



August 26-27, 2011

Rev. Gail Collins-Ranadive  
Milt Hetrick

Awakening the Cosmos Within:  
Preparing Ourselves for the Great Work of Our Era

# Awakening the Cosmos Within:

Preparing Ourselves for the Great Work of Our Era

Rev. Gail Collins-Ranadive

Milt Hetrick

## Friday Evening

*Ingathering/Overview*

**7:00 PM**

**The Universe Story/ Big History/ Epic of Evolution/ History of Nature**

*Slide Show (Milt)*

– *Going Back 13.7 Billion Years*

**“Out of the Stars”** by Robert Weston

Reading **8:00 PM**

**Discerning your Elemental Self: *Light, Earth, Air, Water***

*Writing Exercise (Gail)*

## Saturday Morning

*Opening and Check In*

**9:00 AM**

**Embedding ourselves in the Story:**

*Writing Exercises (Gail)*

Cosmic Differentiation, Subjectivity, Communion

Time's Dimensions: Everyday, Eternal, Emergent

Deep Time / Sacred Space / Quantum Self

Reframing Past, Present, Future

*Lunch*

**1-1:30 PM**

# Awakening the Cosmos Within:

## Preparing Ourselves for the Great Work of Our Era

### Saturday Afternoon

#### What is the Universe Telling Us?

- General Observations from the Universe Story *Presentation (Milt)* 1:30 PM
  - Expanding, Cooling, Calming, Emergence, Creativity, Complexity, Cooperation
- Energy Transformation / Life as the Flow of Energy
  - *From Light to Matter to Living Organisms to Differentiated Consciousness*
- Tree of Life / Right Relationships
- Spaceship Earth / Finiteness of Ancient Energy Resources / Infinite Recycling of other Resources

Reflections about the New Knowing

*Writing Exercise (Gail)* 2:00 PM

#### What are 7 Billion Humans Doing?

- Yesterday's Successes/Today's Issues/Tomorrow's Challenges *Presentation (Milt)* 2:15 PM
- Ecomorality – the Ethics of Sustainability
  - *an evolving tool for approaching tomorrow's challenges*
- Reflections on an Ethic of Sustainability *Writing Exercise (Gail)* 2:45 PM
- People & Organizations that Can Help You / that Need Your Help
  - Blessed Unrest (Global) *Presentation (Milt)* 3:00 PM
  - Re-build the Dream - Van Jones (National)
  - Ministry for Earth / Green Sanctuary (UUA)
  - Green First Teams / Social Justice Task Forces (First Universalist)
  - A Typical Personal Path

#### So What Does Your Element Want of You?

*Writing Exercise (Gail)* 3:15 PM

*Closing*

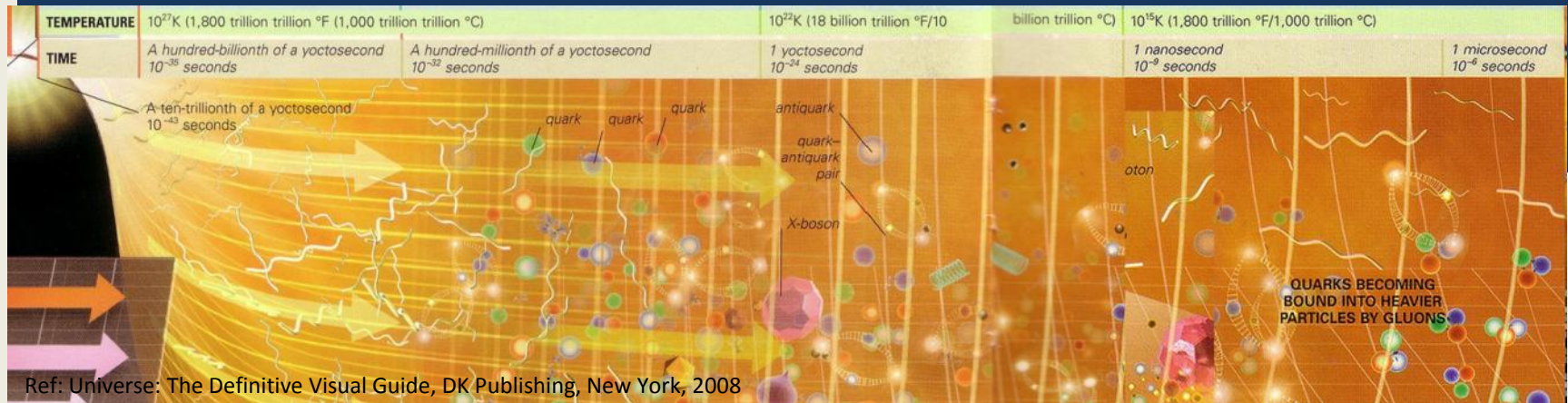
3:30 PM

# Terminology

- **Emergence:** Something more (complex) from nothing but (what already exists) as a result of new relationships
  - Example: Water( $H_2O$ ) is something more from nothing but H & O
  - Example: A book is something more from nothing but words in new relationship
  - Example: A nation is something more from nothing but people in a new relationship
- **Evolving Complexity** – the result of sustainable Emergence – the direction of the Universe
- **Relationships** – combinations of subjects coming together by an Attraction
- **Attraction** (natural) – 4 forces that help us describe observable nature
  - Strong Nuclear Forces
  - Weak Nuclear Forces
  - Gravitational Forces (Astrophysics, Cosmology,...)
  - Electromagnetic Forces (Chemistry, Biology,...)
- **Energy** – many forms - including “light”

In the beginning, GOD created the heavens and the earth....  
and GOD said “**Let there be light,**” and there was light.

– [Genesis 1:1-3](#)



Light flaring forth

13.7 billion years ago ....

Expanding...

Cooling...

Light (Energy) transforming into Matter...

Matter transforming back into light...

$E = mc^2$ ...

Emergence of things like Strings,

Expanding...

Cooling...

Allowing the Emergence of Complexity...

Quarks, and Anti-Quarks,

X-Bosons and Anti -X-Bosons...

the light / elemental particle soup...

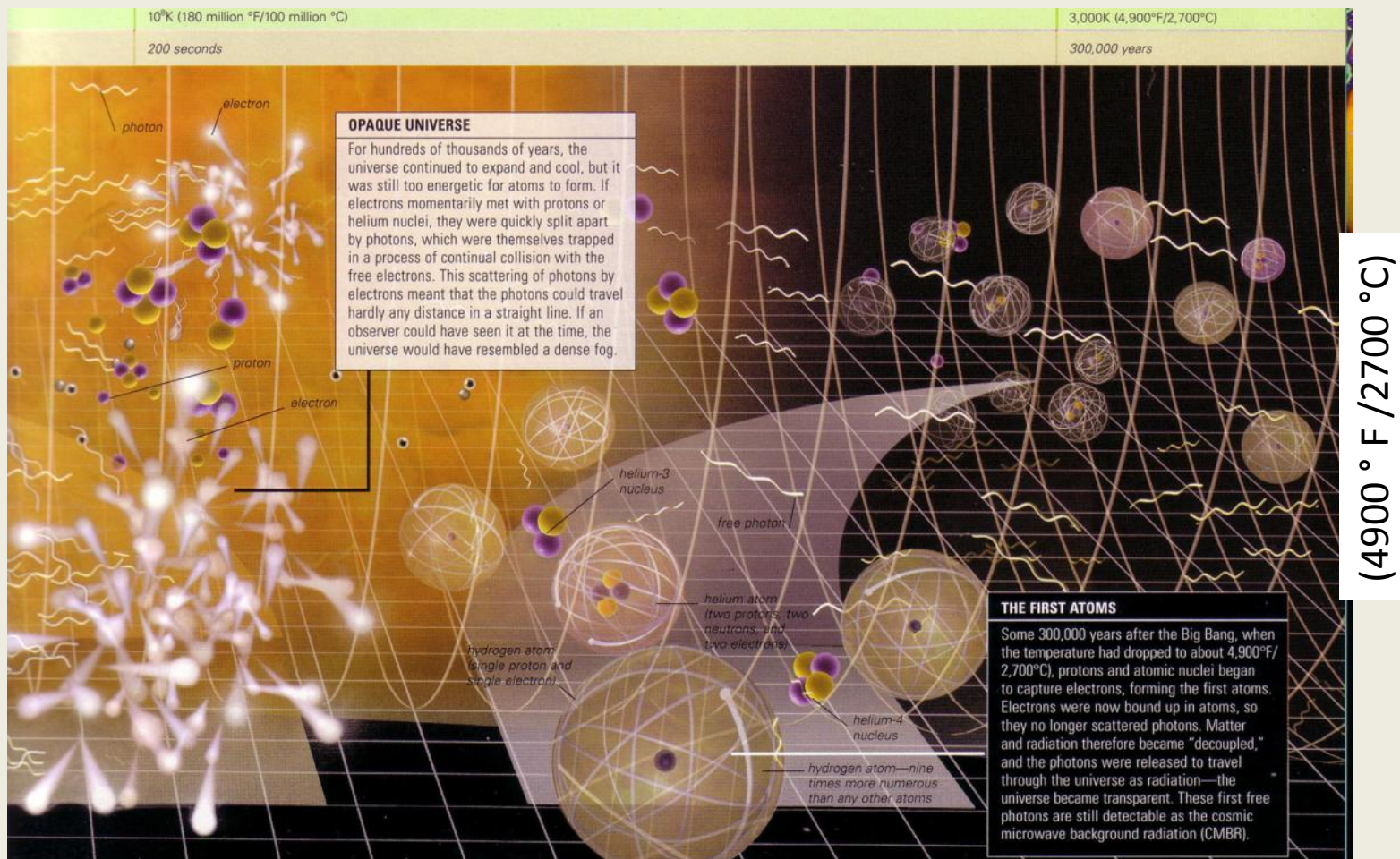


Expansion and cooling for 380,000 years...

