

# The Body Entangled World

CCH

Nov. 3, 2022





# **The Myth of Relational Holism**



**The Book of Nature**

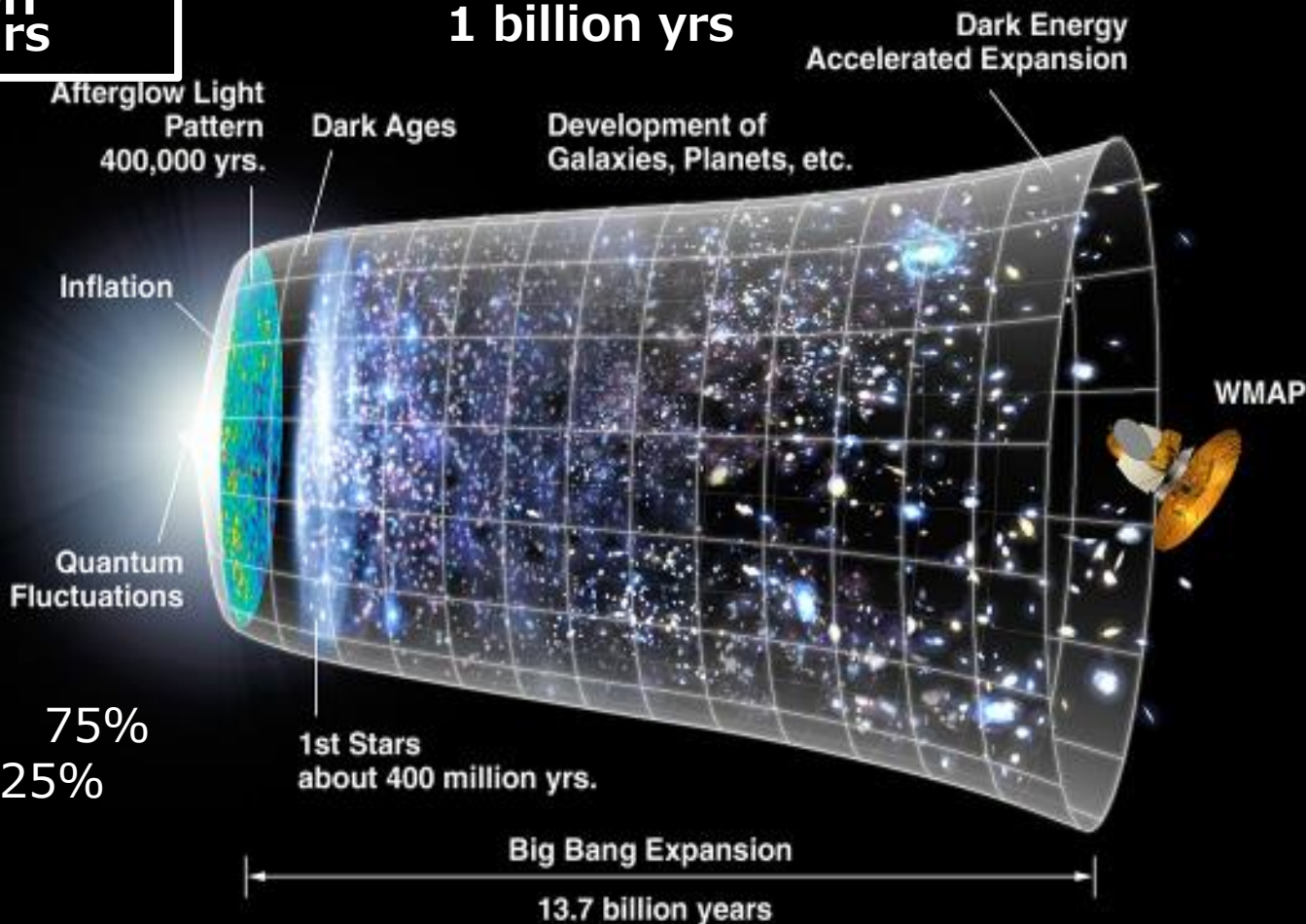
**The Book of  
Experience**

**The Book of Science**

# The Hot Big Bang

13.8 billion years

1 billion yrs



Hydrogen 75%  
Helium 25%

# A World of Energy



# The Quantum Revolution

**From matter to energy fields**

**From substance to events**

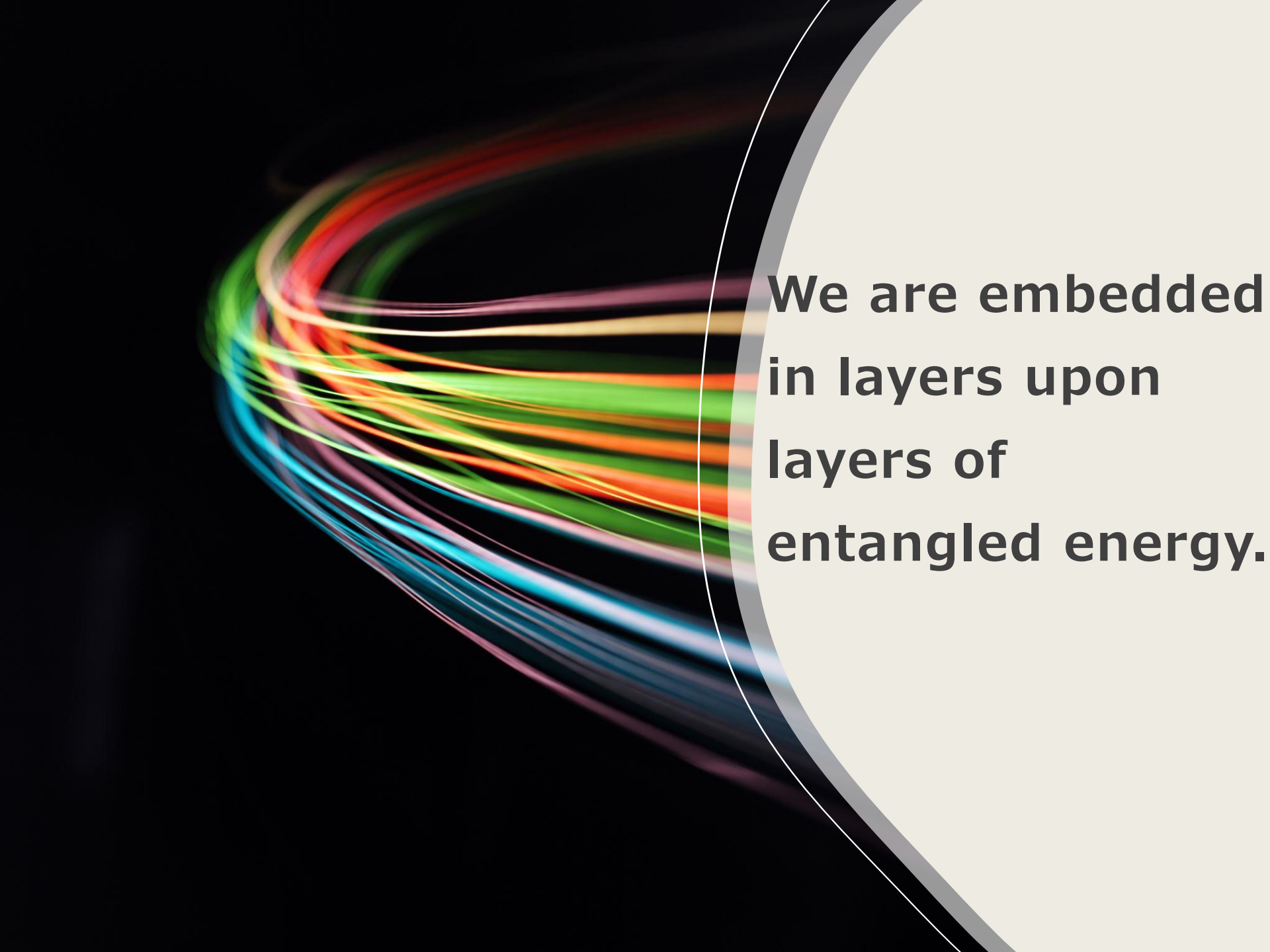
**From time and space to spacetime mattering**

**From mind and matter to panpsychism**

**From causality to process**

**From independence to interrelatedness**

**From being to becoming**

The image features a black background on the left side, where several vibrant, multi-colored light trails (red, orange, yellow, green, blue, purple) curve and swirl, creating a sense of motion and energy. On the right side, a white circular area with a grey border contains the text. The text is in a bold, black, sans-serif font and is arranged in four lines.

