

WitnessKit 2
God And Creation

Class 11
Dating Methods for
Rocks

Mount Saint Helens famously erupted in 1986.

- Geologist Stephen Austin tested two samples of a **1986** porphyritic dacite lava flow from Mount Saint Helens. He used Potassium-Argon dating, which is considered appropriate for volcanic rocks.
 - Dacite is a light gray volcanic rock with crystalline minerals in glassy silica. Porphyritic means it had relatively large crystals within a mass of fine texture.
- In this case, Dr. Austin wanted to see if the rock dating method would work for a known date of eruption.

Potassium-Argon Dating...

- A fundamental assumption in Potassium-Argon dating is absence of detectible argon when the rocks form.
- Since Argon is a gas, presumably **ALL** the argon escapes to the atmosphere during the volcano's eruption.
- Thus the eruption theoretically “resets” the age of the rock by releasing the Argon.
- Does this really happen in practice?

What should the tests results have been for Dr. Austin's rocks?

- If no argon had been present in the rocks, the age should have measured at ZERO years ago—or something that would round off to that value—since the rocks were too young to fit within the sensitivity of the measuring equipment.
- A measuring system that ranged from 0 to 5 million years old would not be sensitive enough to tell the difference between 0 and 10 and 15 years old.

What were the actual test results?

Three hundred and fifty thousand years old for one sample.

2.8 million years old for another.

Potassium-Argon Dating...

- Austin's newly formed dacite samples measured **350,000 +/- 50,000** years ago and **2.8 +/- 0.6 million** years ago.
- This means the samples **contained Argon**.
- The error range for the second sample was bigger than the reported date for the first sample.
- Since the samples were **less than 10 years old**, the reported error ranges were not remotely large enough to match the actual error.

His Test Revealed Three Problems.

- These samples reveal **a sampling problem**, because the samples do not yield the same dates. The dates should have matched.
- Plus an **initial conditions assumption problem** – because Argon was present in both samples when it should have been absent.
- And **false error ranges**, since the error ranges did not encompass the actual age of the rocks.
- Austin, Stephen A., “Excess Argon Within Mineral Concentrates from the New Dacite Lava Dome at Mt. Saint Helens Volcano,” *Creation Ex Nihilo Technical Journal*, Volume 10 Number 3, 1996, pp. 335-344. Reported in Morris, Henry M. *THAT THEIR WORDS MAY BE USED AGAINST THEM*, Master Books, 1997.

Potassium Argon Dating

Is used to date rocks in the human evolution story—over a presumed 5 million years. The astonishing thing about Dr. Austin's results is that...

- ❑ One 10-year-old rock tested as old as the entire range of the human portion of the evolution story.
- ❑ 2.8 million year ago is appropriate for *Australopithecines*—supposedly our animal ancestors 2 to 3 million years ago.

This means

- None of the potassium argon dates for volcanic rock can be taken at face value in the human evolution story.
- We will find out that none of the sedimentary and metamorphic rock dates are independent of evolutionary theory—because INDEX FOSSILS are used to date them.
- This means that no certain measurements of dates of hominid fossils are actually available in this area of most importance. It also calls into question all claims about common descent from primates.

Common Descent



Assumes change over time.

If the age of fossils cannot be discovered precisely enough to show change over time,

THIS limitation demonstrates that the theory of hominid evolution is merely an idea, and not a proven fact. Without accurate dates for fossils, nothing can be established.

Everyone Should Understand Uncertainty in Dates for Ancient Materials

Limitations of Dating Methods

by learning some limitations of dating methods.

1. The mathematical assumptions limitation.
2. The calibration limitation.
3. **The sampling limitation.**
4. The interdependence limitation.



First We Need Some

Background Information

Imagine a cube drawn around the earth outside the atmosphere.



<http://xfinity.comcast.net/slideshow/news-science/news-science-20120629-US.SCI.Leap.Second/>

The age of Rocks is a bit tricky.

- If you drew a cube around the earth outside the atmosphere, very little would go in or out of that cube. A few meteorites would occasionally enter the cube and hit the ground, or burn up and add a miniscule fraction of new material to the atmosphere. A space vehicle would occasionally leave the cube and perhaps launch a satellite outside the cube to orbit the earth for a while. Some gases might escape from the cube little by little.

The age of Rocks is a bit tricky.

- Essentially, though, the cube would be self-contained. Almost everything in it would be the same absolute age. This explains the most basic difficulty with dating rocks – they are all about the same absolute age – the age of the earth itself.
- The next problem is understanding what the age of a rock actually means when it is reported in the literature. The next difficulty after that is calibrating the ages with known events.