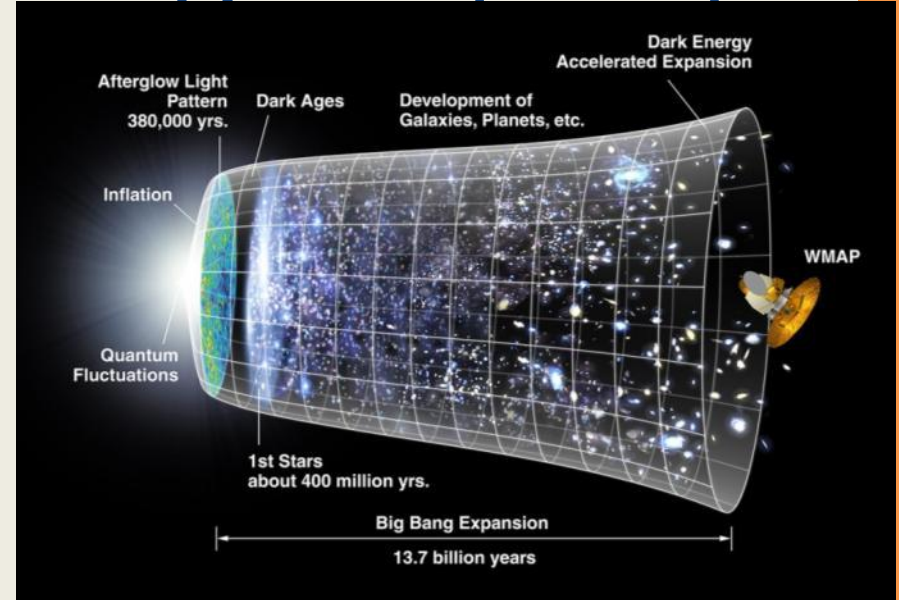
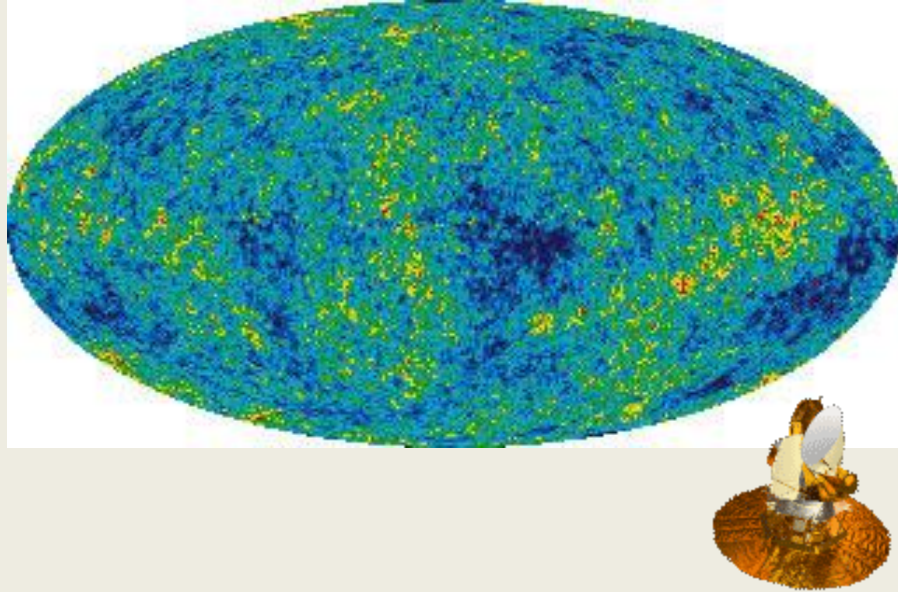
Until Attraction between elemental particles creates more complex matter...

- the basic building blocks of all the mass we now see in the Universe emerges...

the atoms of Hydrogen (76%) and Helium (24%)



# Wilkinson Microwave Anisotropy Probe (WMAP)



- NASA's WMAP spacecraft mapped the Cosmic Microwave Background (CMB) radiation (the oldest light in the universe).
- Data from the Spacecraft indicates:
  - the age of the universe is 13.73 billion years old
  - ordinary atoms (also called baryons) make up only 4.6% of the universe
  - dark matter (not made up of atoms) make up 23.3%
  - dark energy makes up 72.1% of the universe, causing the expansion rate of the universe to speed up.

"Lingering doubts about the existence of dark energy and the composition of the universe dissolved when the WMAP satellite took the most detailed picture ever of the cosmic microwave background (CMB)." - [Science Magazine 2003, "Breakthrough of the Year" article](#)



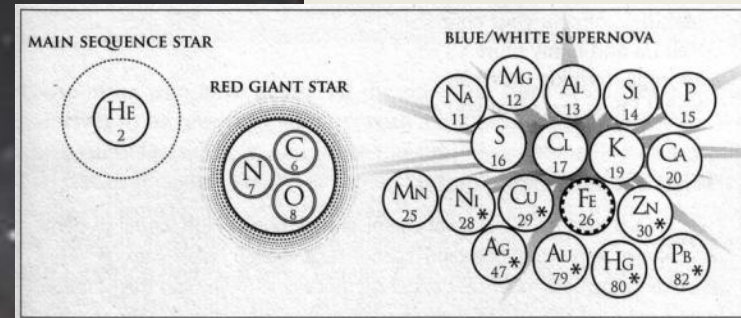
Expansion, cooling, calming for another 200 million years...  
Until Attraction (now gravity) sorts the Hydrogen of the Universe...  
Into 10-100 billion galaxies so stars can be born...

Each galaxy containing 10-100 billion stars (Gravity centers)  
Including Red Giants, Supernovas...

The furnaces that transform Hydrogen into Helium,  
Carbon, Nitrogen, Oxygen,  
And all the elements of the Universe

Hydrogen	74%
Helium	23%
Oxygen	1%
Carbon	0.5%
Iron	0.1%
Nitrogen	0.1%
+ trace elements	