**We are embedded  
in layers upon  
layers of  
entangled energy.**

# Matter is not what we think it is

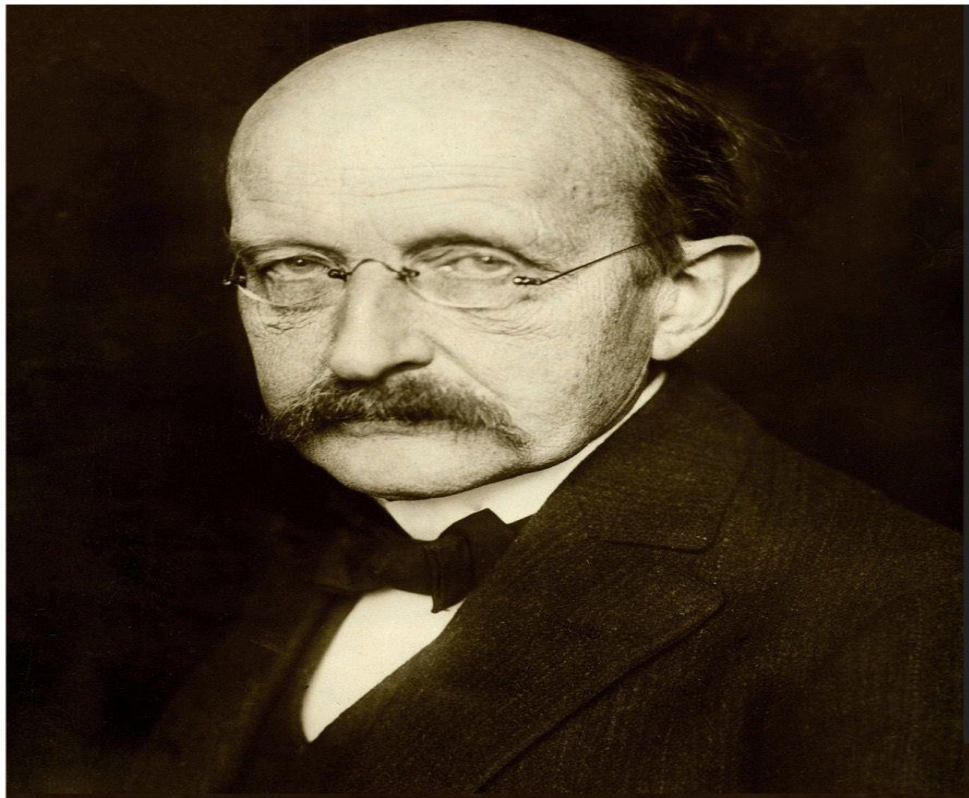
$\hat{X} = \sqrt{\frac{m\omega}{\hbar}} X, \hat{P} = \frac{1}{\sqrt{m\hbar\omega}} P$   
 $[\hat{X}, \hat{P}] = i, H = \hbar\omega \hat{H}$   
 $\hat{H}|\psi\rangle = E_V|\psi\rangle$   
 $\sum_n |p_n\rangle \langle p_n| = 1$   
 $\hat{H} = \frac{1}{2}(\hat{X} + i\hat{P})^2$   
 $a = \frac{1}{\sqrt{2}}(\hat{X} + i\hat{P})$   
 $a^\dagger = \frac{1}{\sqrt{2}}(\hat{X} - i\hat{P})$   
 $[a, a^\dagger] = 1$   
 $\hat{H} = a^\dagger a + \frac{1}{2} = \frac{1}{2}(\hat{X} - i\hat{P})(\hat{X} + i\hat{P}) + \frac{1}{2}$   
 $\hat{H} = a a^\dagger - \frac{1}{2}, E = mc^2$   
 $a^\dagger|\psi_n\rangle = \sqrt{n+1}|\psi_{n+1}\rangle$   
 $a|\psi_n\rangle = \sqrt{n}|\psi_{n-1}\rangle$   
 $a|\psi_n\rangle = \frac{1}{\sqrt{2}} a a^\dagger |\psi_{n+1}\rangle = \frac{1}{\sqrt{n}}(a^\dagger a + 1)|\psi_{n+1}\rangle = \sqrt{n+1}|\psi_n\rangle$   
 $X|\psi_n\rangle = \sqrt{\frac{\hbar}{2m\omega}} \frac{1}{\sqrt{2}}(a^\dagger + a)|\psi_n\rangle$   
 $\lambda_1|\psi_1\rangle + \lambda_2|\psi_2\rangle \Rightarrow \lambda_1^* \langle \psi_1| + \lambda_2^* \langle \psi_2|$   
 $\langle \psi_n | \psi_n \rangle = 1, E = \langle K \rangle = \langle U \rangle = \frac{1}{2} m \omega^2 A^2$

$\psi_0(x) = \langle x | \psi_0 \rangle = \left(\frac{m\omega}{\pi\hbar}\right)^{1/4} e^{-\frac{1}{2} \frac{m\omega}{\hbar} x^2}$   
 $\psi_1(x) = \left[\frac{1}{\sqrt{2}} \left(\frac{\hbar}{m\omega}\right)^{1/4} \left(\frac{m\omega}{\hbar}\right)^{1/4} \left[\frac{m\omega}{\hbar} x - \frac{d}{dx}\right] e^{-\frac{1}{2} \frac{m\omega}{\hbar} x^2}\right]^{1/2}$   
 $\psi_2(x) = \left[\frac{1}{\sqrt{2}} \left(\frac{\hbar}{m\omega}\right)^{1/4} \left(\frac{m\omega}{\hbar}\right)^{1/4} \left[\frac{m\omega}{\hbar} x - \frac{d}{dx}\right]^2 e^{-\frac{1}{2} \frac{m\omega}{\hbar} x^2}\right]^{1/2}$   
 $\psi_3(x) = \left[\frac{1}{\sqrt{2}} \left(\frac{\hbar}{m\omega}\right)^{1/4} \left(\frac{m\omega}{\hbar}\right)^{1/4} \left[\frac{m\omega}{\hbar} x - \frac{d}{dx}\right]^3 e^{-\frac{1}{2} \frac{m\omega}{\hbar} x^2}\right]^{1/2}$   
 $\psi_4(x) = \left[\frac{1}{\sqrt{2}} \left(\frac{\hbar}{m\omega}\right)^{1/4} \left(\frac{m\omega}{\hbar}\right)^{1/4} \left[\frac{m\omega}{\hbar} x - \frac{d}{dx}\right]^4 e^{-\frac{1}{2} \frac{m\omega}{\hbar} x^2}\right]^{1/2}$

$\langle p \rangle = -\frac{\hbar^2}{2m} \int \psi_n^*(x) \frac{d^2}{dx^2} \psi_n(x) dx$   
 $x = A \sin(\omega t + \phi), \dot{x} = \omega A \cos(\omega t + \phi), \ddot{x} = -\omega^2 A \sin(\omega t + \phi) = -\omega^2 x$   
 $\ddot{x} + \omega^2 x = 0 \Rightarrow \omega = \left(\frac{g}{l}\right)^{1/2}, v = \omega A \cos \phi$   
 $x = A \sin(\omega t + \frac{1}{2}\pi) = A \cos(\omega t)$   
 $K = \frac{1}{2} M \dot{x}^2 = \frac{1}{2} M [\omega A \cos(\omega t + \phi)]^2$   
 $\int_0^{2\pi/\omega} \cos^2(\omega t + \phi) dt = \frac{1}{\omega} \int_0^{2\pi/\omega} \frac{1 + \cos(2\omega t + 2\phi)}{2} dt = \frac{1}{\omega} \left[ \frac{t}{2} + \frac{\sin(2\omega t + 2\phi)}{4\omega} \right]_0^{2\pi/\omega} = \frac{1}{\omega} \left[ \frac{2\pi/\omega}{2} + 0 \right] = \frac{\pi}{\omega}$   
 $\langle K \rangle = \frac{1}{T} \int_0^T K dt = \frac{1}{2} M \omega^2 A^2 \frac{\pi}{\omega} = \frac{1}{2} M \omega A^2$

