Searching for the Sacred Laws of Nature

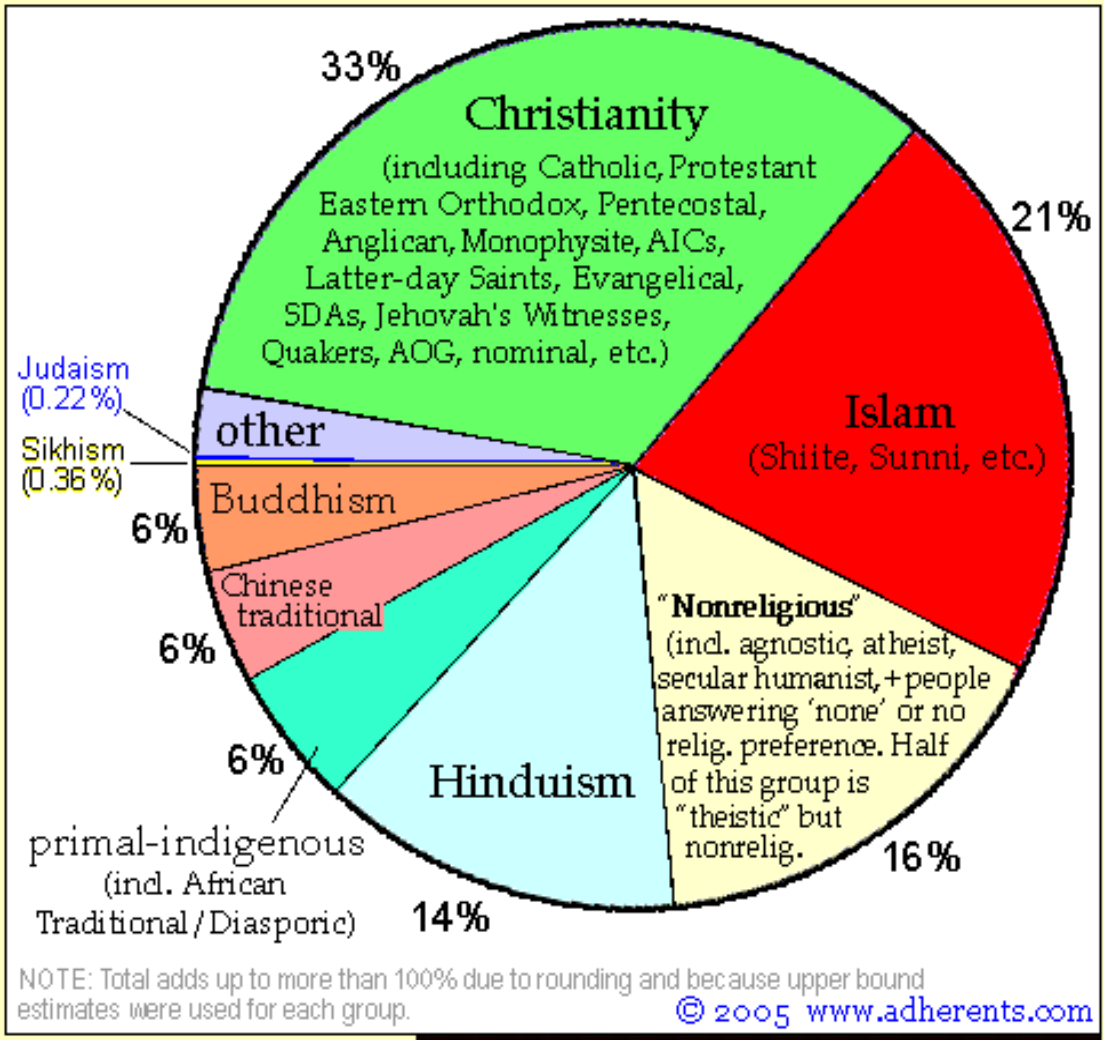
SLON1002

- A lecture by Chris Peek a radical monotheist engineer who believes God exists by being one with the sacred laws of nature.
- An introduction by John Haydel, a secular humanist educator with a belief that the laws of nature are naturally determined, but deserve reverence
- *(meaning deep respect or devotion)*

Determinism to Monotheism

- I was a determinist engineer
- The last 5 years changed me to a monotheist.
- From Newton to the sacred laws of nature.
- Science recently closed the gap between the theoretical and the sacred laws of nature.
- The 17th century enlightenment era generated science religion compatibility only to be destroyed in the 19th century.
- The late 20th and 21st century allows a return to religion/science compatibility.

World is 84% Religious, 16% Nonreligious



This shows the major religions of the world approximately ranked by the number of adherents.

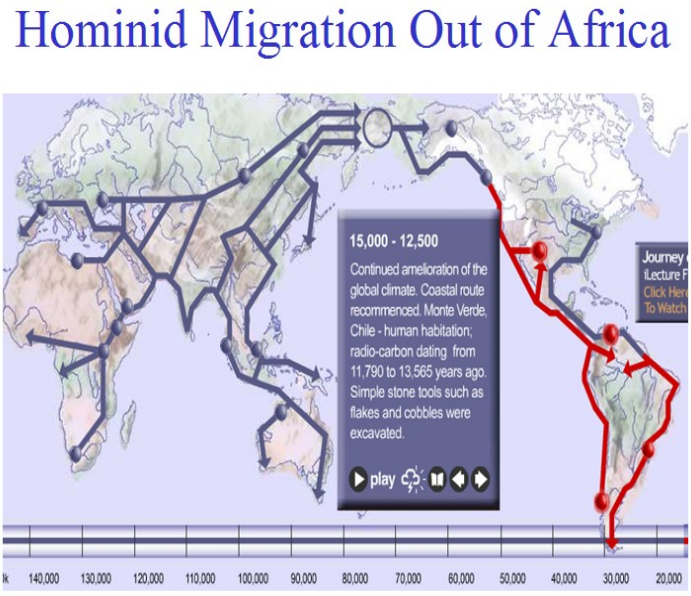
New Secular Trend

- Richard Dawkins, "*The God Delusion*"
- Stephen Hawking, "*The Grand Design*"
- The mind/brain dualism
- Gödel and limits of mathematical truth
- The impact of human consciousness on the theoretical laws of nature

We were almost extinct.

Ogden's Seaside Home
123,000 Years Ago

Ogden's progeny took these Routes to Europe, Asia & America



This story shows how Homo sapiens increased their survival chances by utilizing their unique ability to partially understand the universal laws governing their environment.

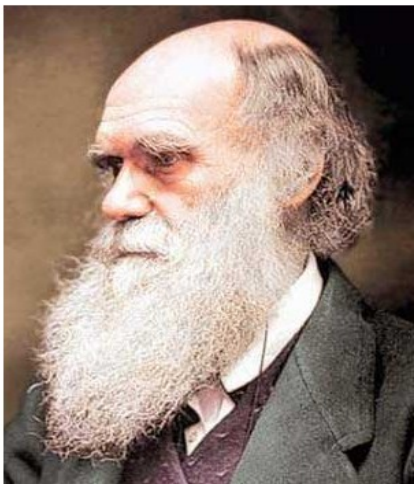
The Scientific Method

Sir Francis Bacon (1561 - 1626)

Isaac Newton
1643-1727

- In the early 17th century Bacon created the scientific way to understand the laws of nature.
- Newton used this method to create and evolve the universal laws of motion.
- Intellectuals sat in coffee houses talking of how God used science to create and control the World. There was no conflict between religion and science, just war between religions.
- Theories were later found to be correct only for limited conditions.