Almost all of the rocks on the earth

Are the same absolute age as the earth itself.

When scientists talk about the age of a rock, they do **not** mean its absolute age.

They mean the age since

- ▣ it reached the surface in the case of **volcanic rock**,
- ▣ or hardened into rock from being dirt or a slurry in the case of **sedimentary rock**,
- ▣ or was transformed into another kind of rock in the case of **metamorphic rock**.

Volcanic rocks have an advantage.

They can be dated based upon the difference due to surface effects versus under-earth effects.

Sedimentary and metamorphic rocks do not have this advantage, because they were already on the surface before they “became rock.”

- ❑ Sedimentary and metamorphic rocks are dated by the index fossils present – so their dates are TOTALLY dependent upon evolutionary theory.
- ❑ Their dates are not independent, and cannot be used to validate or invalidate the theory.

Volcanic rocks can be dated by radiometric methods...

To date a volcanic rock, either ash or lava, the scientist must envision a physical and chemical process that would differentiate the time the materials became rock from the time before they were rock.

- They have to make assumptions about those materials and their chemical composition before they became rock and how the composition would change or stop changing upon hardening.

Developing a dating method...

The changes they measure for dating purposes are nuclear-chemical—because very small amounts of nuclear material can be measured—and nuclear materials change over time in predictable ways—but the hardening process is physical.

They assume a nuclear process either stops or starts at the moment they want to measure.

Developing a dating method...

So the nuclear-chemical differences must occur because of

- the hardening process,
- exposure to the surface,
- removal from beneath the earth's crust,
- and time.

Radioactive Potassium 40 decays to Argon 40 and Calcium 40.

- Potassium 40 is a solid at surface temperature. Argon 40 is a gas at surface temperature. Calcium 40 is a solid at surface temperature.
- In the case of Potassium-Argon dating, the daughter Argon is assumed ABSENT from the sample once it reaches the surface. Daughter argon is argon that forms over time from nuclear decay of the starting Potassium 40. Over time, Potassium 40 goes down and argon 40 and calcium 40 increase in a sample.

Radioactive Potassium 40 decays to Argon 40 and Calcium 40.

- Over time, the sample would have a varying amount of each of the three chemicals present.
- Argon is **assumed to escape** to the atmosphere during volcanic eruption, so is assumed absent at the point when volcanic rocks harden. This sounds like a reasonable assumption.
- This sets the argon to ZERO, theoretically, when the volcano erupts. It leaves the calcium and potassium in the rocks, theoretically.

Radioactive Potassium 40 decays to Argon 40 and Calcium 40.

- The critical measurement is the amount of Argon 40 in the rock. The process of measurable radioactive decay is assumed to start at eruption.
- The argon decay product is assumed to build up slowly in the rock after eruption, but only a little at a time. For quite some time after a volcano erupts, there should be NO DETECTABLE argon in the rock.

This is the reason



The Potassium Argon dating method is assumed **NOT TO WORK** for young rocks. There should not be enough argon in those rocks to be measurable.

In Dr. Austin's experiment, the method definitely did **NOT WORK** for young rocks, but for an entirely different reason. **FAR TOO MUCH** argon was present in the samples.

Potassium occurs in minerals

- Such as muscovite mica and orthoclase feldspar which are insoluble in water.
- It is possible to separate these components from lava and ash, and to measure the ratio of radioactive potassium and daughter argon.
- But what if the daughter argon *fails to escape* during volcanic eruption? What if it is trapped in the erupting ash or lava?
- In that case, the measured dates for the rock will be too old.

A Critical “Mathematical Assumption/ Limitation” for Potassium-Argon Dating

Is the *absence of argon* when the volcano erupts.

- The math requires knowing that the initial Argon was ZERO in order to measure the age.
- The starting conditions are usually unknown, being distant past events, so assumptions are used.
- In the case of Mount Saint Helens’ 1986 eruption, those assumptions did not match reality.

The science of rock dating...

Selects ranges for which a method is appropriate. Potassium argon is assumed NOT appropriate for very young ages.

However, the Mt. Saint Helens data brings up a question. Is potassium argon dating appropriate for older ages?

- We can do a small thought experiment to understand the problem.

Suppose Dr. Austin left those two samples in place for 2 million years

AND THEN decided to test them.

How old would they test?

- They would have all the argon they had at eruption plus 2 million years worth of argon from decay of potassium. They would test at the present test result PLUS 2 million years.
- One sample would test at 2.35 million years old and one would test at 4.8 million years old.
- The results would still be wrong.