## Nucleosynthesis

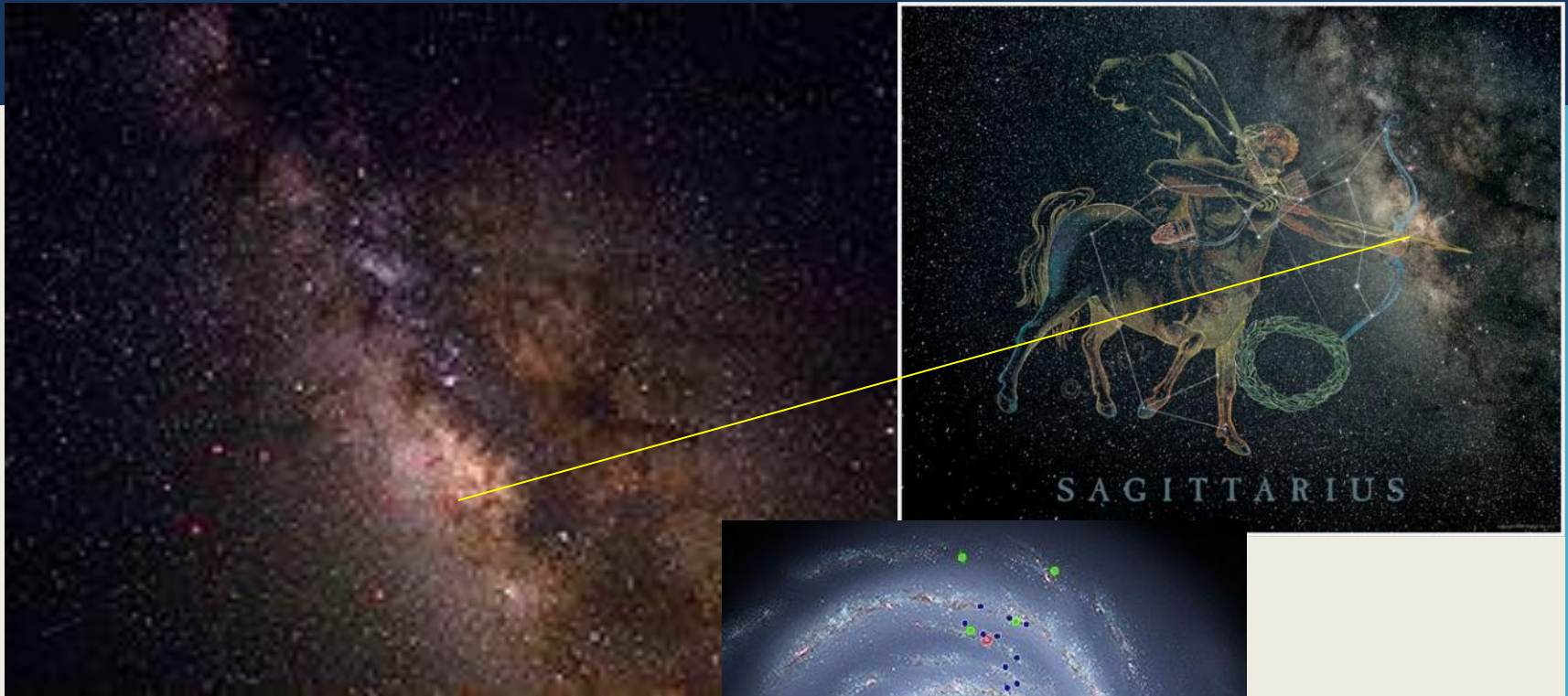


Light, and the basic  
elements for Air, Water  
and Earth now appear

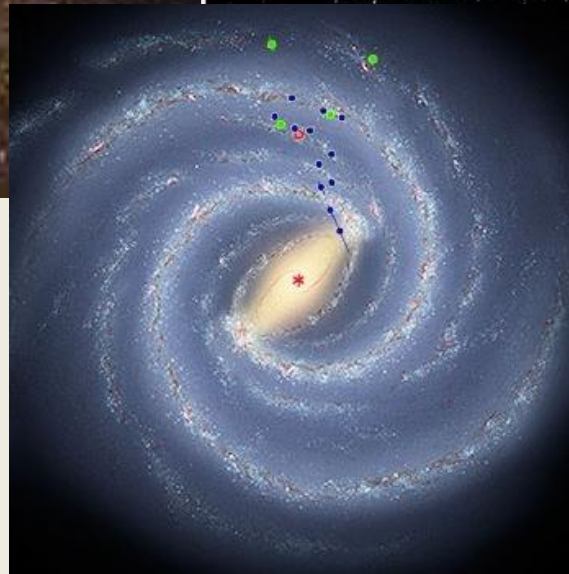
See: Wonders of the Universe, Brian Cox, 2011



As we gaze toward the constellation Sagittarius...  
We are peering into the center of the Milky Way Galaxy...  
Our spiraling extended family of star stuff...



Our [Solar System](#) is about 28,000 [light-years](#) from the [Milky Way's](#) center. We're moving at about 600,000 miles per hour in our Galactic orbit.



Artist's Conception  
of our Milky Way  
Galaxy

4.5 billion years ago...

Within the Milky Way...

A new Emergence – something more complex from nothing but star stuff  
– the consequence of Gravity...

Our Solar System - our Sun, our Planet Earth, our Moon and sister planets



### How Fast is the Earth Moving?

1,000 mph	At the equator about the axis of the Earth
67,000 mph	Orbiting about the Sun
600,000 mph	Orbiting about the center of the Milky Way
2,236,936 mph	Milky Way rushing toward the Great Attractor
870,000 mph	Relative to the CBR toward the constellation Leo



4.5 billion years ago...

Planet Earth cooling, calming,

A Goldilocks collection of Star Stuff (over a hundred elements)

Especially CHNOPS – the basics for Life

all in a liquid sea to form new relationships...

More Emergence... atoms coming together to create new  
molecules beyond  $\text{H}_2\text{O}$ ,  $\text{N}_2$ ,  $\text{O}_2$ ,  $\text{CO}_2$  .....

.... the miracle we call chemistry



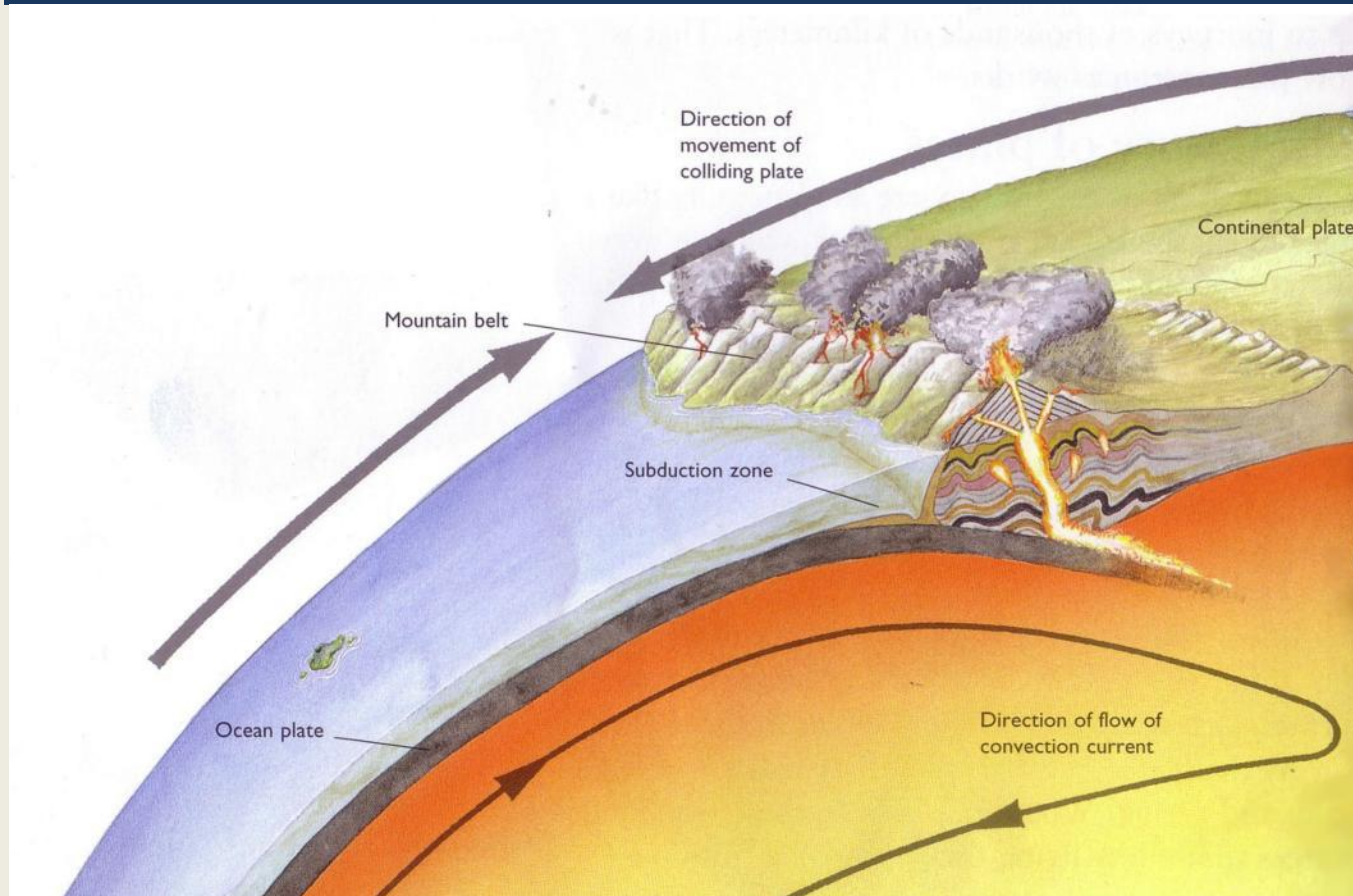
Still cooling, calming...

