

## Creation Science Fellowship, Inc.

One Year Creation Program

*Uniformitarianism,  
Non-Radiometric Dating,  
and the Age of the Earth*

Robert E. Walsh  
May 12, 2011



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## Agenda

- The Doctrine of Uniformitarianism
- Non-Radiometric Dating Techniques
  - General List
  - Estimates from a Selected List
- The Earth's Magnetic Field
- Extrapolation: "*The Devil on the Pillion*"
- Questions / Answers

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## The Doctrine of Uniformitarianism

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## The Definitions of Uniformitarianism

- “The Present is the Key to the Past”

- From Reijer Hooykaas' summary of Lyell's Uniformitarianism

• <http://en.wikipedia.org/wiki/Uniformitarianism>

1. **Uniformity of law** – the laws of nature are constant across time and space.
2. **Uniformity of methodology** – the appropriate hypotheses for explaining the geological past are those with analogy today.
3. **Uniformity of kind** – past and present causes are all of the same kind, have the same energy, and produce the same effects.
4. **Uniformity of degree** – geological circumstances have remained the same over time.

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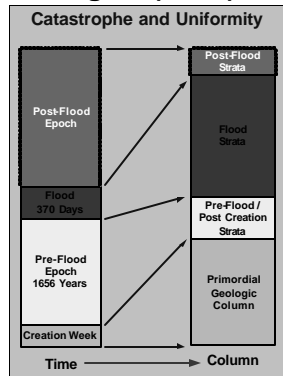
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## The Creation Model of Origins (CMO)

- The CMO includes both Uniformity and Catastrophe
- Catastrophe formed the majority of the Geologic Column
- Uniformity played a much smaller role




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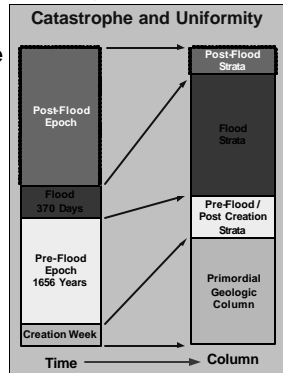
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## The Creation Model of Origins (CMO)

- Short periods of Catastrophe translate into large portions of the Geologic Column
- Long periods of Uniformity effect smaller portions of the Geologic Column




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## Empirical Age Models

- **Old-Earth Model**
  - Greater than 250,000 years
  - Extra-Biblical Presuppositions Only - Long Age Processes [e.g., Star Light, Nuclear Decay (U-Pb, Rb-St...), etc.] (strict Uniformitarianism)
- **Mid-Earth Model**
  - Greater than 10,000 years and less than 250,000+ years
  - Extra-Biblical Presuppositions - Geologic Processes [e.g., Varve creation, etc.]
- **Young-Earth Model**
  - Less than 10,000 years
  - Biblical Presuppositions

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## Non-Radiometric Dating Techniques

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## Non-Radiometric Dating

- Looks at processes that do not include radioactivity
- Often accumulation or mixing processes
  
- Literally, hundreds of processes that indicate youthfulness (Humphreys)
  
- Includes Biological, Geological, and Astrophysical phenomena

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### Non-Radiometric Dating

- Often used to attack the presupposition of Uniformitarianism
- Given Uniformitarianism, we ought to see “such and such”, but what we see is “this and that”

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### Understanding Non-Radiometric Dating Techniques

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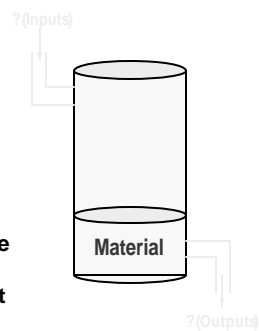
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### The Accumulation Model

- (A) Material accumulates when the Input > Output
- (B) Material dissipates when the Input < Output
- The Age of the System (A) is simply the Amount of Accrued Material / Rate of Accrual (I-O). (Assumes zero amount at time zero)



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**A Small General List of Examples**

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**Some Youthful Indicators**

Chronometer	Aproximate Age (Years)
Helium (Rocks and Atmosphere)	6,000
Supernova Remnants	7,000
Human History	10,000
Short Period Comets	10,000
Earth's Magnetic Field	10,000
Continental Erosion	10,000,000
Sea Floor Sediments	12,000,000
Crustal Growth and Vulcanism	34,000,000
Ocean Salt Accumulation	42,000,000
Barred Spiral Galaxies	500,000,000