$\frac{d}{dt} \left( \frac{1}{2} m \dot{x}^2 + \frac{1}{2} m \omega^2 x^2 \right) = m \dot{x} \ddot{x} + m \omega^2 x \dot{x} = m \dot{x} (\ddot{x} + \omega^2 x) = 0$   
 $F = -Gx, M \ddot{x} = -Cx, x + \frac{C}{M} x = 0, \omega = \left(\frac{C}{M}\right)^{1/2}$   
 $x^2 + y^2 + z^2 = c^2 t^2, \beta = \frac{v}{c}$   
 $x' = \frac{x - vt}{(1 - v^2/c^2)^{1/2}}, l' = \frac{l \cdot (v/c)^2}{(1 - v^2/c^2)^{3/2}}$   
 $E = \frac{Mc^2}{(1 - v^2/c^2)^{1/2}}, E = Mc^2 + \frac{1}{2} M v^2 + \dots$   
 $E = p^2 c^2 + M^2 c^4, E = (pc^2 + M^2 c^4)^{1/2}$   
 $= Mc^2 \left[ 1 + \left(\frac{pc^2}{M^2 c^4}\right) \right]^{1/2} = \sum_{i=1}^{\infty} E_i = c^2 \dots$   
 $\Delta t' = \Delta t \left(1 - \frac{v^2}{c^2}\right)^{-1/2}, l' = l \left(\frac{1 - \beta}{1 + \beta}\right)^{1/2}$   
 $E_0 = E + \frac{1}{2} E + \frac{1}{8} E + \dots$   
 $\Delta M = \frac{E}{c^2}$





“As a man who has devoted his whole life to the most clear headed science, to the study of matter, I can tell you as a result of my research about atoms this much: There is no matter as such. All matter originates and exists only by virtue of a force which brings the particle of an atom to vibration and holds this most minute solar system of the atom together. We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter.”

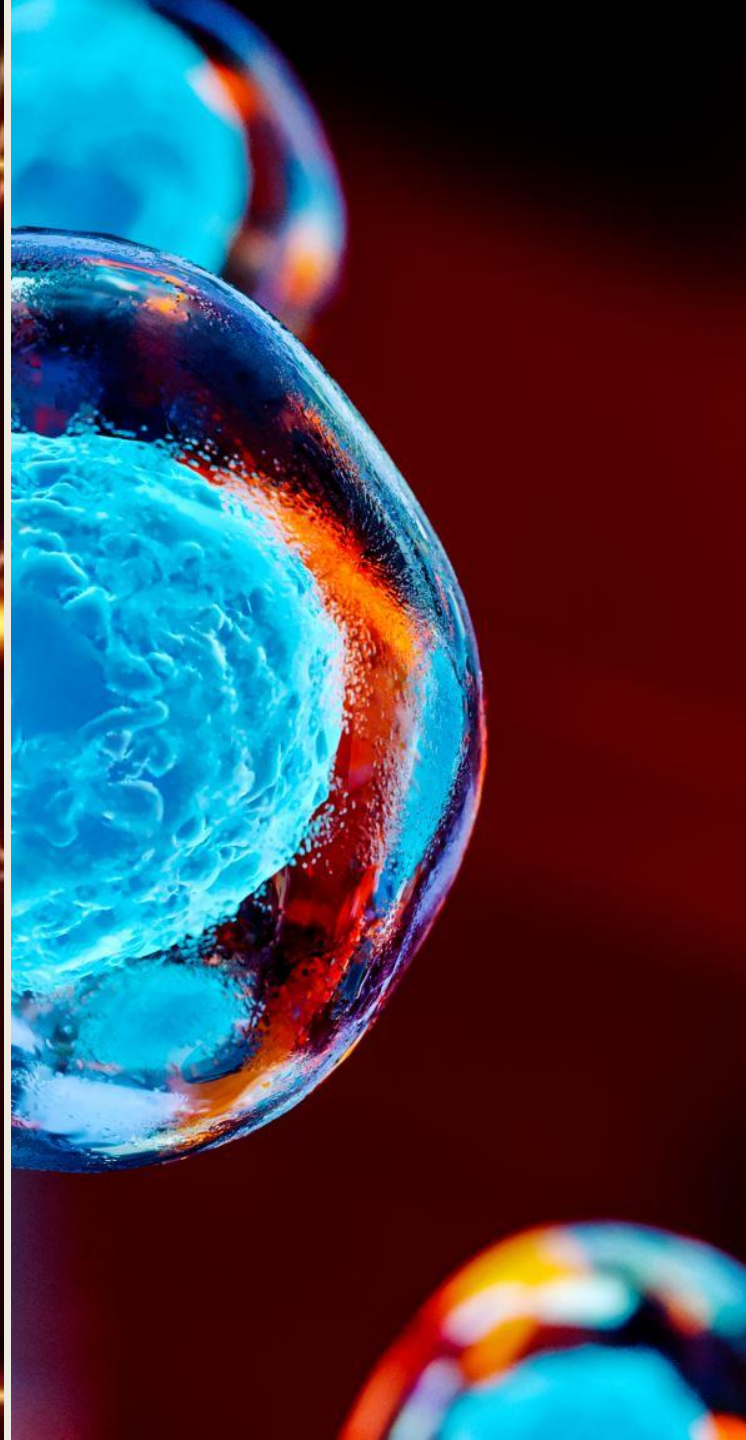
~ Max Planck (Father of Quantum Mechanics & Nobel Prize Winner)