Progress Toward Understanding the Universal Laws of Nature 19th & Early 20th Centuries



Charles Darwin
1809-1882

Albert Einstein
1879-1955

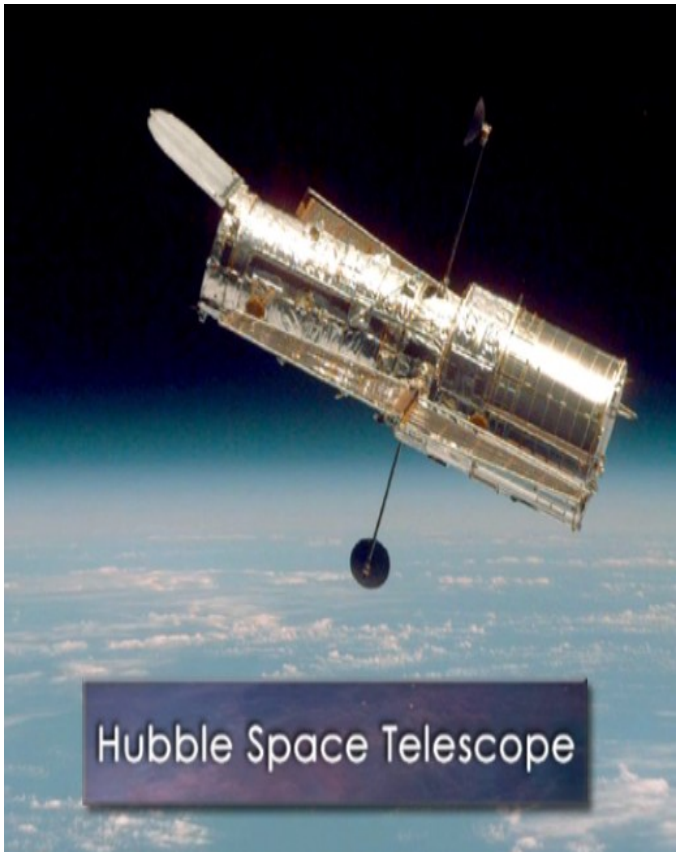
Niels Bohr
1886-1965

- Darwin's "Origin of Species" 1858 revolutionized our understanding the evolution of life.
- Einstein's quantum theory of light, 1905 and general relativity, 1915 increased our understanding of the laws of nature.
- Bohr invented quantum physics. Einstein who never accepted the theory and argued with him for 3 years.
- Science and religion parted ways.

Postmodern Advances

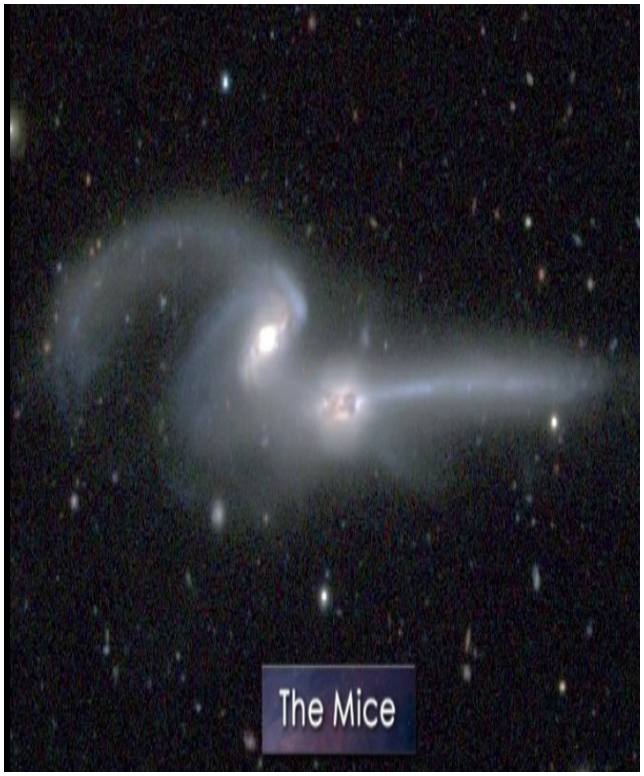
- Three advances in instruments and three in theory accelerated our understanding.
- The improved instruments were: the updated Hubble telescope, WMAP satellite probe, and the large hadron collider.
- New theoretical discoveries were quantum effects on the CMB, inflation new developments in self organization theory and very important human brain, mind and consciousness discoveries.
- Let us now take a quick look at these new instruments and theories.

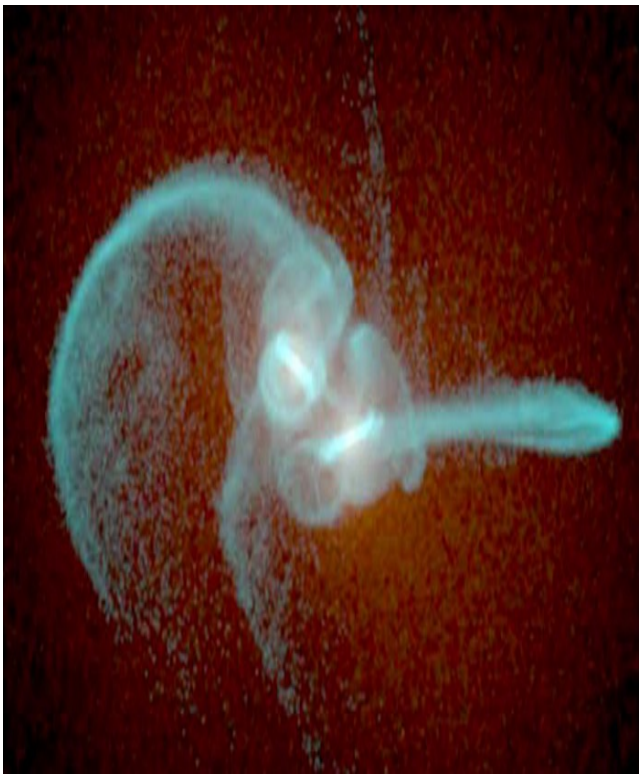
The updated Hubble Space Telescope



- Astronauts installed new optics in 2009
- Accurate guidance servos installed.
- Colored filters allowed galaxy age measurements.
- Galaxy pictures 1 billion years after creation.
- It confirmed the Big Bang Standard Theory.

Do the New Theoretical Laws of Nature Apply Universally?

