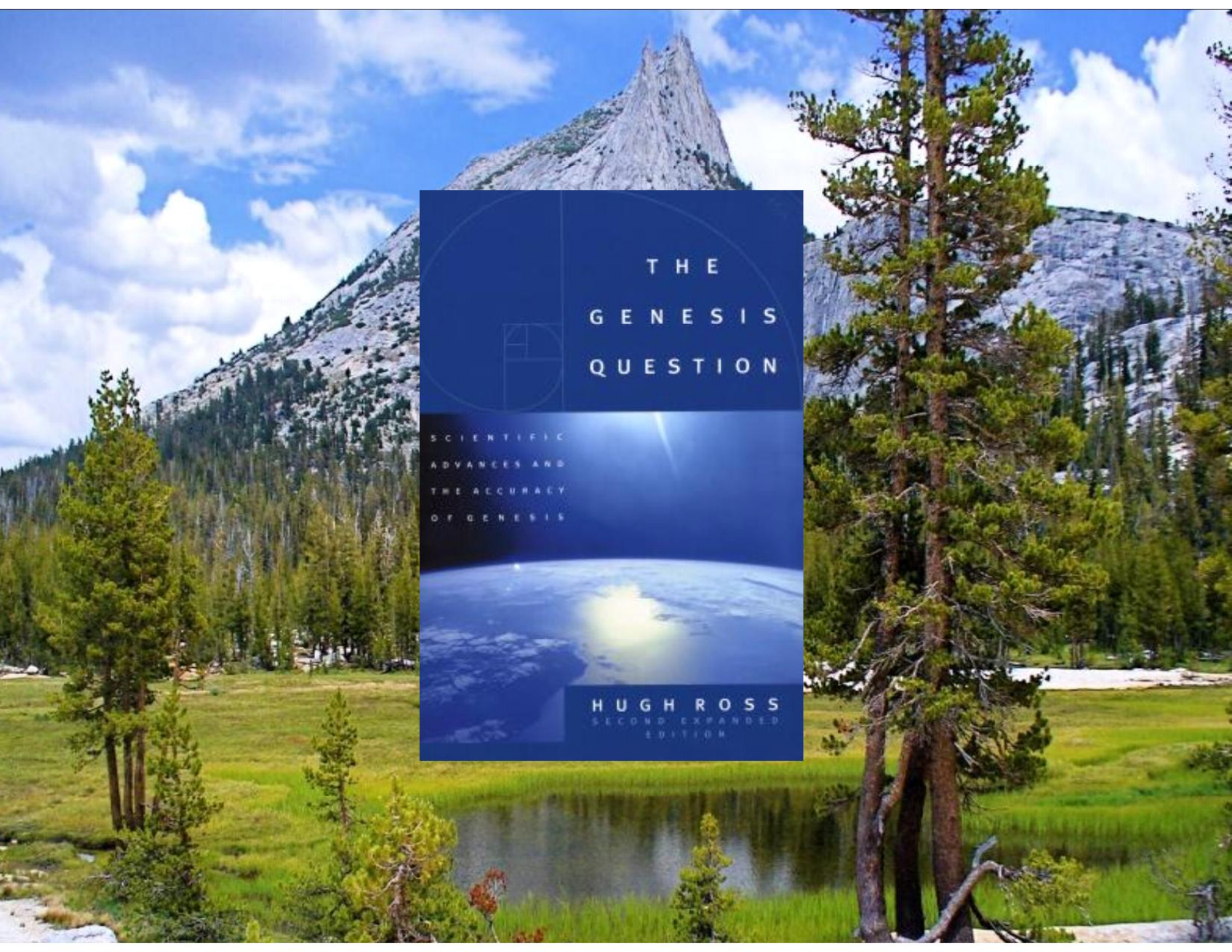
The Sabbath Year

**25** The LORD said to Moses on Mount Sinai, <sup>1</sup>"Speak to the Israelites and say to them: 'When you enter the land I am going to give you, the land itself must observe a sabbath to the LORD. <sup>2</sup>For six years sow your fields, and for six years harvest your vineyards and gather their crops. <sup>3</sup>But in the seventh year the land is to have a sabbath of rest, a sabbath to the LORD. Do not sow your fields or prune your vineyards. <sup>4</sup>Do not reap what grows of itself or harvest the grapes of your untended vines. The land is to have a year of rest. <sup>5</sup>Whatever the land yields during the sabbath year will be food for you—for yourself, your manservant and maidservant, and the hired worker and temporary resident who live among you, as well as for your livestock and the wild animals in your land. Your livestock may eat what the wild animals do not eat.'

The Year of Jubilee

<sup>6</sup>"Count off seven sabbaths of years—seven times seven years—so that the seven sabbaths of years amount to a period of forty-nine years. <sup>7</sup>Then have the trumpet sounded everywhere on the tenth day of the seventh month; on the Day of Atonement sound the trumpet throughout your land. <sup>8</sup>Consecrate the fiftieth year and proclaim liberty throughout the land to all its inhabitants. It shall be a jubilee for you; each one of you is to return to his family property

— Ephesians 6:12



THE  
GENESIS  
QUESTION

SCIENTIFIC  
ADVANCES AND  
THE ACCURACY  
OF GENESIS

HUGH ROSS  
SECOND EXPANDED  
EDITION