Land and air and water - bathed in sunlight ...

coming together in a complex relationship

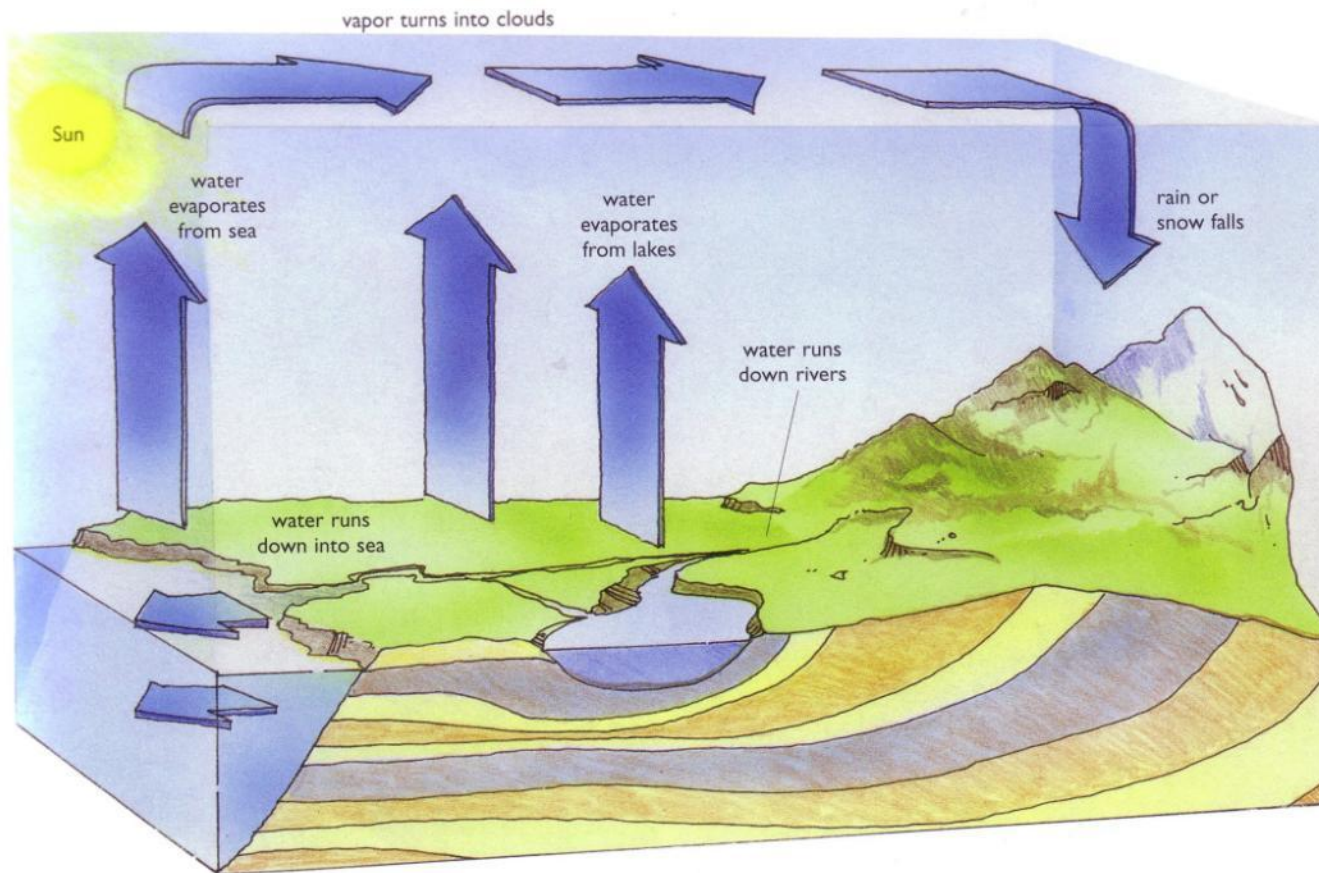
giving birth to Planet Earth

And creating a birthplace for Life





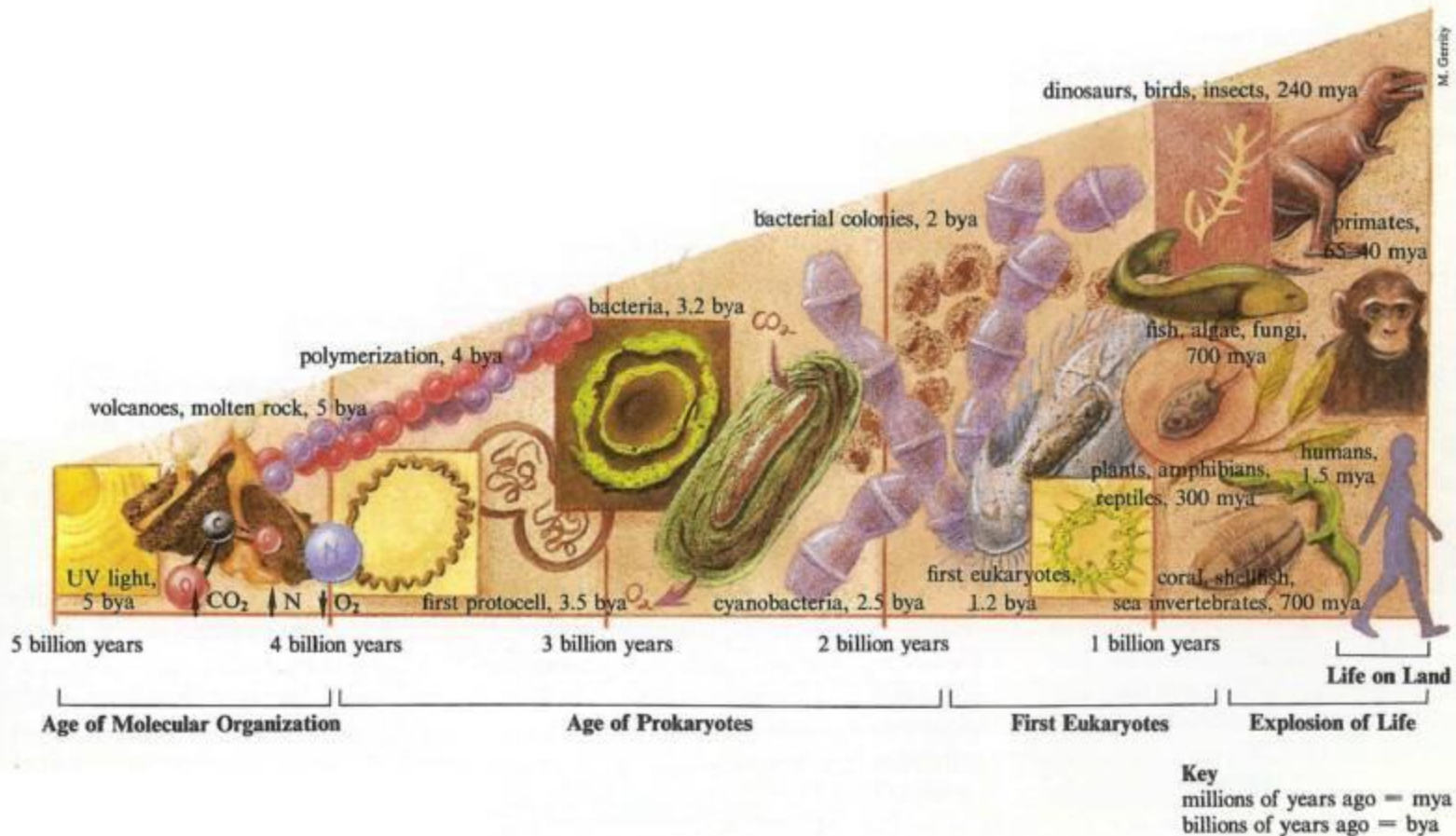
As Planet Earth cooled, rotated on its 24 degree tilted axis,  
and revolved around the Sun,  
our daily and seasonal communion with Sun began....  
Gaia was awakened ...  
And responded to the daily gift of persistent Sunlight...  
The Cycles began – wind, rain, ocean currents...



Emergence continues – creating more complex molecules from nothing but primordial Hydrogen and the elements of other stars.

We follow the DNA trail of Complexity...

from the miracle of cellular Life 3.5 billion years ago  
to multi-cell Life (Eukaryotes) 1.2 billion years ago  
to sea coral, fish (700mya), plants (300mya)