# **The reality of Matter**

**The basis of matter is  
non-material, a  
cosmic plenum of  
potentiality;  
superimposed states.**

**Electrons are  
standing waves or  
forms**



# Quantum Entanglement



**Take two particles whose spins cancel each other out to zero. Separate particles by distance. If measure particle A as “up” particle B is measured “down.”**

**The measurement on A does not merely reveal an already established state of B: It actually *produces* that state → entangled.**

**“Non-local action at a distance”**

***“Those who fire together wire together”***







# Quantum Consciousness

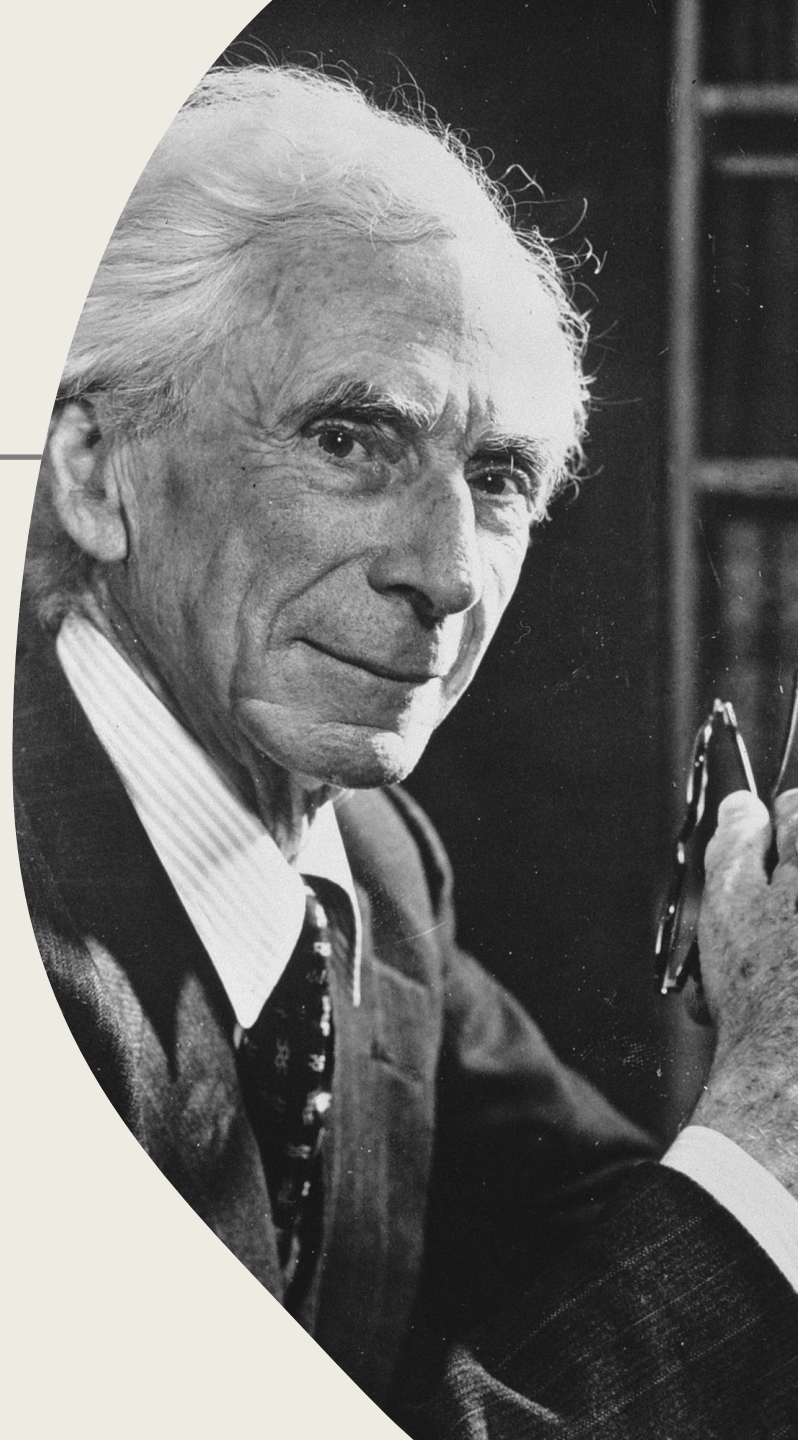
# The “Hard Problem” of Matter

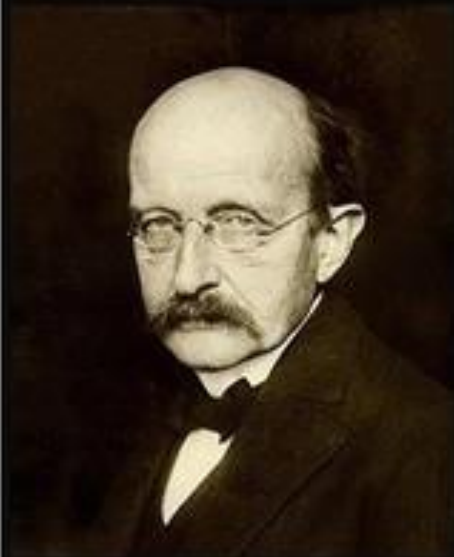
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**“We know nothing about the intrinsic quality of physical events except when these are mental events that we directly experience.”**

**“In having conscious experience, we learn something about the intrinsic nature of physical stuff, for conscious experience is itself a form of physical stuff.”**

**Bertrand Russell**





I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness.