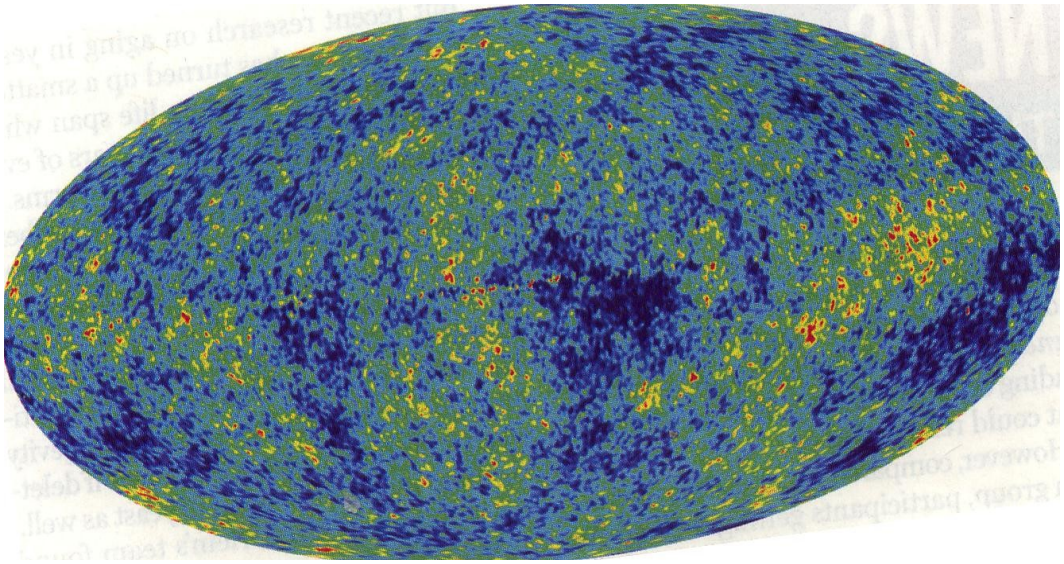




Hubble Actual Picture **Computer Simulation**

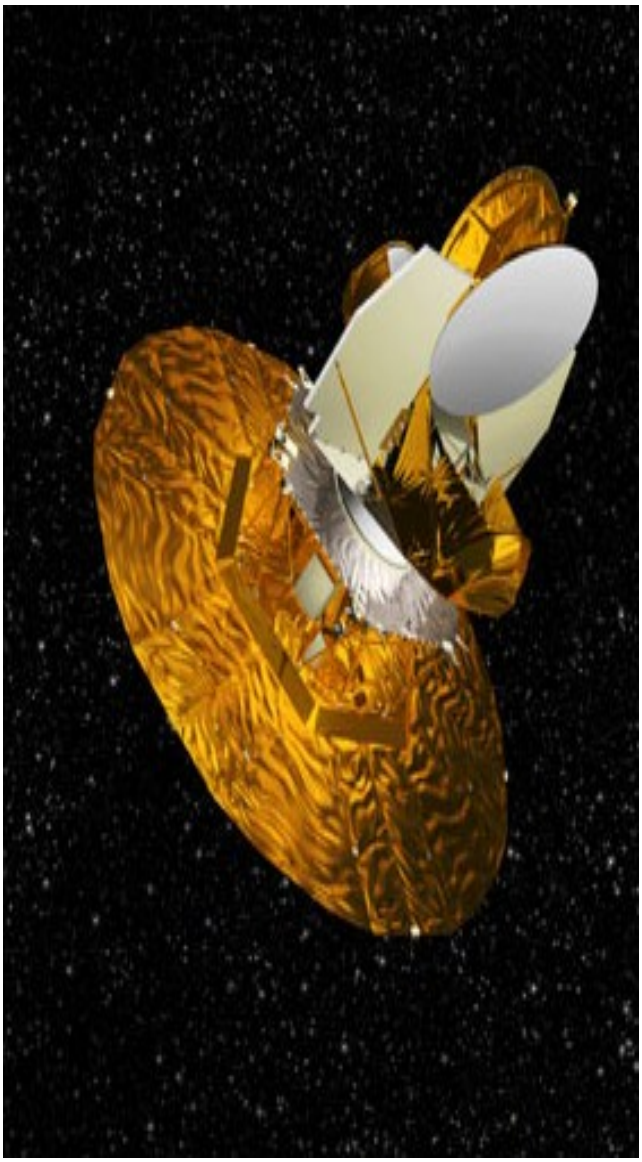
- Hubble space craft had new spectral photometers, filters and superior optics. It took the picture on the left of two galaxies colliding one billion years after Creation.
- The other shows a computer display that was based on algorithms obtained from the cosmic background radiation 380,000 years after Creation.

Cosmic Microwave Background (CMB)



- This represents a picture of the radiation that filled the Universe 380,000 years after the Big Bang.
- This radiation was predicted by George Gamow before its discovery by Wilson and Penzias of Bell Labs.
- A Nobel Prize was granted to the experimenters not to the theorist George Gamow. Theorist Einstein also did not receive a Nobel Prize for relativity.
- Data derived from the CMB enabled science to predict what would happen in the future and the past.

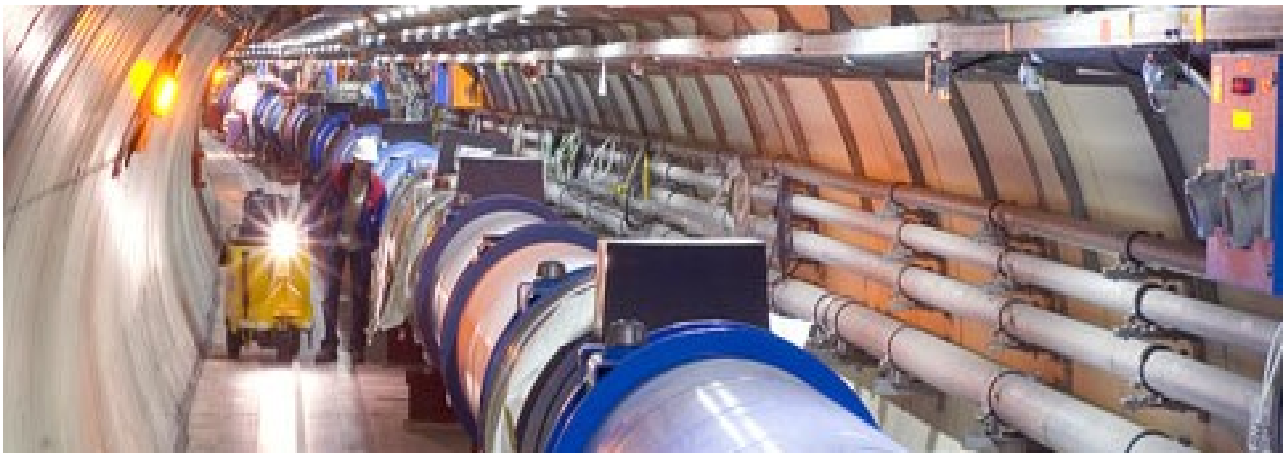
The WMAP confirmed the Universe was Isotropic, Homogeneous & Flat.



Wilkinson Microwave Anisotropy Probe, WMAP

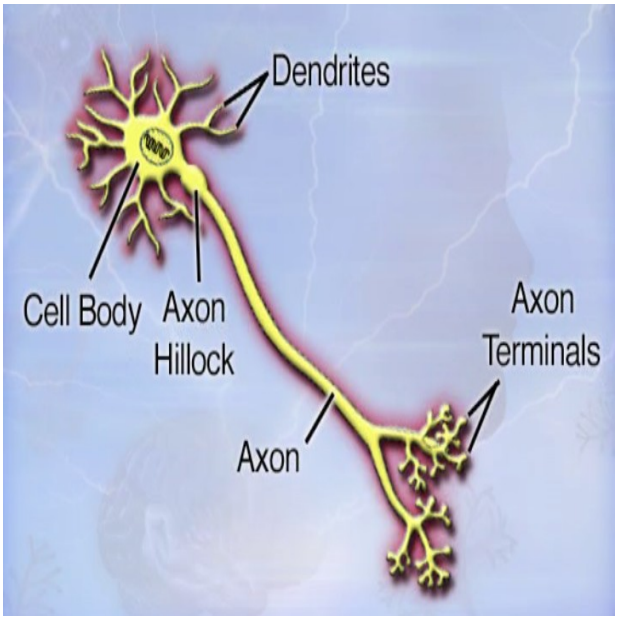
- Isotropic: the same in all directions
- Homogeneous: same structure everywhere
- Flat: Euclid geometry applies throughout
- The WMAP proved the universe has all 3 of these on a large scale
- How? By measuring the radiation from the cosmic microwave background, CMB.

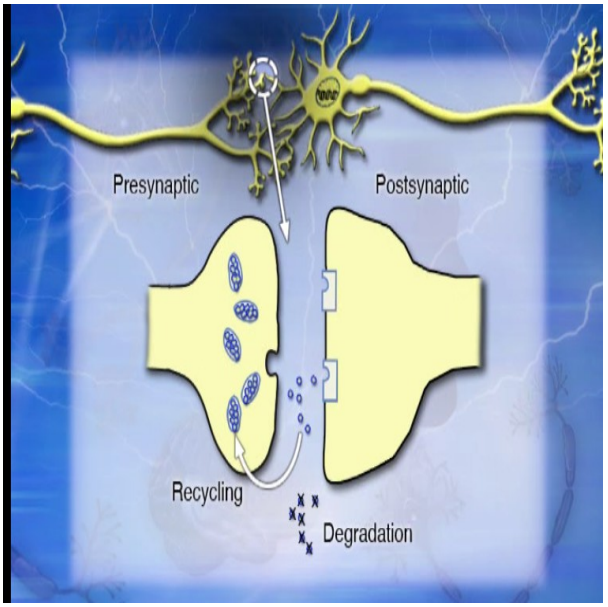
Particle Colliders



- This is a picture of large hadron particle collider, LHC in Switzerland
- Proton particles are sent on a circular track 17 miles in circumference at near the speed of light and then collide with another proton moving in the opposite direction.
- New particles are then produced that will either confirm or disprove the standard particle theory and may prove the existence of the Higgs particle.