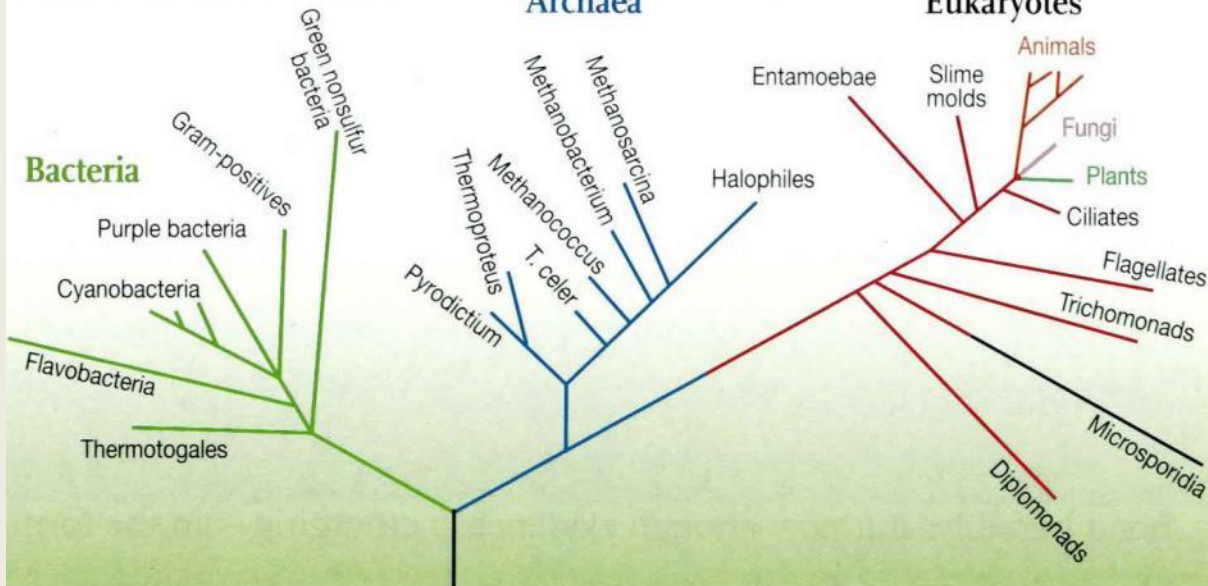


# THE TREE OF LIFE

## Archaea

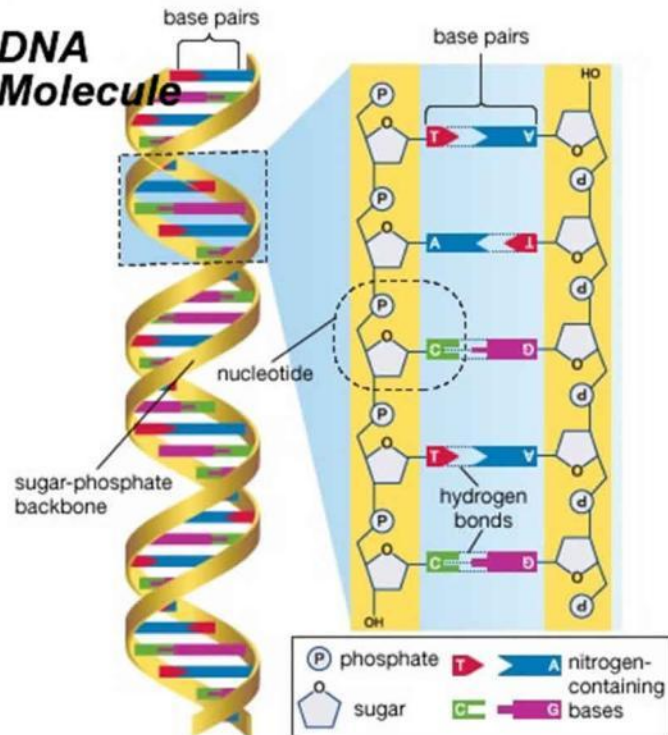
## Eukaryotes

## Bacteria



The Phylogenetic Tree of Life based on the evolution of DNA

## DNA Molecule



*... all the creatures on this planet share striking commonalities even as they diverged for over 3 billion years*

*All have genomes inscribed in DNA that use the same triplet genetic code;  
all share metabolic pathways and patterns of protein synthesis;  
all use many of the same protein building blocks; the list is very long.*

*...some 3 billion years ago, a group of single-celled creatures come up with a core set of arrangements for generating cells that was then utilized by all subsequent evolutionary lines as they moved into every corner and crevice of the planet, novelty upon novelty, extinction upon extinction, generating the web [The Tree of Life] we now behold and within which we are embedded.....  
Ursula Goodenough*

[Ref: **Chapter 30: [Ecomorality: Toward Ethics of Sustainability](#)**, by Ursula Goodenough; from **“A Pivotal Moment: Population, Justice & the Environmental Challenge,”** edited by Laurie Mazer. ]



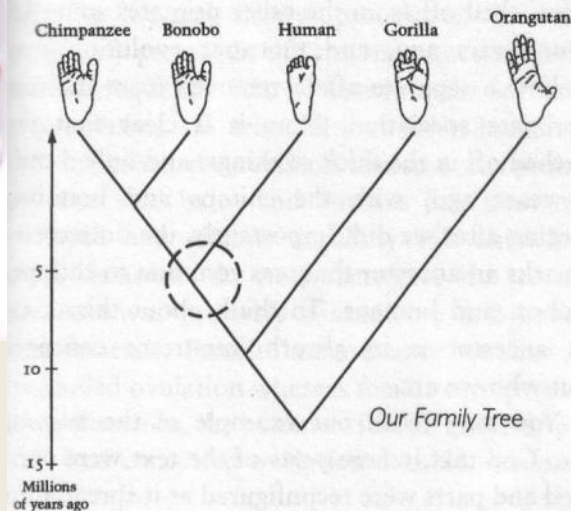
We share 95 per cent of our genetic material with our closest living relatives, chimps [Ref 1].

Our oldest modern human ancestors were in Africa 200,000 years ago. [Ref 2]



Ref 1: Roy Britten, California Institute of Technology,  
*Proceedings of the National Academy of Sciences* (DOI:  
10.1073/pnas.172510699

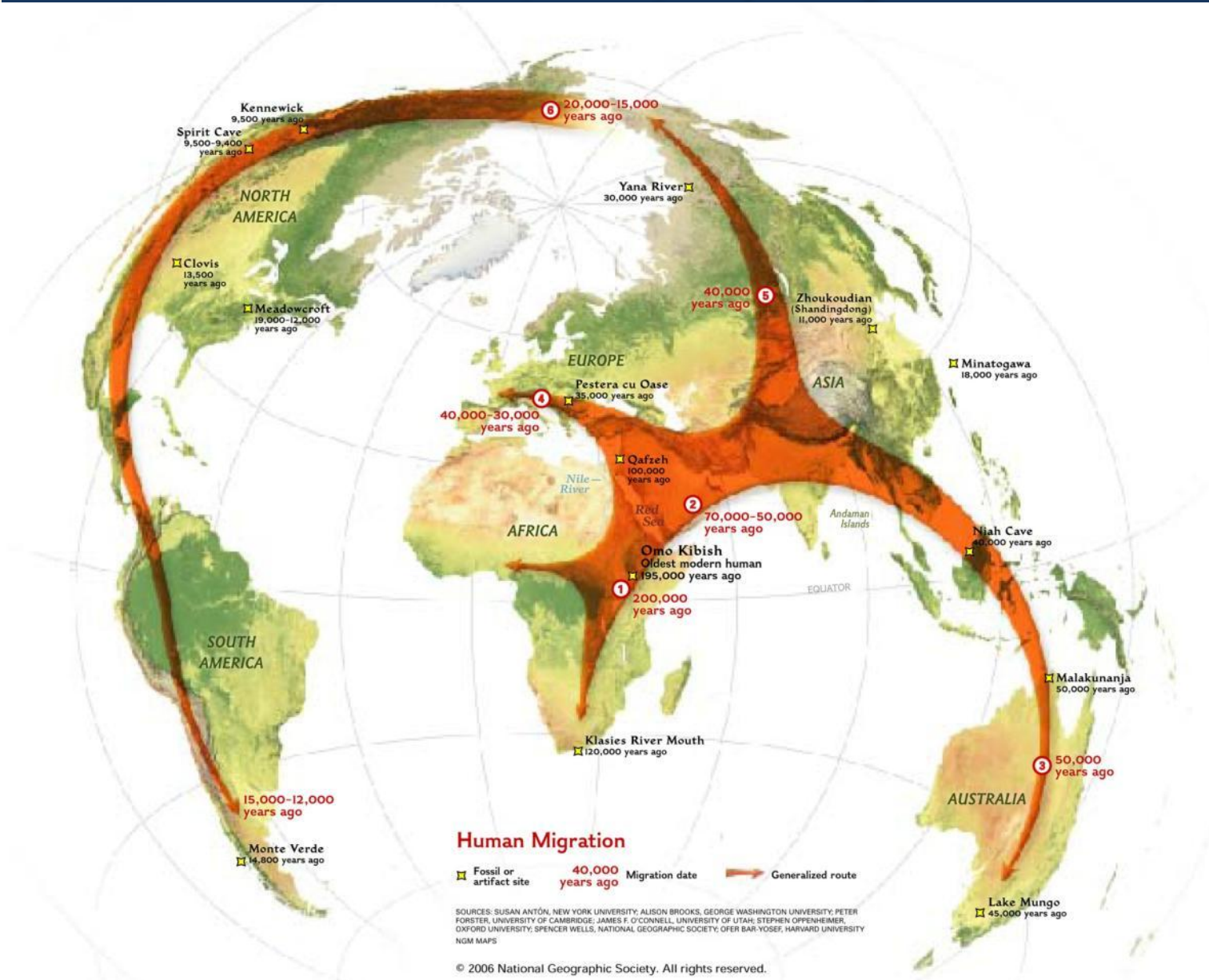
Ref 2: 2006 National Geographic Society



Modern Humans - Out of Africa...

Into Europe 30,000-40,000 years ago...

Into North America 15,000-20,000 years ago...