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**Two Examples  
(More Details)**

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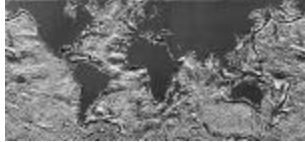
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## Ocean Floor Sediments

- Sediments accumulate on ocean floor via world's rivers
  - Total input amount per year is 24 Billion Metric Tons
  - Ocean sediments are removed via plate sub-duction at about 1 Billion Metric Tons per Year
- Total Rate is 23 Billion Metric Tons / Year
- Sediment Amount is about 400 meters in depth worldwide
- Maximum Uniform Age
  - 12 Million Years



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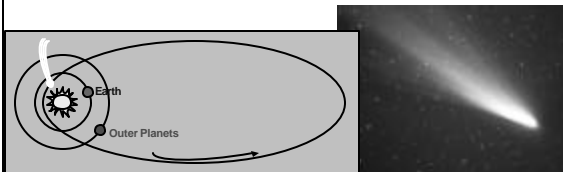
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## Short Period Comets

- Short period comets ( $T < 200$  years) revolve around the Sun in highly elliptical orbits
- Near the Sun they can lose up to 1% of their mass
- Halley's Comet loses approx. 0.12% per period
- Period of Halley's Comet is 76 years
- Approx age is  $(76 / 0.0012) \sim 76,000$  Years



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## The Earth's Magnetic Field

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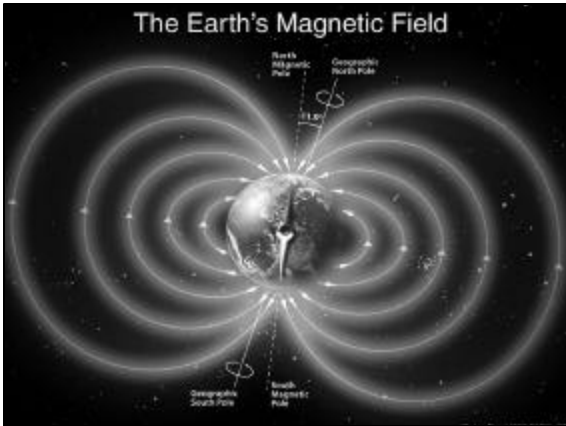
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**Other Models**

- **Evolutionary and Old-Earth Creationary Models**
  - typically use the concept of a “dynamo” to model the Earth’s Magnetic Field
  - a dynamo is a “machine” used to create a magnetic field
    - a conductor moved through a magnetic field creates an electric current through the conductor
    - the relative motion between core and mantle, etc.

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**A Young-Earth Model**

- **Thomas Barnes, D.Sc. (late 60s early 70s)**
  - Curve fit data to an exponential decay
  - Derived original model using a spherical electric current in the core of the Earth
  - Rejected the idea of Reversals of the Earth’s Magnetic Field
  - Published technical articles in the Creation Research Society Quarterly
  - Summarized published work in ICR’s Technical Monograph #4 1973, 1983(rev)

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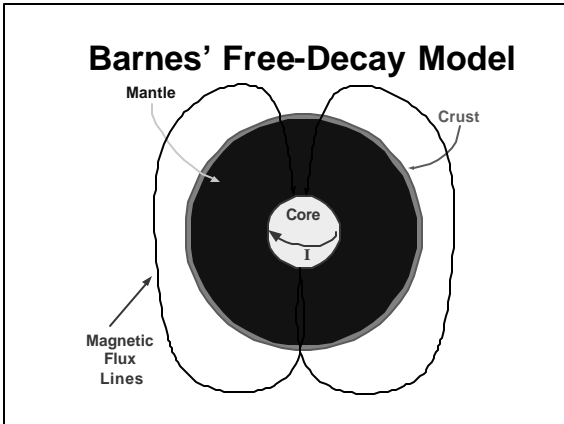
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- ### Barnes' Free-Decay Model
- Spherical Electric Current on Surface of Earth's Core
  - Electric Current slowly dying due to Impedance of the Earth's Core Material
  - Exponential Decay of Electric current
  - Half Life of 1400 Years