The Unique Human Mind/Brain Function

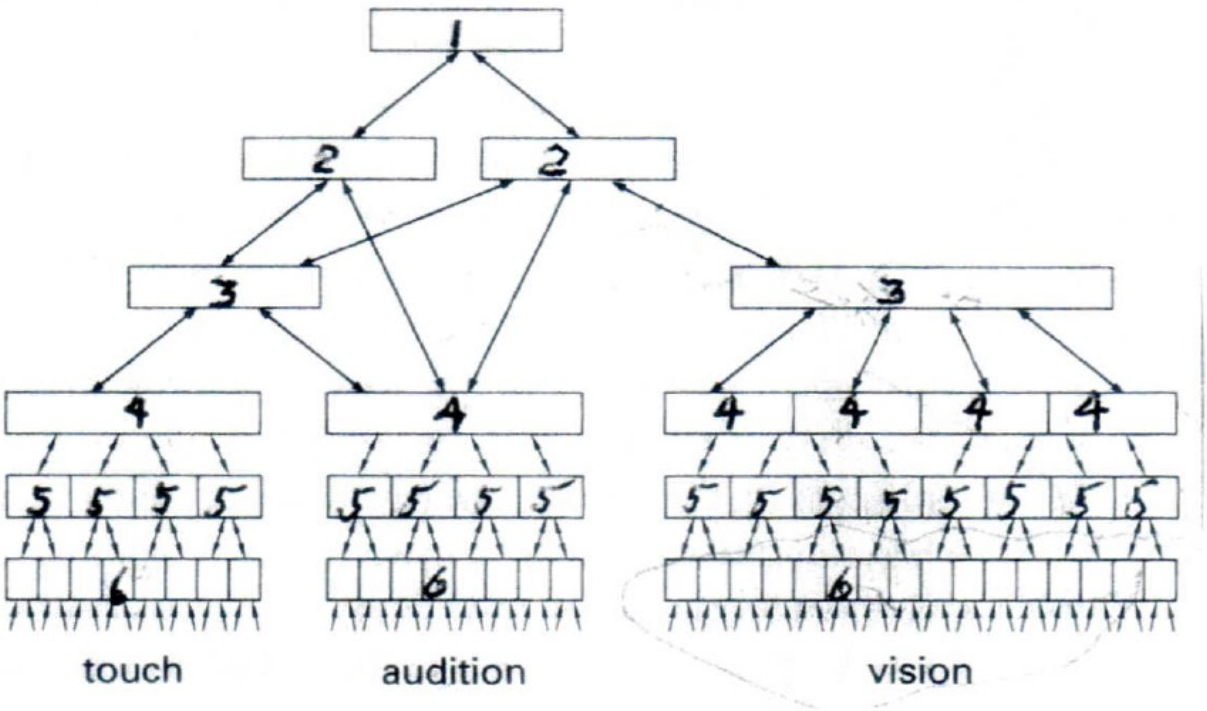




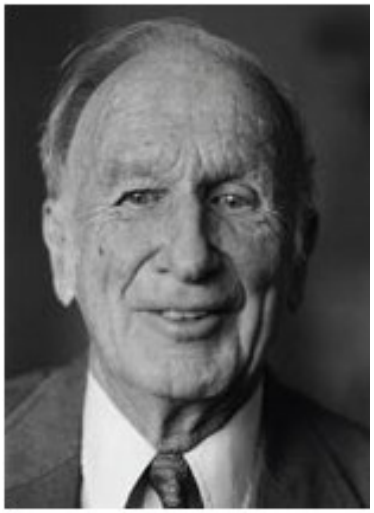
All the dendrites (upper left) are shown as being excited by other neurons and the signals are accumulated by the neuron to produce a signal large enough to exceed the threshold of the axon Hillock. All the axon terminals are therefore excited and send signals to all the neurons to which they connect.

This shows one of the 30 trillion synapses human brains have. Transmitter fluids are generated by the synapse at the end of a neuron's axon to the left. This fluid flows to the right where enter the input to the dendrite of the neuron to the right. The fluid may be mixed with hormones coming from blood stream.

The Cortex Hierarchy



Recent Accelerated Understanding of the Laws of Nature



Edward Lorenz

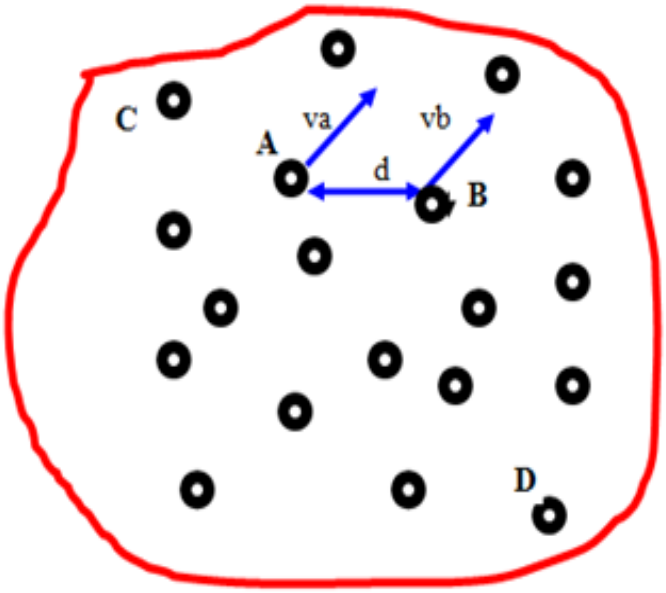
Strange Attractor

- Alan Guth, MIT physicist completed the Standard Inflationary Hot Big Bang theory.
- Edward Lorenz a meteorologist invented self organization theory which involved a strange attractor in the shape of butterfly wings.
- They helped to understand the two most fundamental laws of nature, quantum theory and self organization.

Self Organization

* A meteorologist, Lorenz was contracted by MIT to study hurricanes by the then new computer science.
- He wrote a program for his early computer that then predicted a hurricane just as he planned.
- He then fine-tuned his program by a small change of only .01%. Low and behold, it predicted a blue sky. “Horrors, he must have made an entry mistake.” No!
- He had discovered Self Organization. (Some call it chaos theory others complexity theory.)
- I maintain that Self Organization may approximate the first fundamental component of the *sacred laws of nature*

Self Organization One of the Sacred Laws of Nature.



Self Organization: Large complex networks of interdependent elements may evolve into systems of increased ordered complexity some of the systems that are well adapted to their environment will be selected for survival.

Simple relationships between elements leads to the whole system becoming ordered. This will be explained more fully in the handout booklet.

Quantum Theory

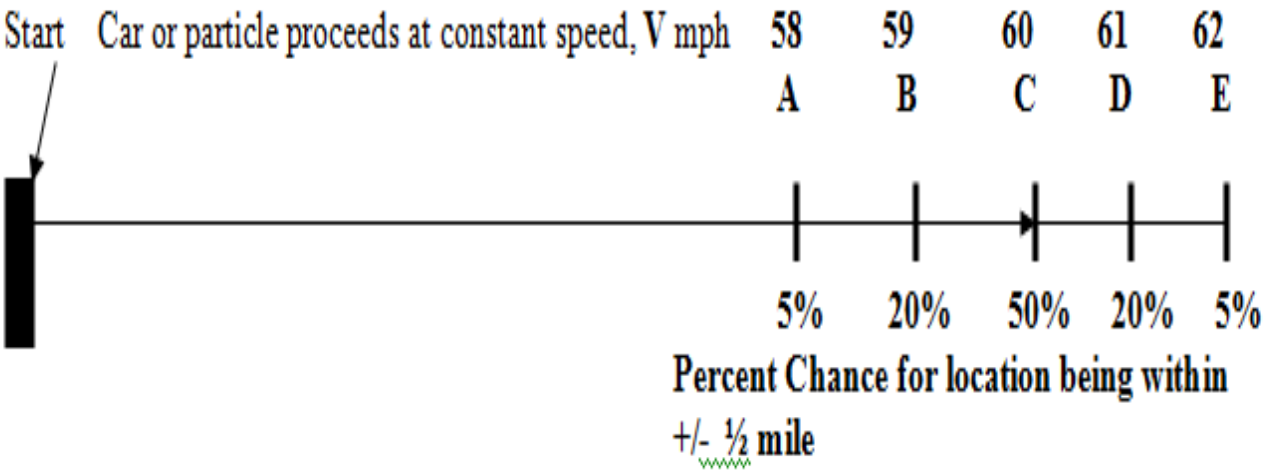
Einstein Bohr

Died trying to prove that God did not play dice.

Maintained that atomic sized particles were probability fields.