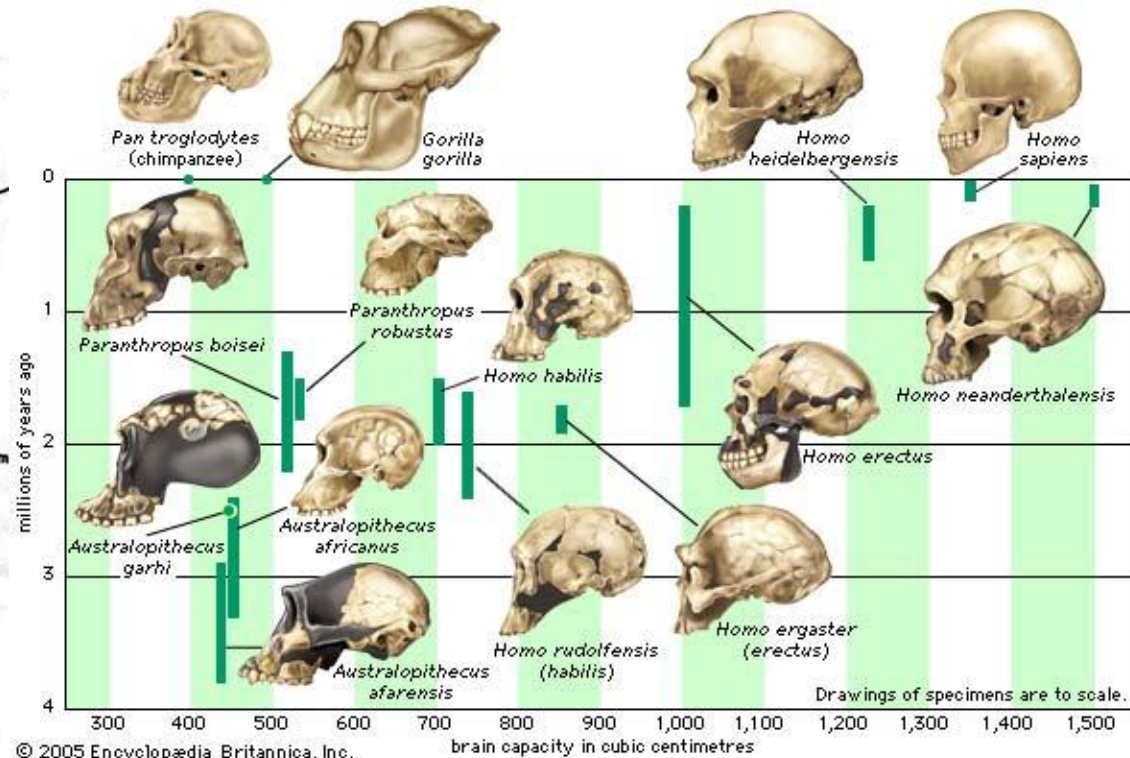
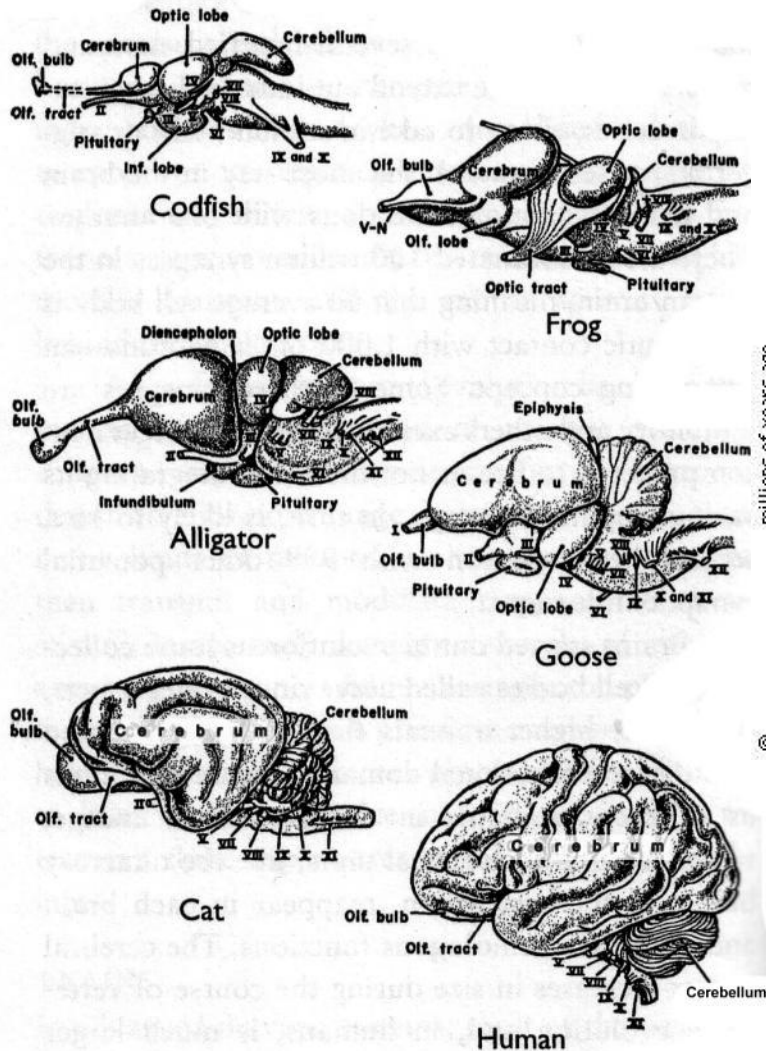


# Terminology

- **Emergence:** Something more (complex) from nothing but (what already exists) as a result of new relationships
  - Example: Water( $H_2O$ ) is something more from nothing but H & O
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- **Attraction (natural)** – 4 forces that help us describe observable nature
  - Strong Nuclear Forces, Weak Nuclear Forces, Gravitational Forces (Astrophysics, Cosmology,...), Electromagnetic Forces (Chemistry, Biology,...)
  - *Note: 95.4% of the Cosmos is not observable and referred to as “dark matter” & “dark energy” The observable 4.6% is directly traceable back 13.7 billion years to the initial Light. Everything observable might be considered the Children of the Light.*
- **Attraction (natural with help from humans)**
  - Emergence of Tools: a natural piece of flint chipped away to expose a sharp cutting edge
  - Emergence of New Materials: Bring Iron together with 11% Chromium to make Stainless Steel
  - Emergence of New Stuff: Just look around
- **Attraction (human based)** – innumerable “forces of attraction” created by conscious beings
  - Examples: Family Bonds, National Fervor, Religious Beliefs

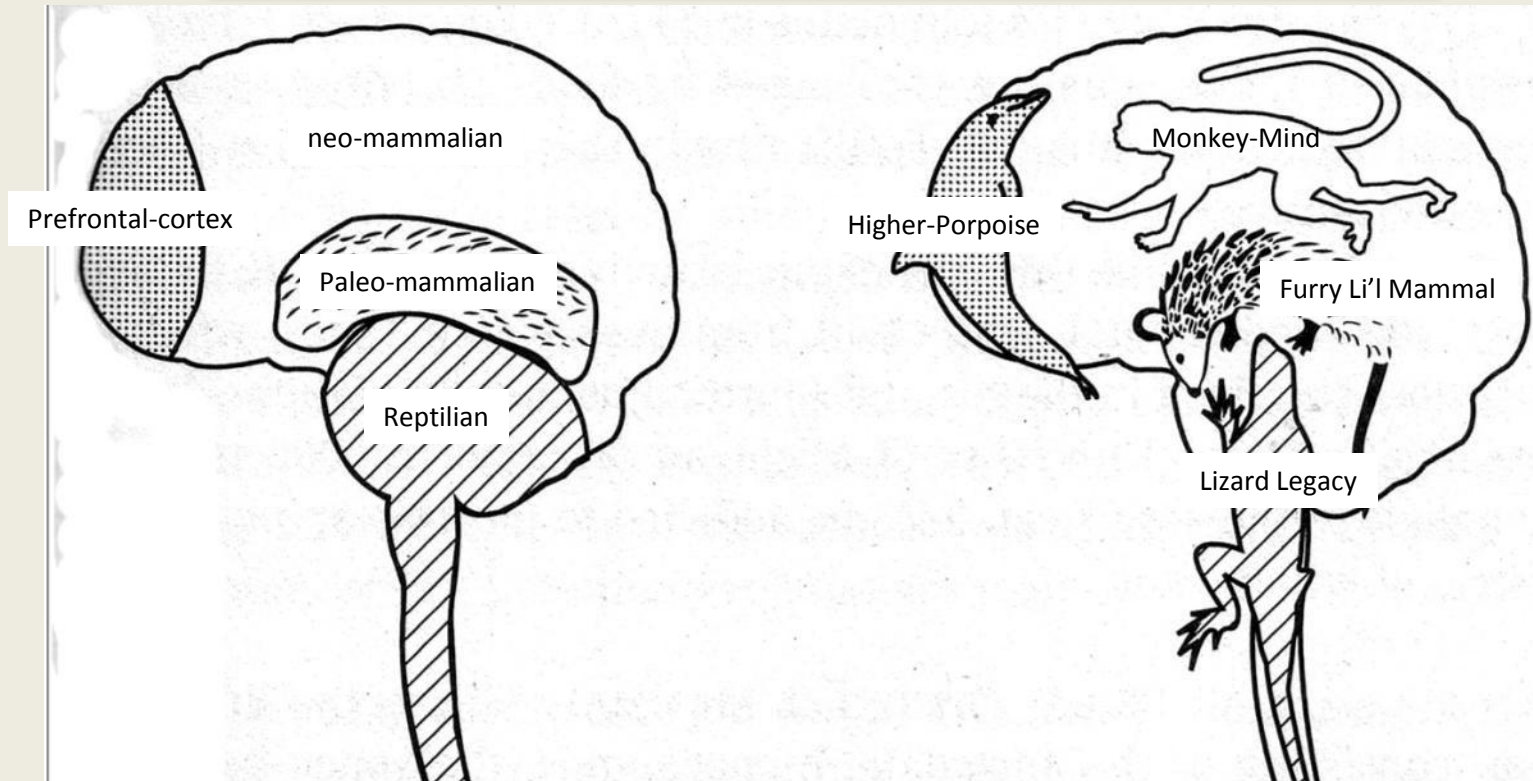


We have evolved with a brain to be the “eye”...  
of the Planet, of the Solar System, and more?  
Nature’s 13.7 billion year plan to convert light  
into consciousness.