(Max Planck)

[izquotes.com](http://izquotes.com)



**In the  
beginning was  
consciousness**



## **What is Consciousness?**

**“Consciousness is the “wave side”  
of the wave-particle duality.”**

**Niels Bohr**

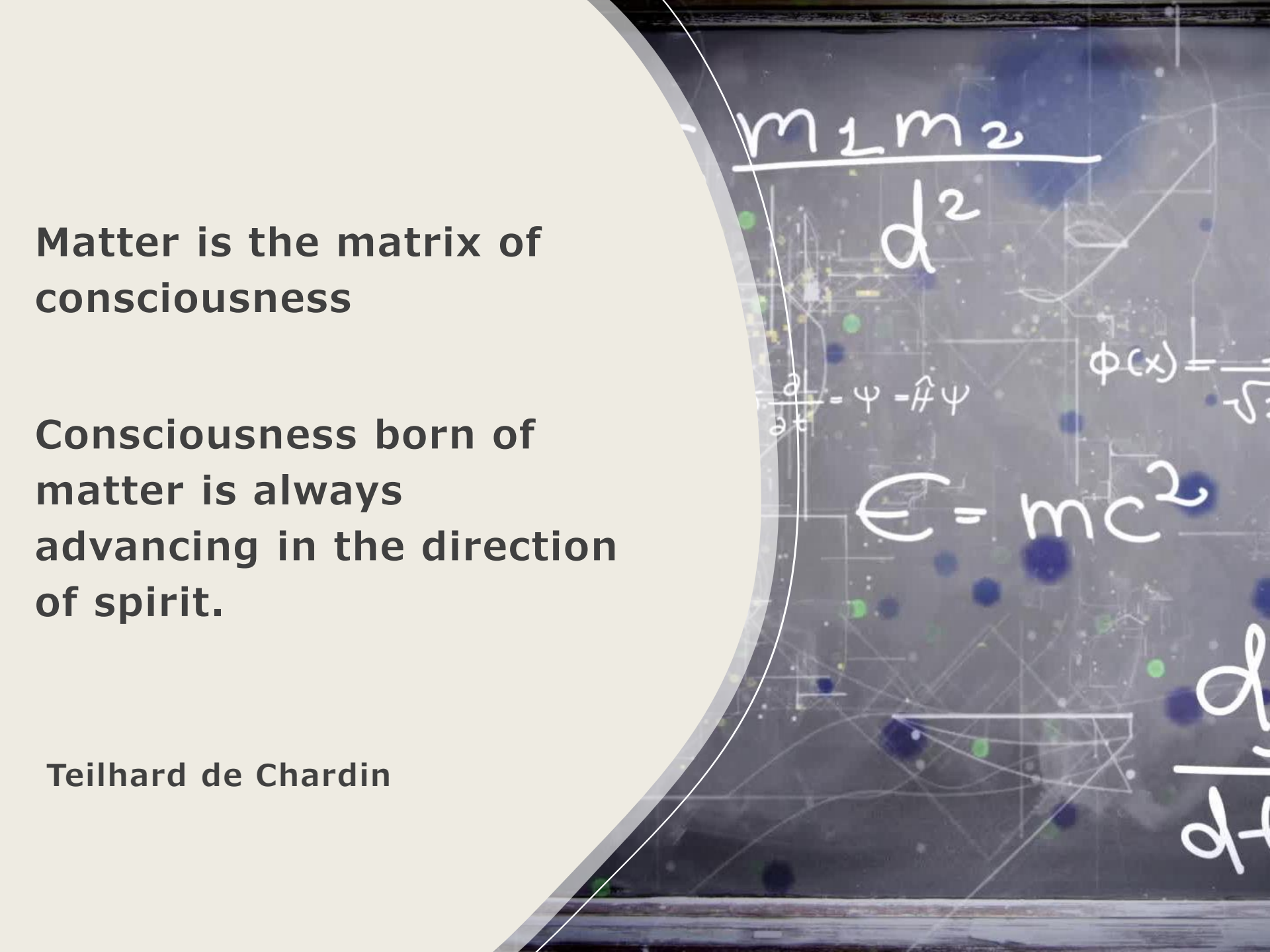
**Consciousness is a system  
of feedback loops, a type of relationality  
that includes communication  
and the flow of information.**