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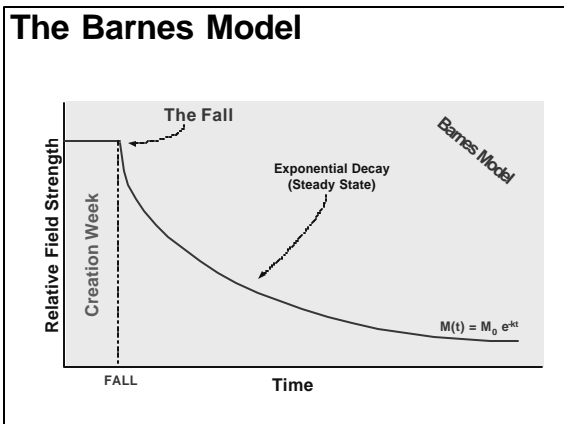
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## The Barnes Model

- **Fundamental Failure or Rather Weakness of the Barnes Model...**

***Did not incorporate Magnetic Field Reversals***

The Magnetic Field Reversal Data is **OVERWHELMING**

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## A Young-Earth Model

- **D. Russell Humphreys, Ph.D. (Late 70s to current)**
  - Significantly expanded on Barnes' Model
  - Convinced Creation Community of Reversals
  - Created a Young-Earth mechanism for Field Reversals
  - Used Improved Model for Predictions of Planetary Magnetic Field Intensities
  - Major portion of model published in the Proceedings of the International Conferences on Creationism (1986 & 1990)

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## Reversal Data

- **More than 200,000 samples of "reversals" from the Geologic Record**
  - **Archeological Pottery and Artifacts**
  - ***Mid-Atlantic Ridge***
  - ***Igneous Intrusions***

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### Mid-Atlantic Ridge



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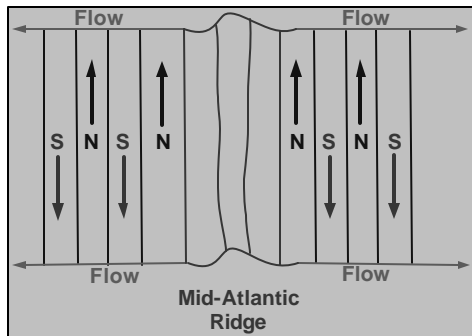
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### Mid-Atlantic Ridge



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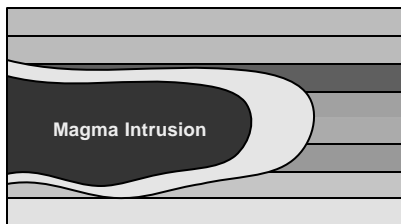
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### Igneous Intrusion



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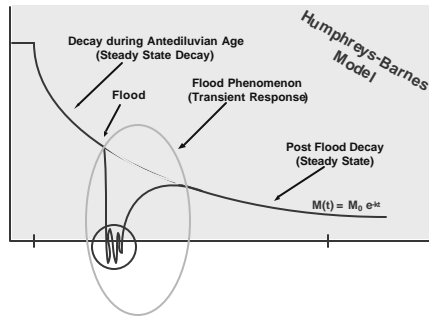
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## Humphrey's Augmentation



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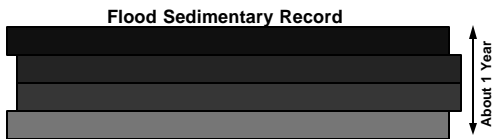
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## Constraints for Reversals



- Main Flood lasted for about 1 Year (Gen)
- Most Reversals occurred during Flood Year
- At least 50 Reversals observed in Geologic Column and Archeological Data
- Young-Earth Model must be capable of 50 Reversals in 1 year or slightly longer

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## Humphreys' Reversal Mechanism

- Magnetic Parcels of Core Material Moving Away from the Center of the Core

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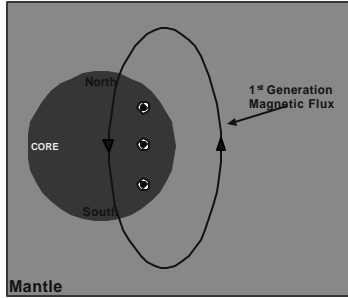
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### Reversal Sequence (1 of 6)



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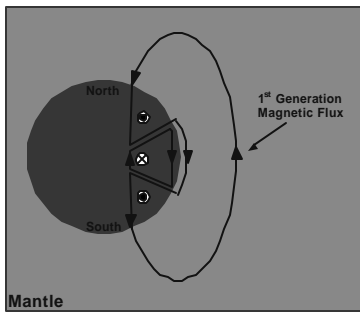
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### Reversal Sequence (2 of 6)