# Michael Dowd's Quadrune Brain Graphic



## **Ancient reptilian brain— our Lizard Legacy:**

Our deepest, oldest brain components (and behavioral drives)

## **Paleomammalian brain, the limbic system — our Furry Li'l Mammal:**

Seat of emotions, and experiential learning

## **Neomammalian brain, our neocortex - our talkative Monkey Mind:**

Our chatter box, calculating brain, always talking to itself, choosing

## **Neocortex at our forehead, left and right frontal lobes— our Higher Porpoise:**

Last to evolve, the seat of our higher purpose, intentionality, complex-decision making

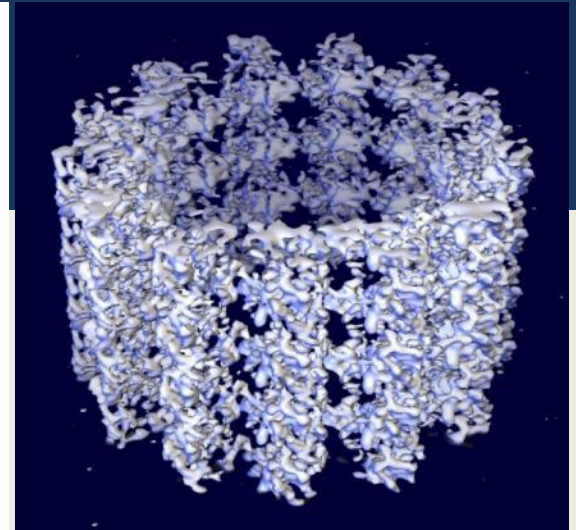
# Neurophysiological Explanations of Consciousness ( Hameroff & Penrose)

The human species has evolved to be a self-aware being.

Through collective learning, we are able to pass along knowledge from generation to generation.

Human consciousness continues to evolve.

The human quest for knowledge and understanding continues as researchers explore the link between the physical neurological structure of the brain and the intangible mind associated with human consciousness.

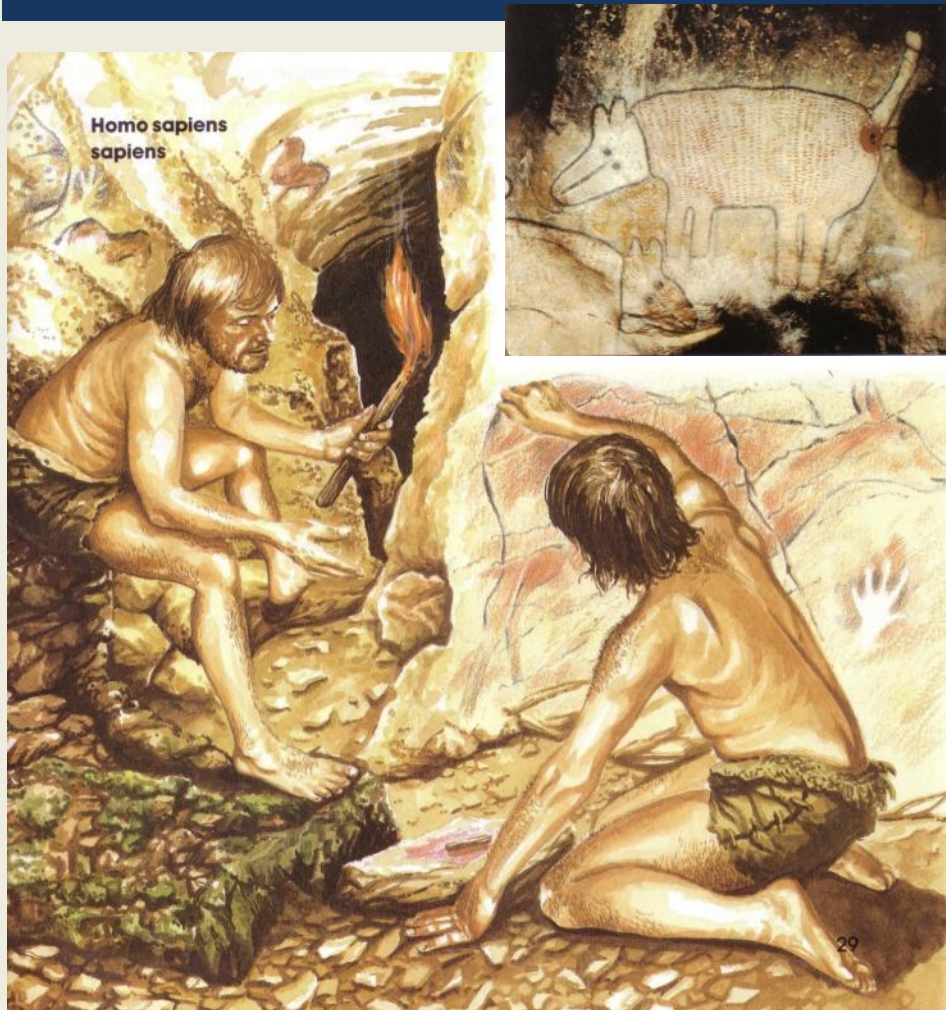


More Emergence....as a result of combining quantum physics and neurophysiology  
Hameroff & Penrose propose that aspects of quantum theory (e.g. quantum coherence) and of a newly proposed physical phenomenon of quantum wave function “self-collapse”(objective reduction) are essential for consciousness. Furthermore, it appears this process can occur in cytoskeleton microtubules and other structures small enough to be driven by quantum effects within each of the brain’s neurons.

For details see: [Quantum Consciousness](http://www.quantumconsciousness.org/penrose-hameroff/consciousevents.html)

(<http://www.quantumconsciousness.org/penrose-hameroff/consciousevents.html>)

Cave Art has been dated to 20,000 years ago...  
Evidence of abstract awareness  
and the ability to communicate...  
Consciousness unfolding.





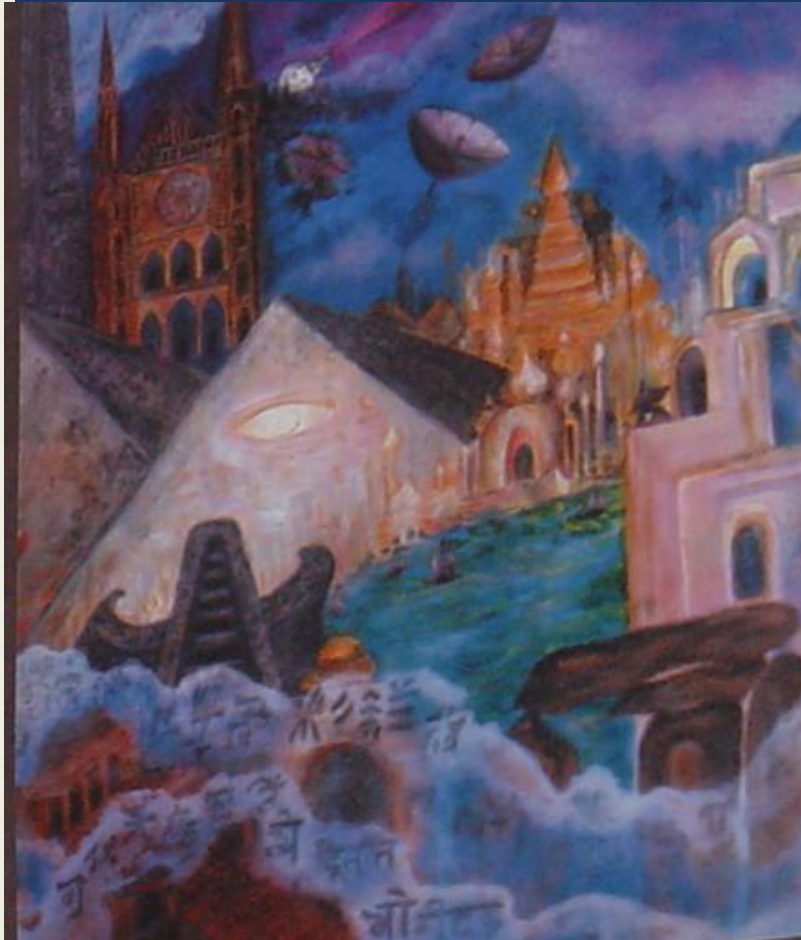
After following migrating herds...  
and domesticating animals(sheep, goats)...  
We learned to plant and harvest crops – the dawning  
of Agriculture gives rise to settlements & cities





Humans consciously join together in cooperation to form complex social orders...