If all the hominid fossils

- Actually lived during the same time, similarity would have no bearing at all upon descent.
- The dates of formations of rocks are critical to the theory of evolution. When they are reported in scientific journals, they are assumed to be accurate.
- The theory of evolution requires a progression from one species to another in lines of descent, with extinctions of earlier species occurring. If all the hominids coexisted, that line of descent could not occur.
- The lack of an independent dating method makes the entire theory very shaky.

But wait!

- What about carbon 14 dating? Is it able to help with this problem?
 - Carbon 14 can be used to estimate the age of previously-alive material. It requires that the carbon tested be from formerly-alive tissues.
- Carbon 14 dating is only reaches back 90,000 years—too small a time span to give us answers about the hominid story.
- We will see why that is so in the next slides.

Fossils can sometimes be dated using Carbon 14 methods.

- If some carbonaceous material is left in a fossil, the ratio of Carbon 14 to total carbon can be measured.
- Assumptions are used regarding starting conditions—that the living creature had the same ratio of C14 to total carbon in its body when it died as is present in the atmosphere now. (And that it has not lost or gained carbon between then and now.)
- **That assumes the cosmic radiation hitting the earth is a constant value.**

We want to look at the math.

- If we understand the mathematic principles used in Carbon 14 dating, we will understand some of its limitations.
- Scientists use the ratios of Carbon 14 to total carbon in samples to place them on a timeline. (Of course, the measuring equipment may use computers to do the calculations—but to understand the theory, we need to see the trends.) The timeline is constructed from the expected values of the ratio of Carbon 14 to INITIAL carbon, based on the rate of radioactive decay of Carbon 14.

Math Assumption Limitation: Carbon 14 Dating

$$-T/5730$$

$$C_m/C_t = C_i/C_t \times 2$$

- Where we let **T** be **time**, and **C_m** be the measured or **modern carbon 14** in the sample. Let **C_t** be **total carbon**, which is easily measured. The half life of carbon 14 is 5730 years.
- Let **C_i** be the **initial carbon 14** in the sample—a calculated value. (The calculation **assumes** the initial ratio of Carbon 14 to Carbon 12 in the atmosphere was the same when the fossil lost its life as it is today. **This assumes cosmic radiation is constant over time.**)

Can we test cosmic radiation over historic time

for the last 90,000 years?

- No, this is uncertain... but constant cosmic radiation is a plausible starting assumption.
- Do we have good reason to assume it is constant over that time period?
- If cosmic radiation fluctuated, what would that do to the time reported for fossils?

The C14 equation can create this table:

TIME	Equation	Sensitivity: Ratio of Current to Initial Carbon 14
T= 0	$C_m/C_t = C_i/C_t$	1
T= 5370 years	$C_m/C_t = \frac{1}{2} \times C_i/C_t$	$\frac{1}{2} = 0.5$
T=11,460 years	$C_m/C_t = \frac{1}{4} \times C_i/C_t$	$\frac{1}{4} = 0.25$
T= 22,920 years	$C_m/C_t = \frac{1}{16} \times C_i/C_t$	$\frac{1}{16} = 0.0625$
T=45,840 years	$C_m/C_t = \frac{1}{256} \times C_i/C_t$	$\frac{1}{256} = 0.00391$
T=91,680 years	$C_m/C_t = \frac{1}{65536} \times C_i/C_t$	$\frac{1}{65536} = 0.000015$