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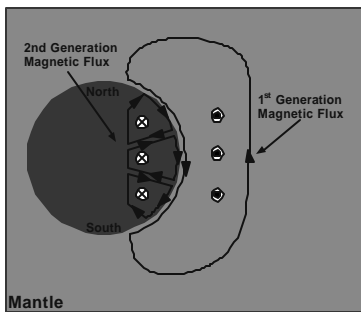
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### Reversal Sequence (3 of 6)



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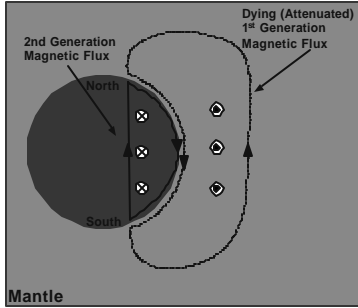
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### Reversal Sequence (4 of 6)



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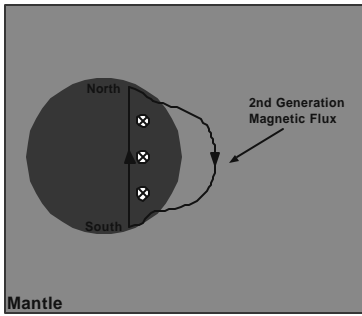
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### Reversal Sequence (5 of 6)



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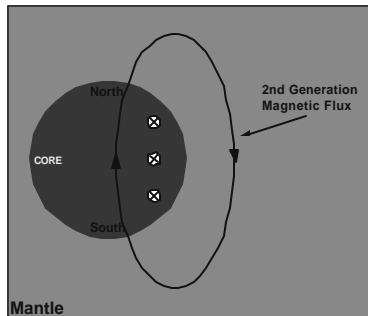
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### Reversal Sequence (6 of 6)



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## Reversals

- Can Reversals Occur Fast Enough to Incorporate 50 Reversals in a Single Flood Year or perhaps slightly longer?

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## Using the Sun as Our Control

- The Magnetic Field of the Sun Reverses Every 11 years.
- The Relative Speed of Reversal is Proportional to the Rotational Speed of the Earth and Sun
- $11 \text{ Yr} * (\text{Sun Rot Spd}/\text{Earth Rot Spd}) = \text{Earth Reversal Rate}$
- A MAXIMUM of 20 Days Between Reversals
- $20 * 50 \leq 1000 \text{ Days (2.7 Years)}$

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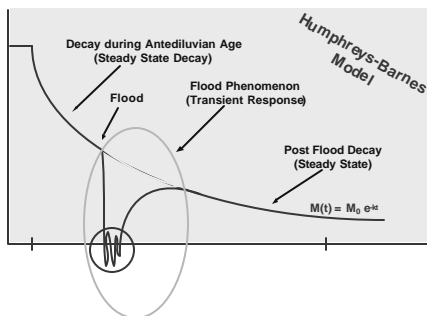
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## Barnes-Humphreys Model



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## Related Topics

- **Creation health models**

- Stronger Magnetic Field In the Past could have impacted the general health of the Antediluvian population ... contributing to the longer life expectancy [needs more research]
- Impedes cosmic radiation => less carcinogens

- **Carbon 14 Production**

- Stronger Field DECREASES the C14 in upper Atmosphere, making things appear “older”
- Less C14 implies less carcinogens

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## **Extrapolation:** *“The Devil on the Pillion”*

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## **Extrapolation (1 of )**

- Extrapolation is going “outside” of the known data
- In contrast, “interpolation” is staying within the known data
- Associated with extrapolation is an error term (Q) which is a measure of the “quality” of the extrapolation process

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### Extrapolation (2 of 3)

- For all extrapolation processes it must be shown that Q is “bounded”
- All old earth models fall prey to an unbounded Q
- Thus, Q becomes so large that Q is disproportionately larger than the dates one expects
- Q is essentially a measure of the mathematical “price one pays” for extrapolating

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### Extrapolation (3 of 3)

- The problem for all old earth models is that they all require the extrapolation of unverified assumptions (constant process rates, initial amount) over millions and billions of years of unobserved time
- See the wonderful article, David Rodabaugh, *The Queen of Science Examines the King of Fools*, CRSQ, June 1975 – remains unanswered (IMO)

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