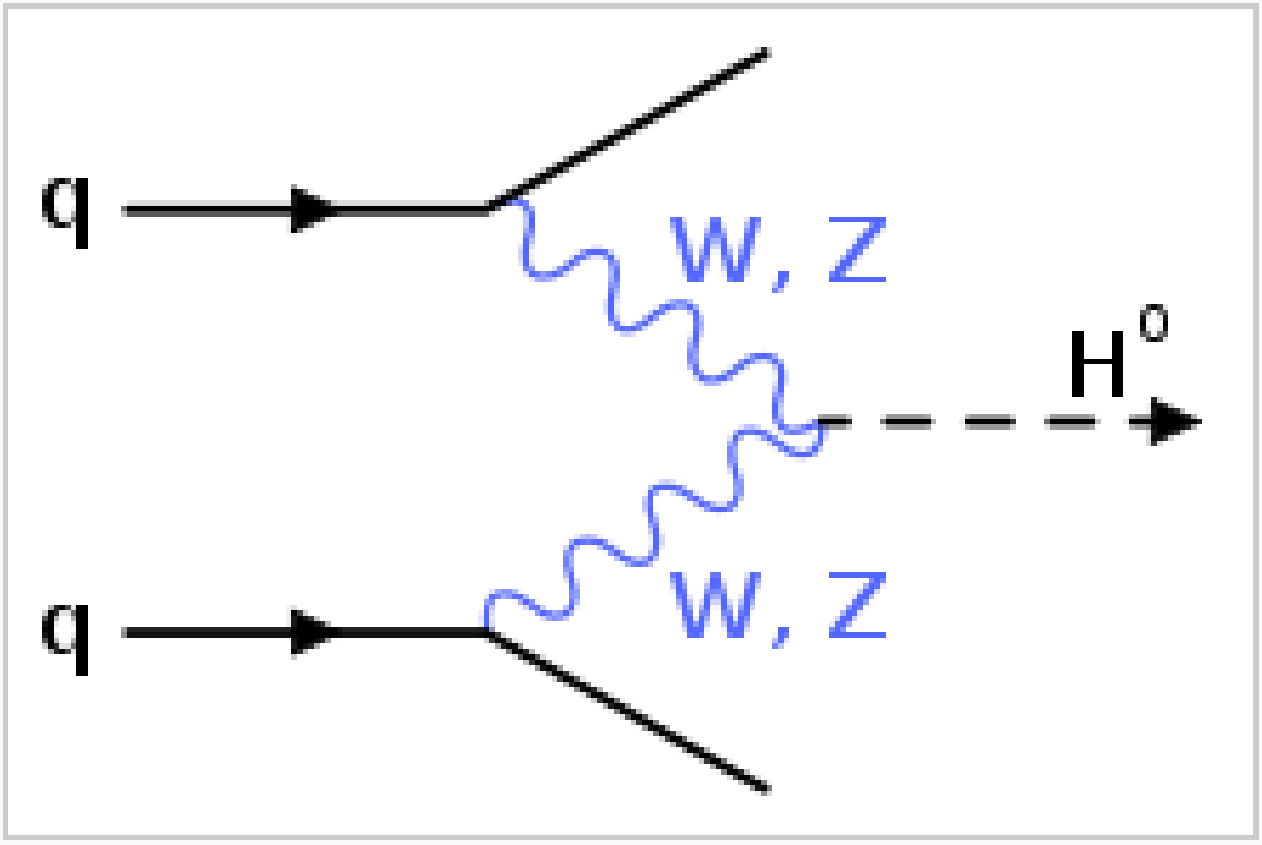
- Einstein did not agree with Bohr that nature was based on probabilities. His famous quote: "*God does not play dice*".
- But Bohr's quantum physics was proven to be based on probability and became accepted as a component of reality.
- Scientists during the last decade have advanced quantum theory to the point where it becomes an approximation to the other component of the *sacred laws of nature.*
- Some of the Weird effects are:

Quantum Theory



- An automobile then an atomic sized particle take off from the start. Observers down the road would observe the car where it should be but their detectors would report only the probable location of the particle. It might be somewhere else at the same time.
- Atomic sized particles are in the unintuitive, weird quantum world. Measurement only helps to determine probable locations.
- When measured they most likely will be where you would expect them to be but they maybe somewhere else.

Feynman Diagram

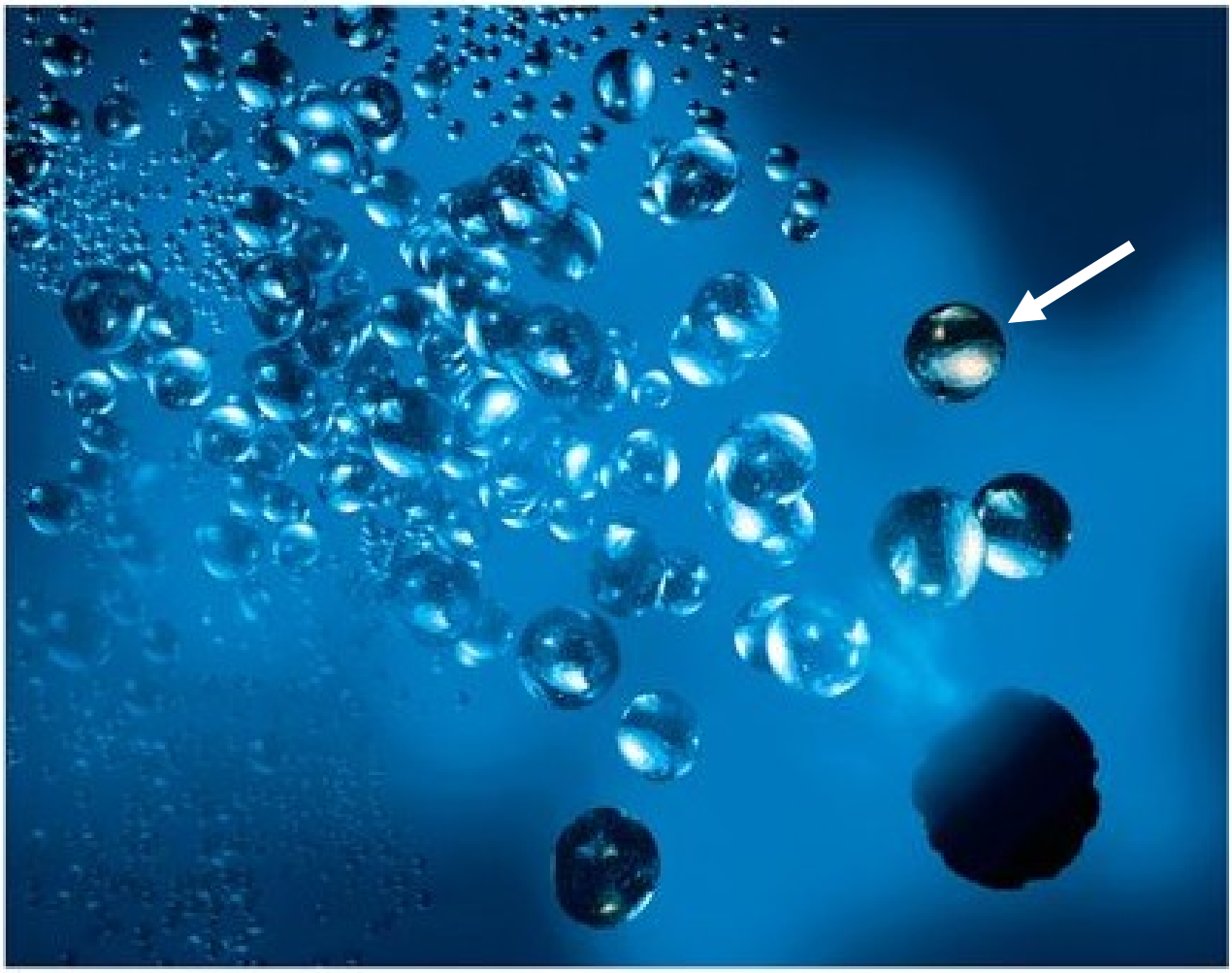


A Feynman diagram of one way the Higgs boson may be produced at the LHC. Here, two quarks each emit a W or Z boson, which combine to make a neutral Higgs.

Physical Origins

- I'm about to explain what post modern physicists speculate how Creation came about.
- What happened during the first billion, billion, billion billionth of a second can only be guessed since our current laws of physics do not apply for that time nor can we make measurements then. Too hot!
- We suspect, however that something like quantum physics was actively creating what later became our Universe ready for life 9.7 billion years later.
- We do have more reason to guess how quantum physics worked after 1 Pico-sec after Creation since these theories have recently been experimentally confirmed but they can only speculate from 10^{-43} to 10^{-12} seconds.