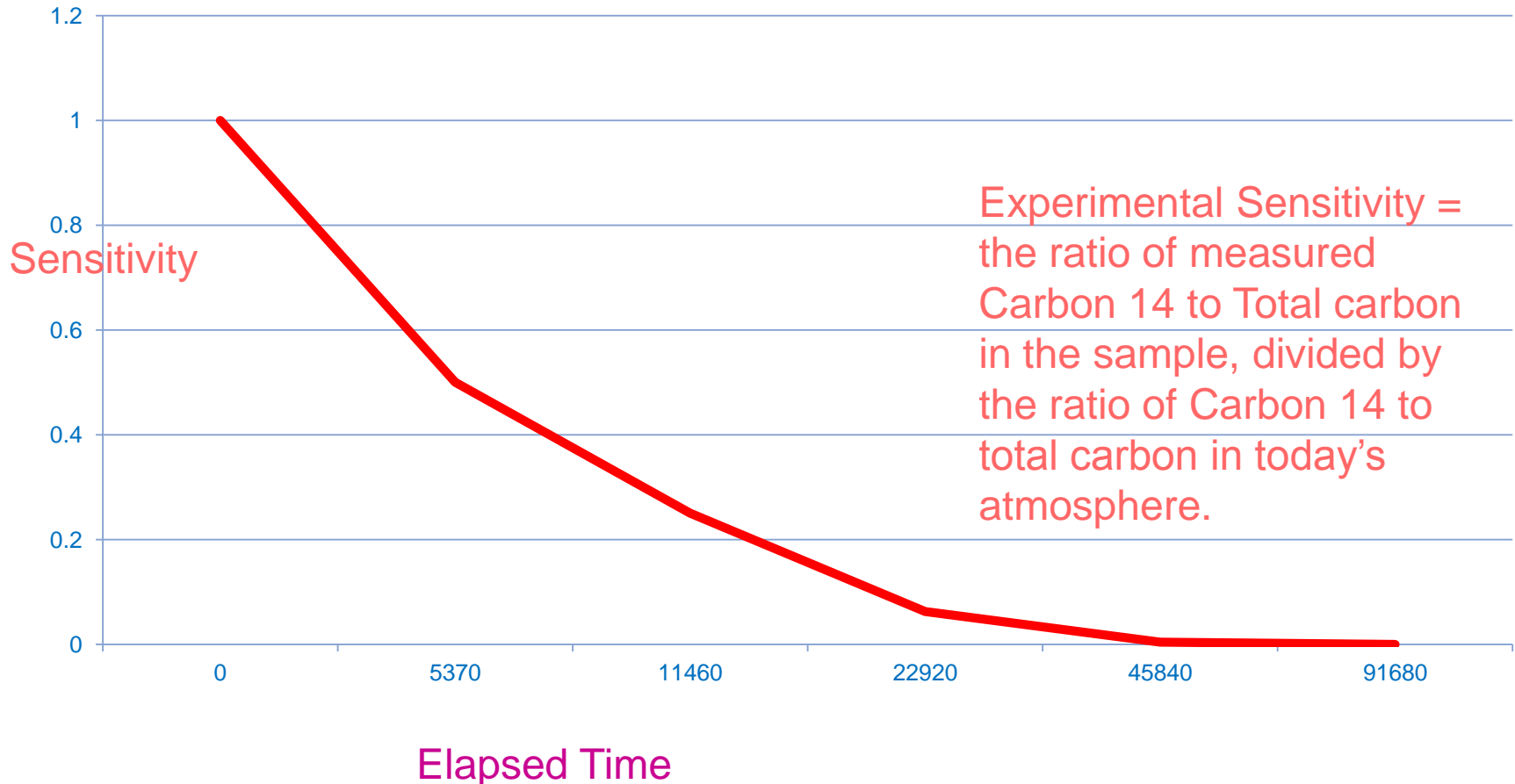
And from the table a chart can be drawn that shows the time elapsed for each measured sensitivity. Each **measured sensitivity** assumes the initial carbon 14 is in the same ratio to total carbon as in the atmosphere today.

Experimental Sensitivity = the ratio of measured Carbon 14 to Total carbon in the sample, divided by the ratio of Carbon 14 to total carbon in today's atmosphere.

The Carbon 14 Graph...

Cm/Ci versus Elapsed Time

Ratio of Current Measurements to Initial Carbon 14 By Sample Age: Sensitivity as a Function of Elapsed Time



Similar Charts

- Similar charts can be constructed for various different nuclear-chemical dating methods. The numbers on each axis of the chart vary, depending upon the half-lives of the radioactive isotopes that are measured.
- In general, dating methods are considered good for time ranges where the slopes of their curves are steep enough to provide reasonable error ranges in time for a particular measurement.
- Notice that the slope becomes very flat for carbon 14 at times approaching 100,000 years. The method stops being useful past that age.

Similar Charts

- Errors are reported based upon variations in measured values for the isotope and reference material, and reported as (+ or –) a time value. However, the error values do not take into account any mistaken assumptions that are part of the method. They reflect the sensitivity of the measuring equipment in the age range measured.

With this chart,

- A researcher can measure total carbon and carbon 14 in the sample. He can then calculate a value for elapsed time.
- The time value will be most accurate where the slope of the curve is steeper, and accuracy will diminish as time approaches 90,000 years ago.
- The test also assumes no carbon has been absorbed or lost by the sample in the intervening years—which may be a questionable assumption.
- Professor Lubenow reported results from “The Rate Project,” where samples of various reported ages were tested.