**Michio Kaku**

**Matter is the matrix of  
consciousness**

**Consciousness born of  
matter is always  
advancing in the direction  
of spirit.**

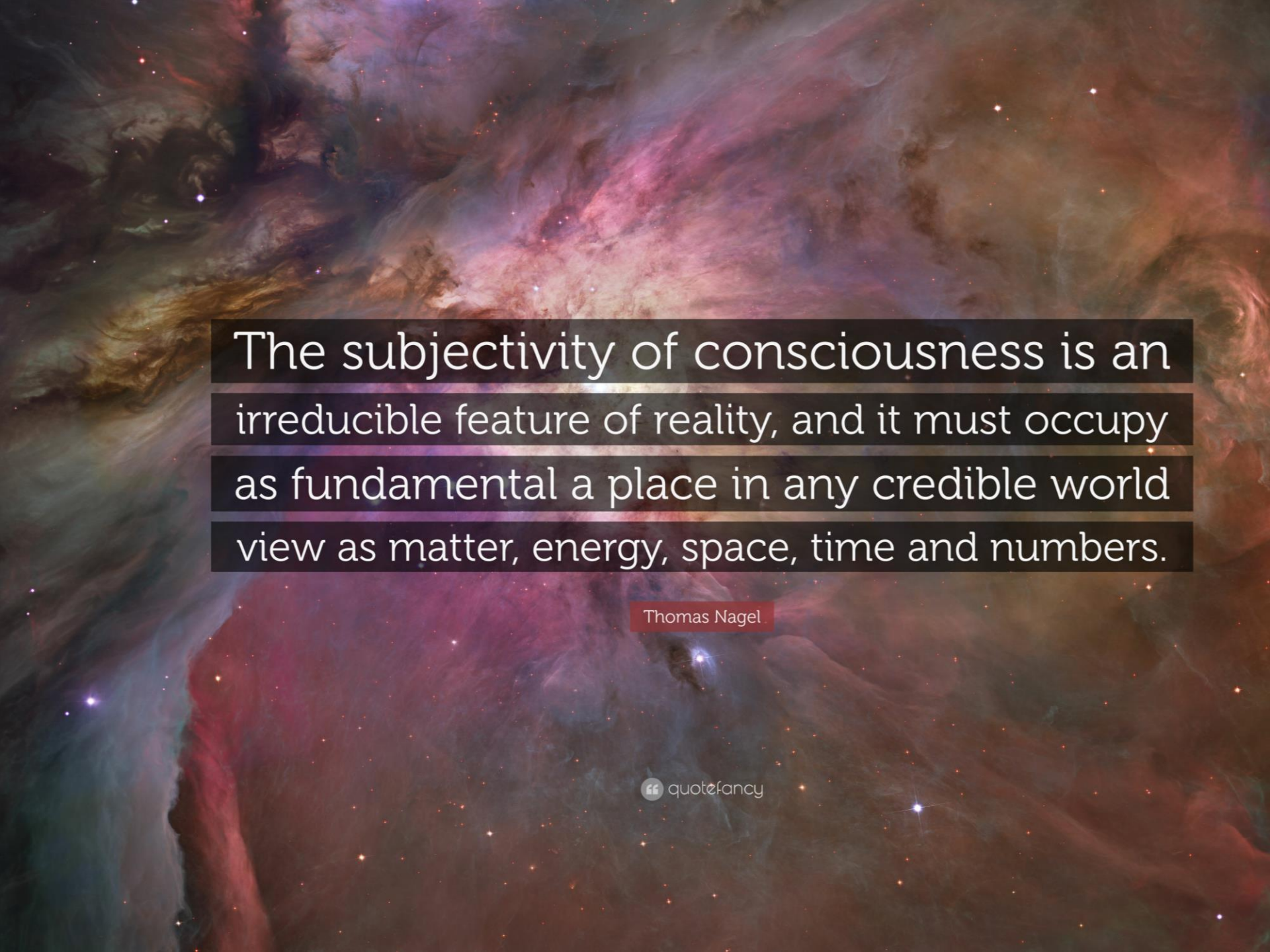
**Teilhard de Chardin**


$$\frac{m_1 m_2}{d^2}$$

$$\frac{\partial \psi}{\partial t} = -\hat{H} \psi$$

$$\phi(x) = \frac{1}{\sqrt{2}}$$

$$E = mc^2$$



The subjectivity of consciousness is an irreducible feature of reality, and it must occupy as fundamental a place in any credible world view as matter, energy, space, time and numbers.

Thomas Nagel

“ quotefancy



A glowing brain is the central focus, rendered in a translucent, cyan-blue hue. The brain is surrounded by a complex network of particle tracks, with blue spheres representing particles and thin lines indicating their paths. The background is a dark, starry space filled with streaks of light in shades of green, blue, and purple, suggesting a high-energy or quantum environment. The words 'MATTER' and 'MIND' are prominently displayed in yellow, bold, sans-serif font, one above the other, centered over the brain's structure.