Multiverse Theory

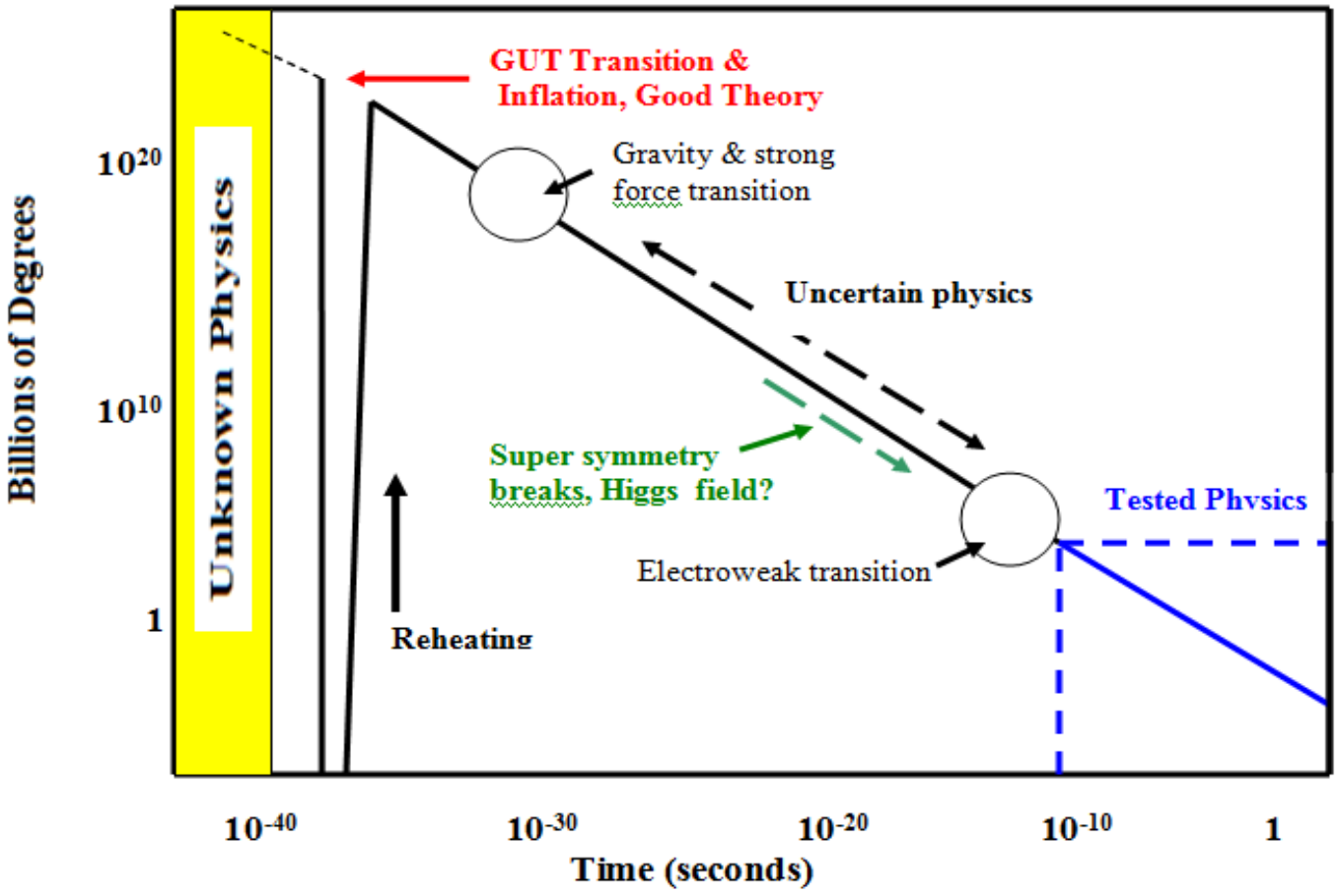


Multiverse Quantum fluctuations lead to the creation of tiny universes out of nothing. A few of these reach a critical size, then expand in an inflationary manner, forming galaxies, stars, and, in at least one case, beings like us.

From Hawking's book *"Grand Design"* This all happened before 10^{-43} seconds. God selected one of these for his undivided attention. He didn't give a damn for the others.

Inflationary Big Bang

from 10^{-21} sec to 1 Pico-sec



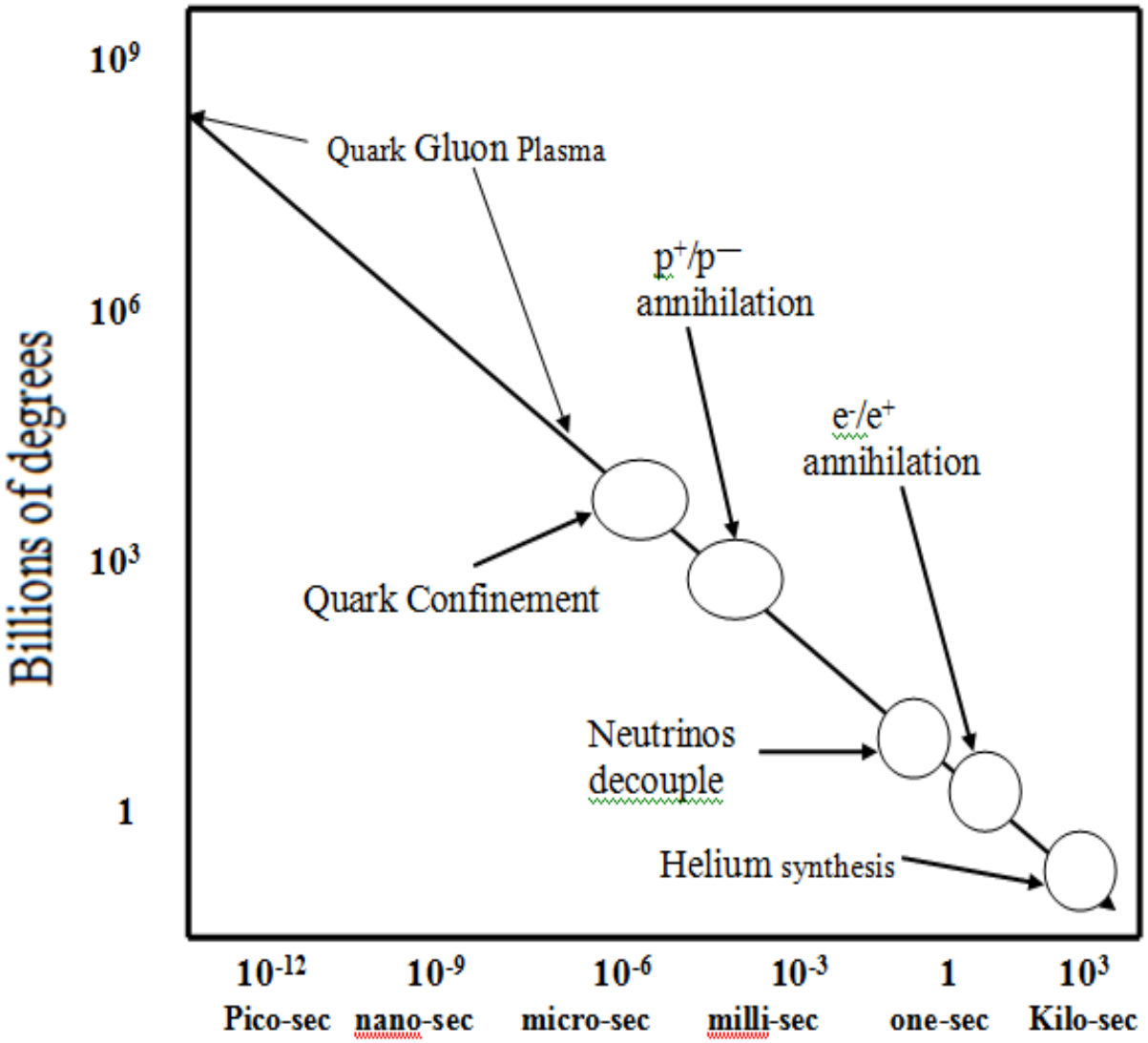
- No colliders can reach temperatures above those that produced the separation of the electromagnetic and weak forces at 10^8 billion degrees.
- Most of this chart therefore shows uncertain theoretical estimates.
- Inflation theory solved many problems in the standard Big Bang theory.

Theories were Confirmed by Experiment After 1 Pico-sec

- We now know rather reliably the mathematics of how how quantum physics worked from 1 Pico-sec to life 9.85 billion years later.
- The cosmic microwave background shows a pattern that matches the calculated effects of quantum physics.
- If it weren't for quantum fluctuations we would have no stars or planets and for sure no us.
- Quantum effects produced one part in100,000 of non uniformity. It was all that was necessary for stars to form.
- Next slide will show what happened during the Universe's evolution from 1 Pico-sec to 1,000 seconds.
- This is what is called the Big Bang standard theory.

The Standard Big Bang Theory

from one Pico-sec to on thousand seconds



After 1 Pico-sec since Creation experiments have confirmed what we see in this chart.

Confirmed Theory from 1 Pico-sec to 1 second

- Gluon Plasma from 10^{-12} sec to 10^{-6} sec. quarks became free to roam.
- The quarks combined to form protons & neutrons at 10^{-5} sec
- The protons and antiprotons annihilated each other accept one out of every billion survived to form our visual Universe.
- Neutrinos no longer collided with other particles. They were free to roam about uninhibited.

Confirmed Theory from 1 sec to1000 seconds

- Before 1 sec after creation, space was filled with electrons, anti-electrons, a few protons and energy in the form of photons and negative gravity.
- The temperature of 1 billion degrees was low enough for the electrons to combine with the anti-electrons forming the radiation that formed the CMB.
- At 1000 sec 1/3rd of Hydrogen fused into helium with a small amount of other light gases.