“The Rate Project” Reported by Professor Lubenow

- When the experimental techniques improved so that sensitivities could produce results as old as 90,000 years, even fossil samples supposed to be millions of years old tested younger than 100,000 years.
- No sample tested older than 100,000 years.
- A diamond tested 58,000 years old.
- These are such an unexpected results! These results bring up many intriguing questions.

“The Rate Project” Reported by Professor Lubenow

- These results give us reason to question the assumptions in the method: the constant cosmic radiation assumption or the carbon zero-loss-or-gain assumption, or the old age of the earth assumption.
- These results make us wonder how the equipment performs and reports results for tests in the 80,000 to 100,000 year range—whether the results indicate an anomaly in the equipment.

No sample tested older than
100,000 years.

All samples testing less than 100,000 years was totally unexpected. The idea that human evolution from Lucy to us requires 3 million years and 5 million favorable mutations, if correct, would lead one to expect the “million year old samples” to test FAR outside the sensitivity of the equipment.

Most of them tested less than 90,000 years old, within the range of the equipment.

The 58,000 year old diamond



- The young diamond is particularly intriguing.
- Diamonds are sometimes products of volcanic activity, with tremendous heat and pressure in their formation.
- The source of the carbon for that diamond—if living material—or if primordial carbon—would make a difference in conclusions, because it tested farther from the equipment's limits in age, well within the region of expected good performance.

Some Diamonds Form in Volcanoes.

If such a diamond tested 58,000 years old, the carbon in it would have come into the crust of the earth by plate tectonic movement about 58,000 years ago, assuming the carbon came from living matter exposed to the atmosphere at that time, then moved under the earth, and then released in a volcanic eruption.

The atmosphere had to have the same ratio of C14 to total carbon as today. We think of diamonds as being very ancient, but 58,000 years could indicate dynamic processes.

Some Diamonds Form in Volcanoes.

Some diamonds have formed under meteorite impacts, and their dates would reflect the time of impact, based on organic materials growing there.

A diamond **could** be the same age as the earth itself, if formed from original primordial carbon.

At the very least, for **all samples** to test less than 100,000 years old, this exercise tells us that many uncertainties exist in reported fossil dates.



This leads us to

The Calibration Limitation.

Everyone Should Understand Uncertainty in Dates for Ancient Materials

limitations
of dating
methods.

by learning some limitations of dating methods.

1. The mathematical assumptions limitation.
2. **The calibration limitation.**
3. The sampling limitation.
4. The interdependence limitation.

How can anyone know how old

- A fossil sample is, without a way to calibrate the dating method?

Calibration requires comparing measurements of **known ages as well as measurements of samples of unknown age.**

Testing samples of volcanic rock of known age would reveal whether the argon was actually absent when the volcano erupted.

How can anyone know how old

- If assumptions are involved in each dating method, then each method needs to be tested using known events to see if it works.
- With carbon 14 dating, such calibration is actually possible over part of the range, using materials of known history, such as materials from Egyptian pyramids.
- Proper calibration allows reasonable estimates of measurement error.

Calibration is more difficult

With rocks than with carbonaceous fossils.

Because the assumption is zero argon at zero time, and very slow accumulation of argon thereafter, the Potassium Argon method is assumed not to work for young ages, and therefore is not typically calibrated against known ages.

But the Rate Project and Dr. Austin's test of Mt. Saint Helens both show that calibration **SHOULD** have been done before relying on the method.

Sometimes Rocks from Volcanoes

- Get buried later on by sedimentary or other volcanic rocks.
- Sometimes they are porous, and water flows through them, depositing minerals from the surface.
- Many unknown factors can change the apparent age of a rock.
- Therefore...

Developing a Dating Method...

- When scientists devise a method, they need a way to calibrate it to see if it actually works.
- They need known events of known times that they can measure to see if their assumptions are correct.
- This is where all the methods break down, because calibration is only possible for a brief amount of earth history—a much shorter time than the theory of evolution demands.

The “RATE Project” Used

Modern volcanic activity of known dates to attempt to calibrate Potassium Argon dating.

- They obtained eleven samples of lava from a modern volcano, known from personal

testimony to be **25 to 51 years old.**

They sent them to a reputable laboratory for dating, as blind samples whose origin was not specified to the lab.

Results:

- 4 samples were reported **less than 270,000** years old (true, but comically so) **+/- 20%** (**54,000 yr**)
- 1 sample each was dated at **290,000** years,
- 1 at **800,000** years **+/- 20%**
- 1 at **1 million** years old, **+/- 20%**
- 1 at **1.2 million** years old, **+/- 20%**
- 1 at **1.3 million** years old, **+/- 20%**
- 1 at **1.5 million** years old, **+/- 20%**, and
- 1 at **3.5 million** years old **+/- 20%**.