Emergence continues...



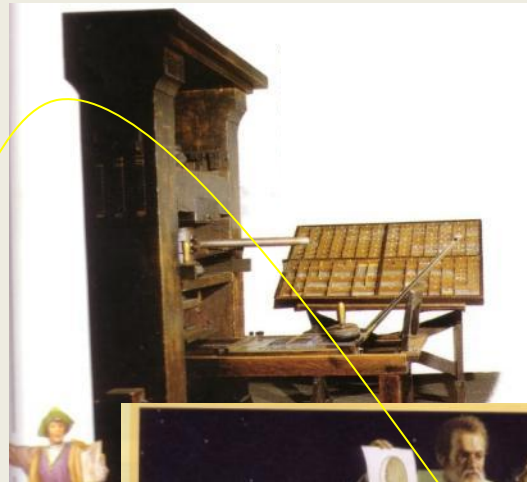
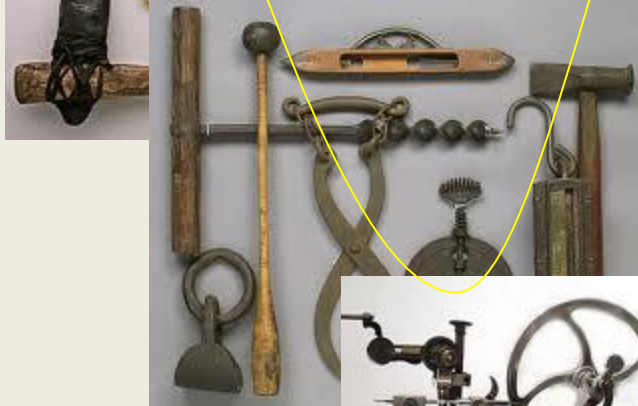
Complex social orders might include:

- Family
- Extended family
- Community/Neighborhood
- Businesses / Corporations
- NGOs
- Governments / Nation States
- Law Enforcement / Military Forces
- World Religions

Humans continue to extend their capabilities, with “tools”  
shaped from the resources of the Planet.

Emergence Continues...

Tools are now called Technology...



Planet Earth...

Africa – origin of Modern Humans

Basking in Sunlight

Through a paper thin frosting

Of Air and whimsical wandering clouds of Water



Sunlight

Air

Water

Earth

View from Apollo 17 :  
Last Human Trip to Moon,  
Dec. 7, 1972



## Out of the Stars

Robert Weston

Out of the stars in their flight, out of the dust of eternity,  
here have we come,  
Stardust and sunlight,  
mingling through time and through space.

Out of the stars have we come,  
up from time.

Out of the stars have we come.

Time out of time before time  
in the vastness of space,  
earth spun to orbit the sun,  
Earth with the thunder of mountains newborn,  
the boiling of seas.

Earth warmed by sun, lit by sunlight;  
This is our home;

Out of the stars have we come.

Mystery hidden in mystery,  
back through all time;  
Mystery rising from rocks  
in the storm and the sea.

Out of the stars, rising from rocks  
and the sea,  
kindled by sunlight on earth,  
arose life.

Ponder this thing in your heart,  
life up from sea:

Eyes to behold, throats to sing,  
mates to love.

Life from the sea, warmed by sun,  
washed by rain,  
life from within, giving birth,  
rose to love.

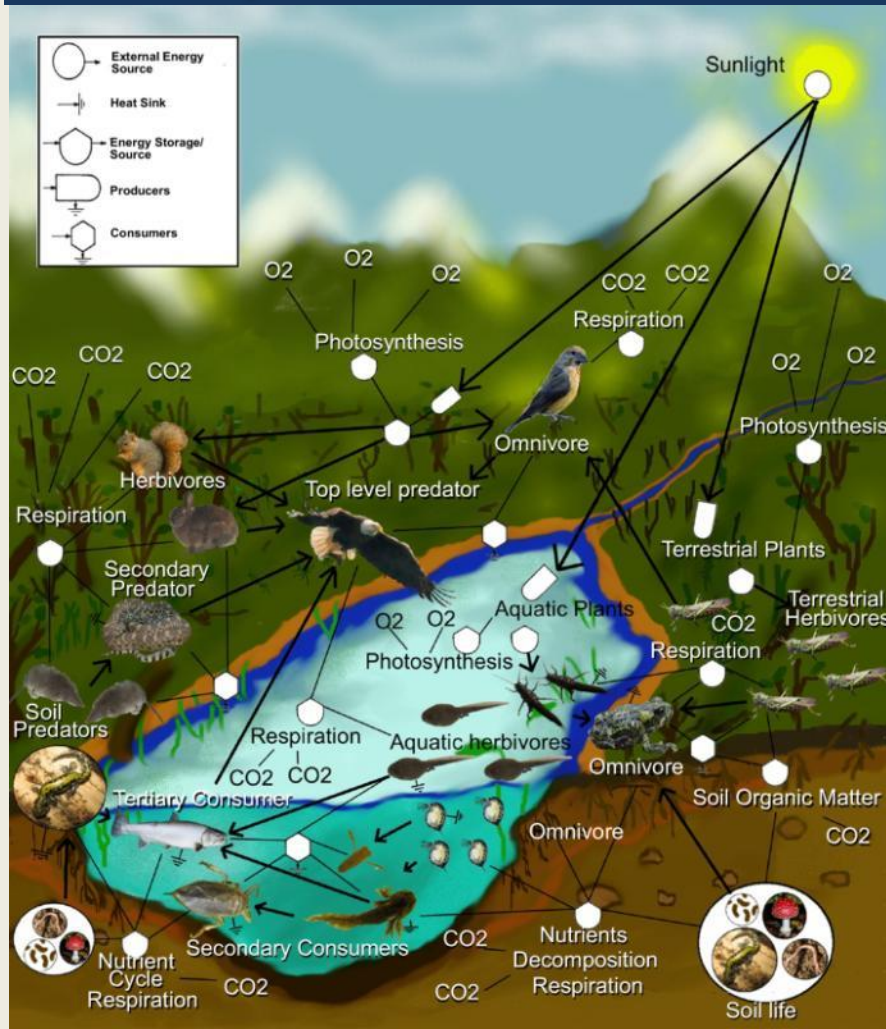
This is the wonder of time;  
this is the marvel of space;  
out of the stars swung the earth;  
life upon earth rose to love.

This is the marvel of life,  
rising to see and to know;  
Out of your heart, cry wonder:  
sing that we live.

**Discerning your Elemental Self: *Light, Earth, Air, Water***

*Writing Exercise*

All Life on Planet Earth is linked to  
Current Light from the Sun, and rooted in a  
Healthy Planet - all in Right Relationship  
Our Life and Evolving Consciousness  
depends on all non-human Life - its that simple



“With the rise of modern sciences we began to think of the Universe as a collection of objects rather than a communion of subjects...”

...In reality there is a single integral community of the Earth that includes all its component members whether human or other.”

This is our Great Work – to create a “mutually enhancing human presence within an ever-renewing organic-based Earth community” (Thomas Berry)



# Conclusions / Summary

## Everybody's Story - The Universe Story - The Epic of Evolution - The History of Nature

- *After hearing this Story, it is difficult not to be changed forever*
  - We become aware that we are not only related to every other human on the Planet, but also to every animal and every plant and every living entity. **WE ARE FAMILY**
  - We become aware that every atom in our body is a part of the Earth family that is a part of our Solar family of star stuff.
  - We become aware how we are inextricably tied into the Light that was the beginning.
- *The Story tells us that for 13.7 billion years the Universe has been consistently expanding, cooling, calming, coalescing and creating more and more complexity and consciousness*
  - *Emergence : Something More from Nothing But ...as a result of new Relationships*
  - *Natural Attractive Forces that form new relationships (weak and strong nuclear forces, gravitational force, electromagnetic force)*
  - *Human Attractive Forces that form new relationships (Survival, Love, Fear, Family, Nationality, ...)*
- *The story also tells of our **Evolving Consciousness***
  - *We self-aware beings have become an individuated "I"*
  - *We have also become an "Eye" for Planet Earth, our Solar System and the entire Cosmos.*
  - *What we 7 billion humans do (and don't do) with what we now can see using this new Eye determines our future and the evolution of Planet Earth.*
- *The story tells us our future is our conscious choice (and responsibility?) The sane choice is of course to choose Sustainability and adopt a new paradigm – **Ecomorality: The Ethics of Sustainability and Evolving Consciousness.***

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