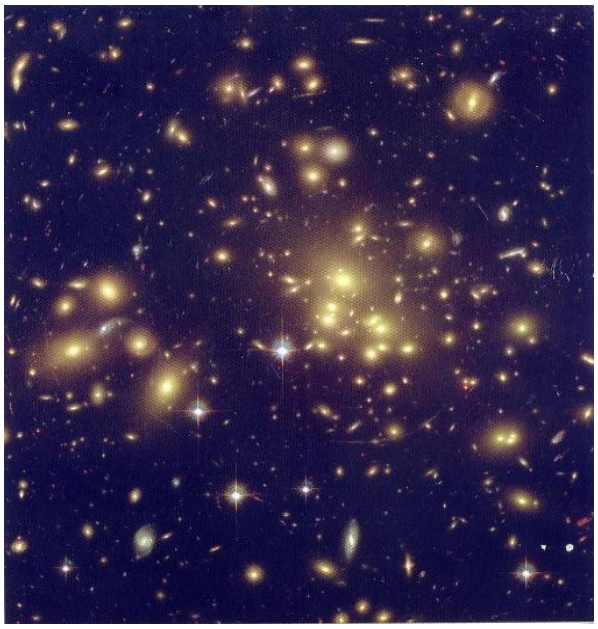
Physical Universe Development

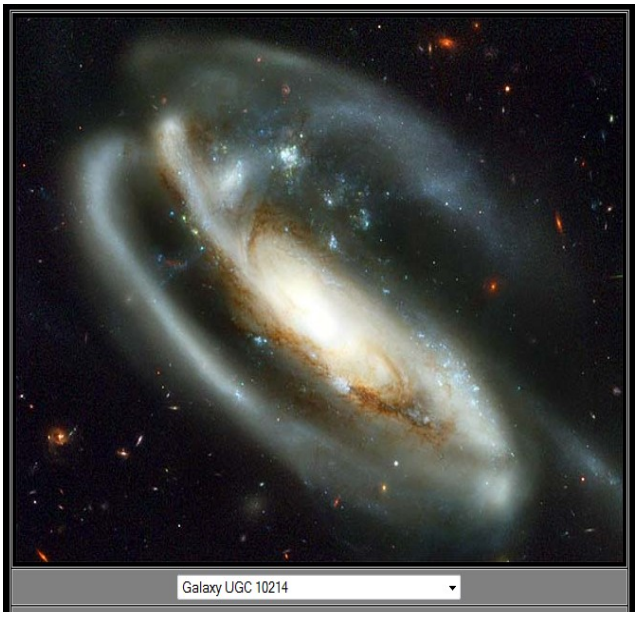
Chap. 6

From 1000 Seconds to 380,000 years

- During this period the four forces and atomic particles were independently expanding into the expanding space, 700 times larger than the visual universe.
- Electrons were weakly joining protons and neutrons forming ionized atoms, 90,000 years since Creation. No photons could pass through.
- At 380,000 years after Creation electrons orbited protons and neutrons forming atoms allowing photons to pass through.
- Atoms of Hydrogen and Helium clumped together forming a homogeneous and flat Universe.
- The Universe was formed ready to produce stars and galaxies and the elements needed for life.

Stars & Galaxies



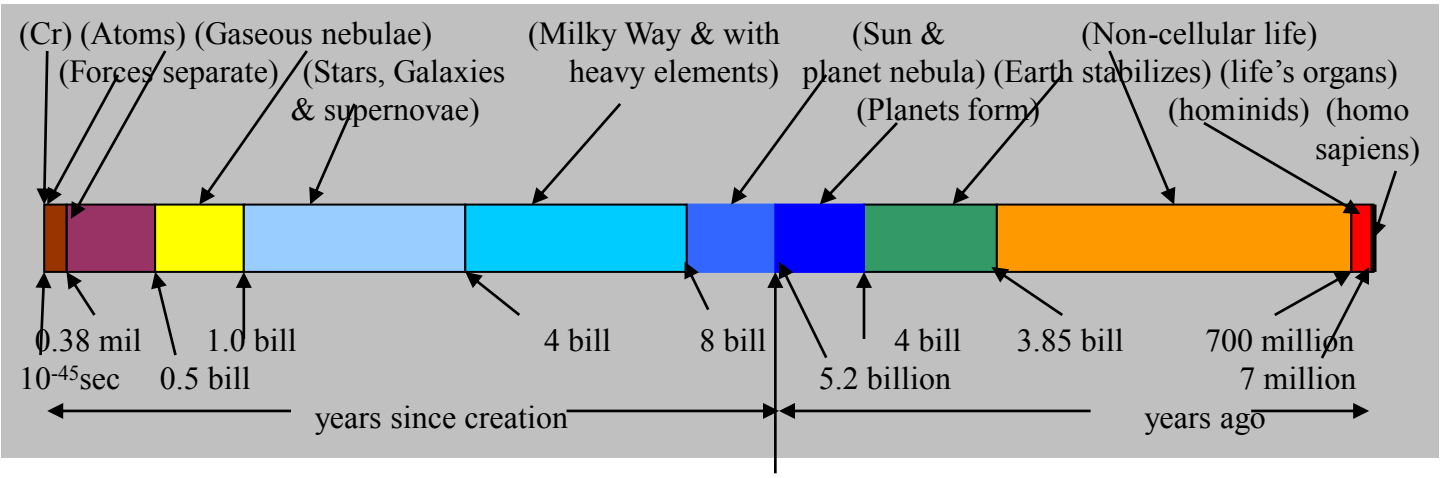


- Self organization used the simple gravity-mass relationships between galaxies to form organized patterns of gaseous nebulae, stars, galaxies and then galaxy clusters.
- Dark matter did more than just expedite this process it made galaxies and galaxy clusters possible.
- It all began a few million years after Creation.

Creation of Necessary Heavy Elements

- The simple light elements, hydrogen, 75% and helium, 25% were created 1000 seconds after Creation.
- Our kind of life needed heavy elements, carbon specifically.
- So nature/God used quantum and self organization to accomplish this miracle.
- Large stars many times the sun's mass fused hydrogen into helium then down the periodic table to carbon, oxygen etc and finally iron. It stopped there because iron nuclei repel more strongly than gravity attracts.
- After fusing to iron these heavy stars exploded sending our life needed elements into space.

Timeline the Universe



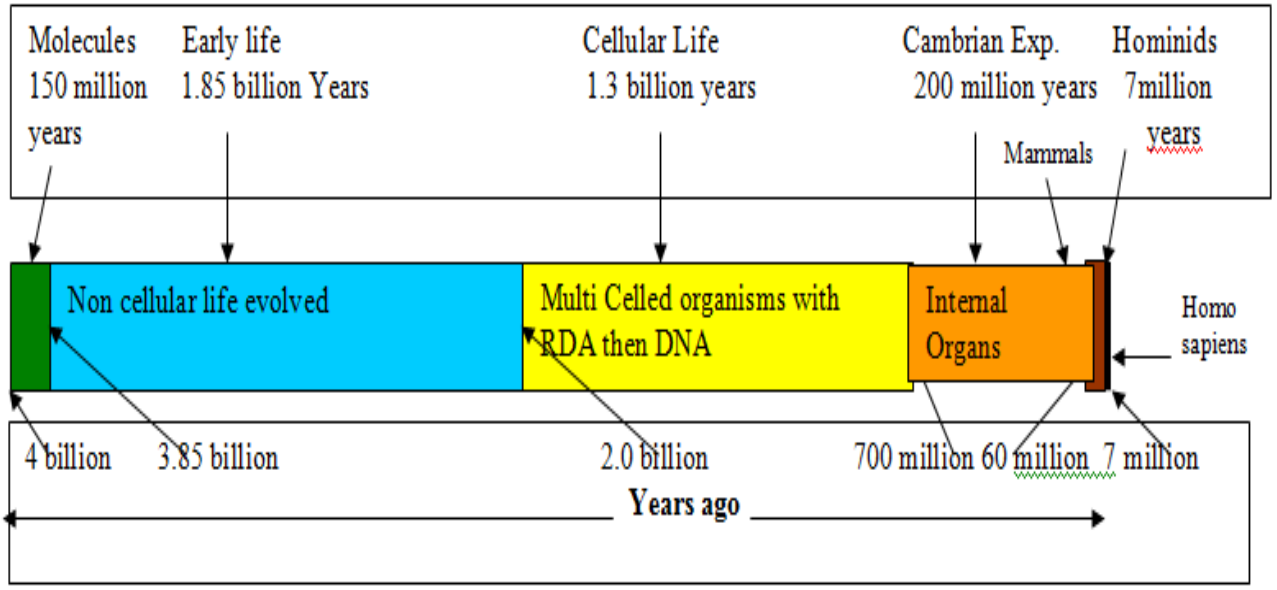
Then the Solar System & Earth

- 9.2 billion years after Creation or 4.5 billion years ago the Earth became a solid sphere within the solar system.
- It was ready for life 3.85 billion years ago.
- Self organization and quantum theory worked together to evolve the first cellular life 2 billion years ago.