In comparison with the charts

- In the Appendix of BONES OF CONTENTION,
- These **fifty year old or younger** rock samples were assigned dates over the entire range of *human evolution*. The oldest hominids in the charts were 3.5 Million years ago and 3.75 million years ago.
- One of the 50-year-old or younger samples dated at 3.5 million years ago.

This is a serious issue.

- This calls into doubt all the dates assigned to rocks in the hominid data base.
- This means that *no* independent data exist to establish the actual age of hominid fossils.

None of the real dates (50 yrs) were within the margins of error because...

- The reported margins of error (**+/- 20%**) are wrong as well.
- The calibration problem is glaringly clear, when the potassium argon method only “works” for samples of ages so ancient that nobody knows their real age, but fails spectacularly for samples of known age. These supposedly “absolute dating methods” are faith exercises.

Notice That, Just Like the Mt. Saint Helens Example...

If you waited 2 million years to measure the same samples, the dates would still be wrong.

- The measured values for duplicate samples did not match.
- This brings us to **the sampling problem**.
- Obviously, the samples selected for testing were not representative of the stratum as a whole, or the results would have agreed with one another.

Everyone Should Understand Uncertainty in Dates for Ancient Materials

limitations of
dating
methods.

by learning some limitations of dating methods.

1. The mathematical assumptions limitation.
2. The calibration limitation.
3. **The sampling limitation.**
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The Sampling Problem

Solid sampling is notoriously difficult. When trying to obtain **a representative sample** of a stratum of rock, how is it possible to obtain one? Is the stratum uniform? Was it perfectly mixed during formation? Does it stretch for miles? How deep is it? Does it vary in composition over its stratum?

- If you obtain a representative sample, how do you **KNOW** it is representative?
- How can you guarantee that a small bucket of material matches the stratum as a whole?

Sampling Assumptions

The methods all assume perfect mixing prior to hardening. This is VERY UNLIKELY to match reality. Perfect mixing of solids is extremely difficult, because vortices in flows stratify solids—especially in a gas-solid event. Slow flows also stratify solids. A variety of flow regimes occur between eruption and solidification.

- The methods assume nothing has happened since formation to change the composition of the rock. If the rock is porous, that means assuming water did not leave anything behind as it poured through for millions of years.
- Wind did not erode the soft parts away while it was exposed.
- The stratum is assumed pristine and uniform.

The Sampling Problem

- Volcanic ash deposits have an **additional** sampling problem.
- The volcanic cone has already been exposed to the atmosphere. It blows off along with internal ash during a volcanic eruption.
- How is it possible to differentiate between cone, already made into rock,
- And internal ash, newly made into rock?

Any of these problems alone

- Would make reported ages for volcanic rock suspect.
- All taken together, they reduce confidence in reported results even more.

Then we must think about **sedimentary rock and metamorphic rock.**

These rocks form from previous rocks and dirt, so their dates of formation are a continuum rather than a point.

Direct dating methods are not available for these types of rock.

Therefore, the evolutionists use “index fossils” to date the rocks.

This **assumes the evolutionary dating scheme is correct, and assigns dates accordingly.**

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Professor Lubenow's First Edition of *Bones of Contention*

Explains the interdependence problem very well.

Interdependence is built into sedimentary rock dating—dated by the types of fossils found, according to the theory of evolution. SO the theory of evolution and the dates of the rock are NOT INDEPENDENT at all.

Rock dating cannot be used to test the validity of the evolution framework if the framework is built upon itself.

- Even volcanic rock dates have an interdependence problem, as we can see by the next example.

“How Rock Dating Works”

This is the normal chain of events for dating fossils and the rock layers above and below them.

- The fossil find happens first and creates the impetus for dating the rocks.
- The fossils are given an estimated date according to where they fit in the schema of evolutionary theory.

The normal chain of events...

- The rocks are dated by various methods, BUT because the dating methods are so uncertain and difficult, any measured data that do not fit the evolutionary time scale are discarded as inaccurate.
- Voila! The fossils fit the evolutionary time sequence.

Discrepancies Are Explained Away

Rocks that are TOO OLD for the theory:

- An explanation exists for eliminating dates that are too old for the evolutionary time sequence of the fossils. The rocks must have older rocks or rock particles entrained in them. The hardening process must have trapped some materials that did not belong. So their dates are not accurate.

Discrepancies Are Explained Away

Rocks that are TOO YOUNG for the theory:

- A wipe-out event called OVERPRINTING must have happened at the incorrect date. This may involve something like water leaving younger deposits in the rock.
- *Other explanations* for variations in date can be employed:
 - Argon loss from the rocks samples,
 - sample contamination, and
 - presence of older feldspar which could not be visually distinguished from feldspar of the correct age.

These explanations cannot be directly tested, because they relate to events long ago.

Usually only the final results

Are published, without reporting all the messy intermediate data that failed to fit.

Because the theory of evolution is used as the unifying framework for the field of Paleo-anthropology, the “good dates” for rock dating experiments are the ones that fit the theory.

In the first edition of Dr. Lubenow’s book, he details one set of messy data that did reach publication.

An Interdependence example: The Lake Turkana KBS Tuff

Here is what happened.

- Animal fossils were found near the Lake Rudolf (Lake Turkana) KBS Tuff—a layer of volcanic ash. That tuff was dated in 1969 as forming between **212 and 230 million years ago**. (This is far outside the age range for the human evolution story.) The date was published and accepted.

Along Came KNM-ER 1470

Then a modern human appearing skull called *KNM-ER 1470* was found. Scientists started re-testing the rock, because the original dates were far too old for the skull.

After removing material from the sample that was thought to be entrained older rocks, the next age range for the Tuff measured by radiometric dating was between 2.35 and 2.87 million years ago, averaging **2.61 million** years ago.

□ In 1972, that age range was confirmed by another researcher, based on vertebrate fossils found there.

Between a rock and a hard place...

- Then in 1974, they measured the age for the rock stratum just below the KBS Tuff, which should have been older than the tuff above it. The result was a date of 2.7 to 3.0 million years ago.
- Also in 1974, another rock stratum below the KBS Tuff was dated at **1.75 to 1.8 million** years ago -- **younger** than the KBS Tuff -- but this discrepancy was attributed to overprinting.
- The new team re-measured the KBS Tuff and found dates for it between 0.52 and 2.64 million years old.

Results:

- Taken together and averaged, how old did that make the KNM-ER skull? **Around 2.9 million years old.** But that is too old for evolutionary theory and the modern nature of the skull.
- How did they resolve this problem?

Keep testing until you get the right answer.

- Another researcher named G. C. Curtis found an age of 1.6 to 1.82 million years ago for the same rock strata.
- His date was eventually accepted by the scientific community because the **1.6 to 1.82 million years ago date** fit the skull and pig evolutionary schema. A certain type of fossil pig played the critical role in the accepted date of the *KNM-ER 1470* skull. Its teeth settled the 10 year old controversy.

Why did this get published?

- In this case, even though the tuff was volcanic, an index fossil was used for the official date.
- Because the hominid skull was found after the Tuff had been dated, the controversial dates were published, validated by other researchers, then rejected by other researchers.
- If the hominid fossils are the first find, and the dating of the rocks takes place later, the dating controversies are not as likely to reach publication as in this case.

What does all of this mean?

- ❑ **No real reason exists** to accept the reported dates for fossils and rock strata. The science is too uncertain and too interdependent with evolutionary theory to be accepted at face value.
- ❑ If evolutionary theory is in question, the dates reported for rocks are part of the question, not part of the answer.

We should not assume

- The scientists are intentionally trying to deceive in these matters. Their use of the theory of evolution as the knowledge framework for their field causes them to try to reconcile messy data with the framework.
- However, we should realize that using human evolution as their knowledge framework **biases** their results. Dr. Lubenow has been a great help by documenting the scatter in the data.
- The scatter in the data effectively shows the framework to be false. Even more scatter would appear if all the messy data were reported.

Homework

In 3 sets

Homework Class 11 Set 1

Read Psalm 139 and John 9:1-41. If God selects the chromosomes & oversees gestation for creating each individual, do people with congenital handicaps matter to Him? How does their worth compare based on special creation as a basis for human worth, versus evolution as a basis? If God will eventually judge each individual for eternal destiny, should **eternality** have a voice for the value a society places on human life?

Homework Class 11 Set 1

- Read Chapters 14 & 15 in BONES OF CONTENTION.
- How did survival of the fittest prove itself morally bankrupt in the matter of the Tasmanian aborigines?
- How did Adolf Eichmann justify his cruel genocide toward 5 million Jews when he was approached by a chaplain to prepare for death?

Homework Class 11 Set 1

- Surely we can see the vital importance of providing evidence of God's special creation of human beings to the next generation!!! Surely we can see the vital need to stop the train wreck of materialist philosophy that has taken over the public square.
- Consider the steps in evolutionary thinking that motivated Hitler's final solution.