Life's Origin & Evolution

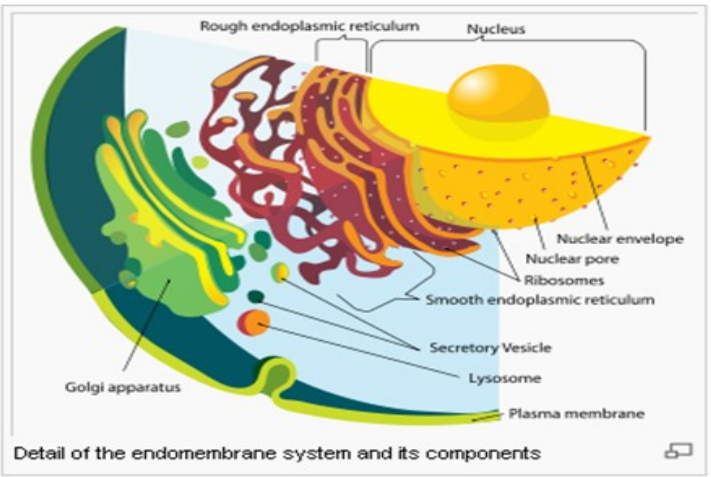
Chap. 7

Life's Timeline



Eukaryotic Cells ate Prokaryotic Cells (2 bill ya)

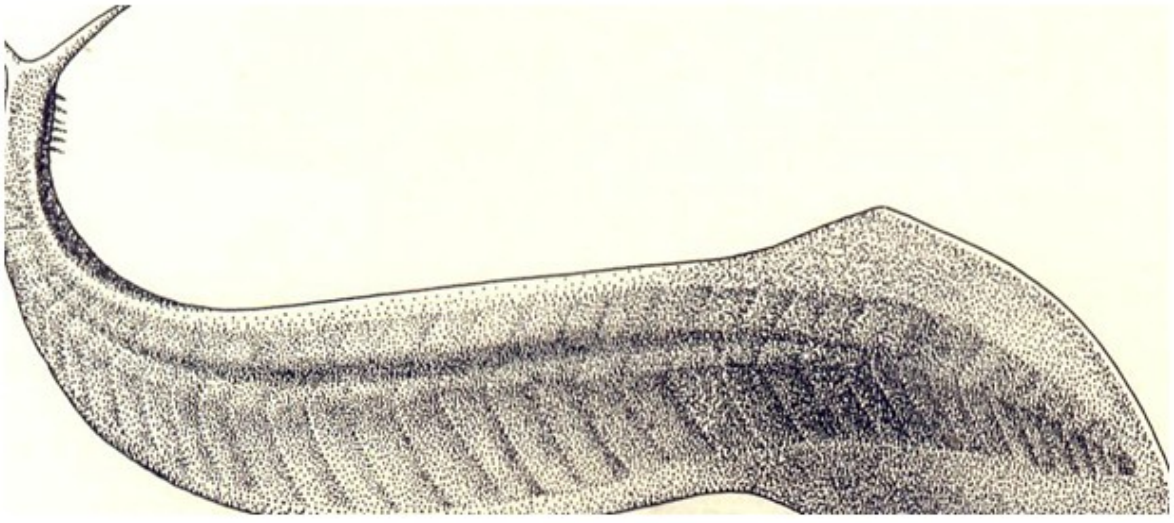
Timeout! This says it all!



Genesis 1: 1 Heaven & Earth=5.2 bya,
2 wasteland=4.0 bya, 3 light=13.52 bya,
20 animals= 600 mya, 26 man = 7 mya

Cambrian Explosion

Our Ancestor 500 Million years ago



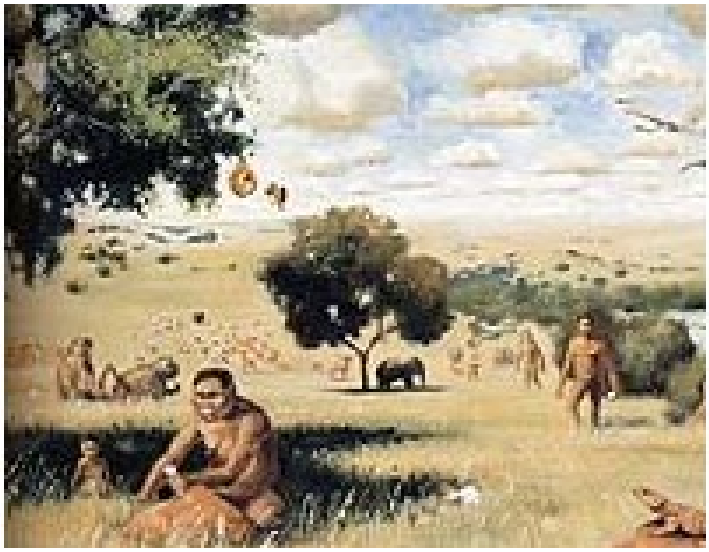
Pikaia$_5$ Fig. 8

- This Pikaia had a backbone similar to ours and internal organs.
- It was one of the rare survivors, ½ percent of all other creatures that evolved during the Cambrian Explosion from 700 mya to 220 million years ago after which land animals evolved.

The Sacred Laws of Nature evolved us.

- Large mammals were a small percentage of the dinosaurs that lived 70 million years ago.
- Proto-primates developed the 1st forward looking eyes, 45 million years ago.
- To the right is Lucy our ancestral australopithecus hominid 4.2 million years ago. Wasn't she beautiful.

Hunters and Gatherers

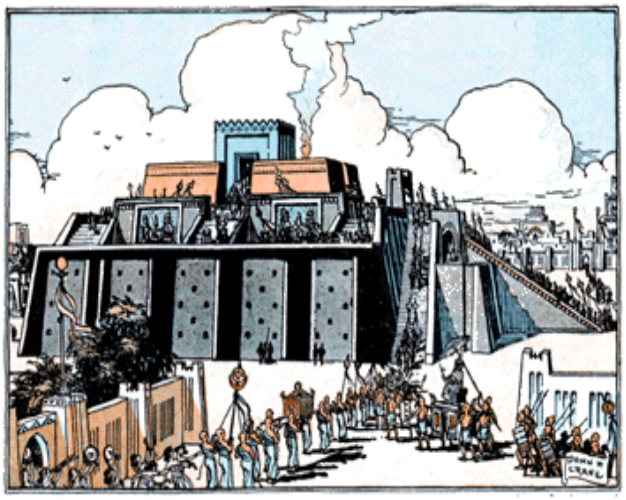


- These Homo sapiens dated about 9,000 years ago were ascendants from Ogden's east African groups that had migrated throughout the world after the glaciers melted.
- Their tool making and cooperative hunting led to small tribal villages.
- They were on their way to civilization.

Civilization's Origins

- River valleys allowed and encouraged civilization to form.
- Polytheistic religions also formed in these areas. Emperor Gilgamesh established certain religious traditions such as an Ark to save everyone including animals from the flood.
- These civilizations were relatively stable and peaceful from 3000 bce to about 2000 bce when vicious warfare became common.

Civilization Wars & Religion



- Then cities became forts.
- Religions became aggressive, from the Trojan wars in 1184 bce and the Crusades 11th to the 15th centuries.
- After Christianity began in 300 ce, and Islamism in 600 ce Christians battled Islam and they are still battling.
- Then in the 17th century Protestant Christians began battled Catholic Christians and that lasted for 100 years.

Does human suffering negate the sacred?

The long tale of human misery and suffering has also to be treated with the most profound seriousness. It is precisely as it struggles with these difficult issues that theology manifests itself as being a truth seeking and rational form of human enquiry.

John Polkinghorn

My friend who was an agnostic and a skeptic once said: “There are no atheists in a fox hole.” We all, some day will be in that fox hole of life and most of us at that time will believe in God.

Conclusion

This cross appeared on the hospital's entrance wall during my wife's last few days. Did God put it there by using his sacred laws of nature? I think so, but I will concentrate on God's reasons for putting it there.