Homework Class 11 Set 1

- Hitler saw the Jewish people as genetically inferior to the Germans. If they continued to coexist with the Germans, he thought their genes would “pollute” the German gene pool and stop evolutionary progress of the “master race.” His final solution was a way to solve what he saw as an evolutionary problem. This is called “social Darwinism.”
- Any supremacist can take a similar approach based upon evolutionary theory.

Homework Class 11 Set 1

The difficulty with this horrifying kind of racism is its consistency with the theory of evolution. If death of the unfit brings evolutionary progress, what is our basis for human rights? Dr. Lubenow makes the point that current evolutionists whom he knows are not personally racist. They are choosing to avoid racism on some other philosophical foundation than evolution, and they are choosing the out of Africa theory for human evolution because of that prior decision.

Homework Class 11 Set 1

- Evolution as an origin story does not give a basis for human rights. Even the *out of Africa theory* does not give a good basis for human rights, because it carries with it no overarching moral universals.
- What was the first problem with the out of Africa theory of human origins?

Homework Class 11 Set 1

- What are the three facts about human beings found in the Biblical worldview that give us human rights?
- Here is a fourth fact – that God demonstrated the high value He places on us by the rescue from evil that He offers us, and the very high price He paid to accomplish that rescue.

Homework Class 11 Set 2

- Read the description of the height of Goliath in I Samuel 17:4-7. Does the variation in heights we see today on the earth, such as a comparison of pygmies with basketball professionals, and corresponding variation in skull size, tell us anything about variations in skull size as indicators of humanness in fossils?
- Read Chapter 16 in BONES OF CONTENTION. What did Rhodesian Man fossils look like?

Homework Class 11 Set 2

- Was Rhodesian Man's skull highly mineralized, since it was found in a zinc/lead mine where other fossils were so mineralized that the miners smelted them?
- What was the original estimate of its age?
- Fill in the table:

Homework Class 11 Set 2

Researcher and time of research	Estimate of Rhodesian Man's age	Facts which support his view
Arthur Smith Woodward, 1921		Bone tools and modern animal fossils
Carleton Coon, 1962		Radiocarbon date of Saldanha site elsewhere in Africa with similar skulls
Richard G. Klein, 1973		Extinct animals at site
Ian Tattersall, 1999		Out of Africa model requires it

Homework Class 11 Set 2

- Bear in mind that fossils can ALWAYS be younger than their site if they are found in a cave, since they could have been visiting an old cave when they were alive.
- What point does Dr. Lubenow make about this “rapid aging” of Rhodesian Man?
- If you read an account of Rhodesian Man in the newspaper, do you think the article would present the information in the table, with an explanation of the uncertainty of Rhodesian Man’s age, or do you think the newspaper would present the latest theoretical age as fact?

Homework Class 11 Set 3

- Read Jeremiah 27:5.
- What is the implication of God's creative power mentioned in this verse? What does that imply about our approach to God? What does it imply about the approach to this study of BONES OF CONTENTION?
- Read Introduction # 4 and Chapter 17 in BONES OF CONTENTION.
- What happened to the last six members (from oldest to youngest) of the "parade of human evolution" when the African Eve idea of human evolution came along? Fill in the table.

Homework Class 11 Set 3

Fossil

What Happened due to new African Eve Theory?

Early Homo Sapiens from Swanscombe and Montmaurin:

Solo Man from Java:

Rhodesian Man from Africa:

Neandertal Man:

Cro-Magnon Man:

Levels of certainty about each fossil's place in the parade of human evolution

Homework Class 11 Set 3

- Does this sound like “human evolution is a fact?” What are problems with the “out of Africa” data analysis?
- How does the assumption that humans came from a chimpanzee-like creature drive the results of molecular genetics?
- Even though the African Eve study is based on numerous flawed assumptions, and on the first attempt at locating our “first woman” ancestor, it placed that ancestor in the wrong location from the Bible’s description, what *positive results* from a creationist standpoint are found in the out of Africa theory of human origins?

Homework Class 11 Set 3

- Compare the times of divergence between human lineage and chimpanzees, and times for human/hominid “side chains” to diverge, according to the evolutionary scheme.
- The estimate is 5 to 7 million years ago for chimpanzee-human line divergence versus 200,000 years ago for fully human emergence, according to the theory.
- What does this tell you about the relative genetic difference from human to human versus chimp to human? What percent of 6 million is 200,000?