**MATTER**

**MIND**

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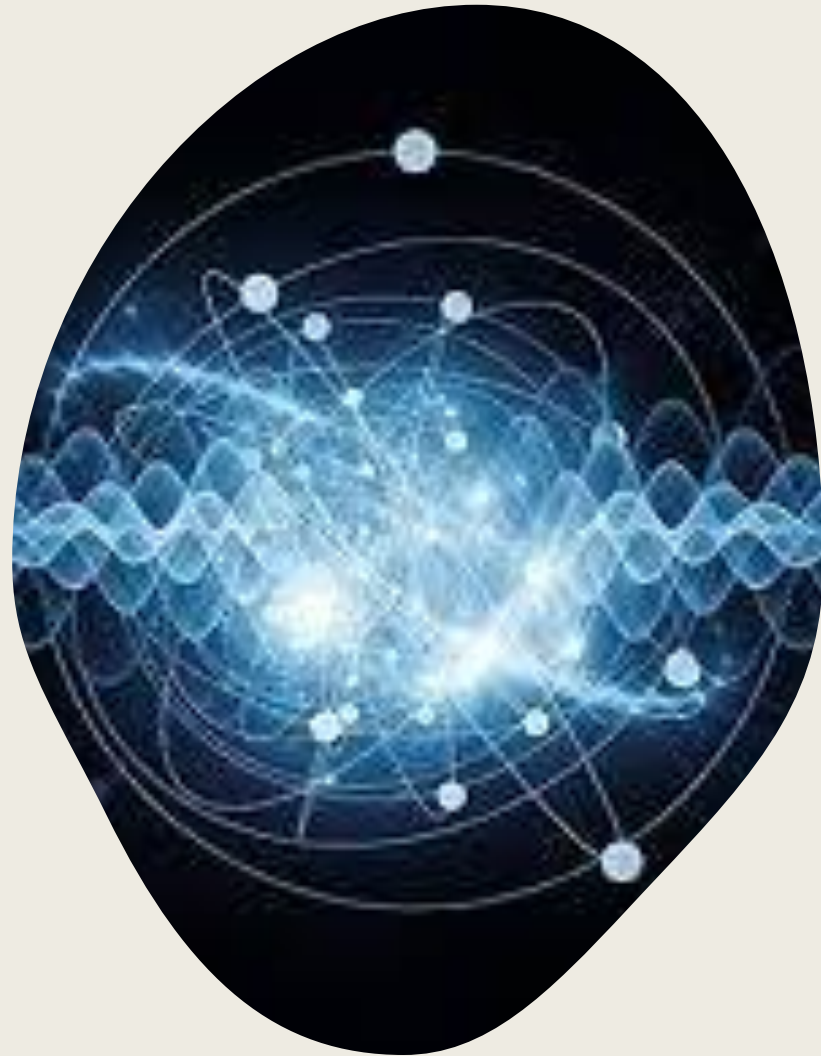
**Matter is like a mirror. The great paradox of matter is not that it is “being” but that it is “non-being”**

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**Matter reflects what is put into it**

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**When we look into the depths of matter, we find that our vision plunges us into “the infinite that lies beyond us.”**



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**The being *in* matter is the being *of* matter.**

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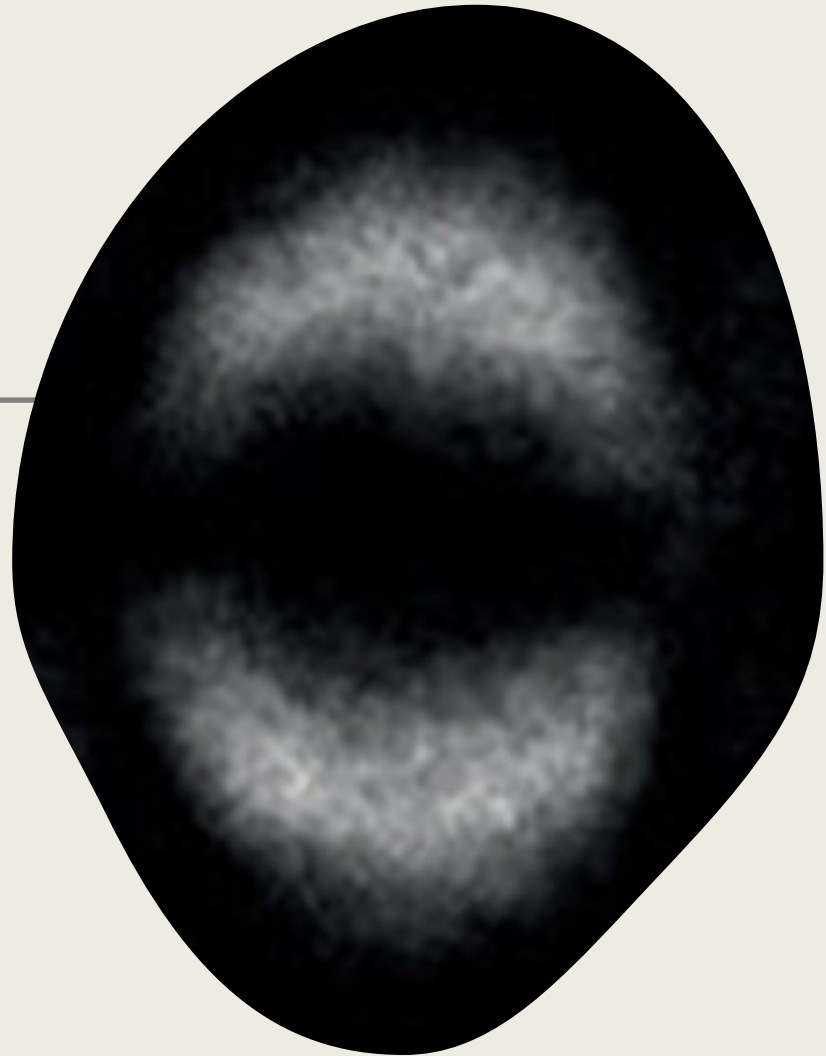
**That which makes matter a mirror is something of the mind reflected in the mirror.**

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**The mirror image of matter and the mirrored image of the one who sees are the same.**

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**The mirror of matter gives itself to the one who looks at it and whom it mirrors.**



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**The mirror image does not only come from its “other,” receiving its being from the “other”**

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**it also directs itself to its “other” and is what it is *for* its other.**

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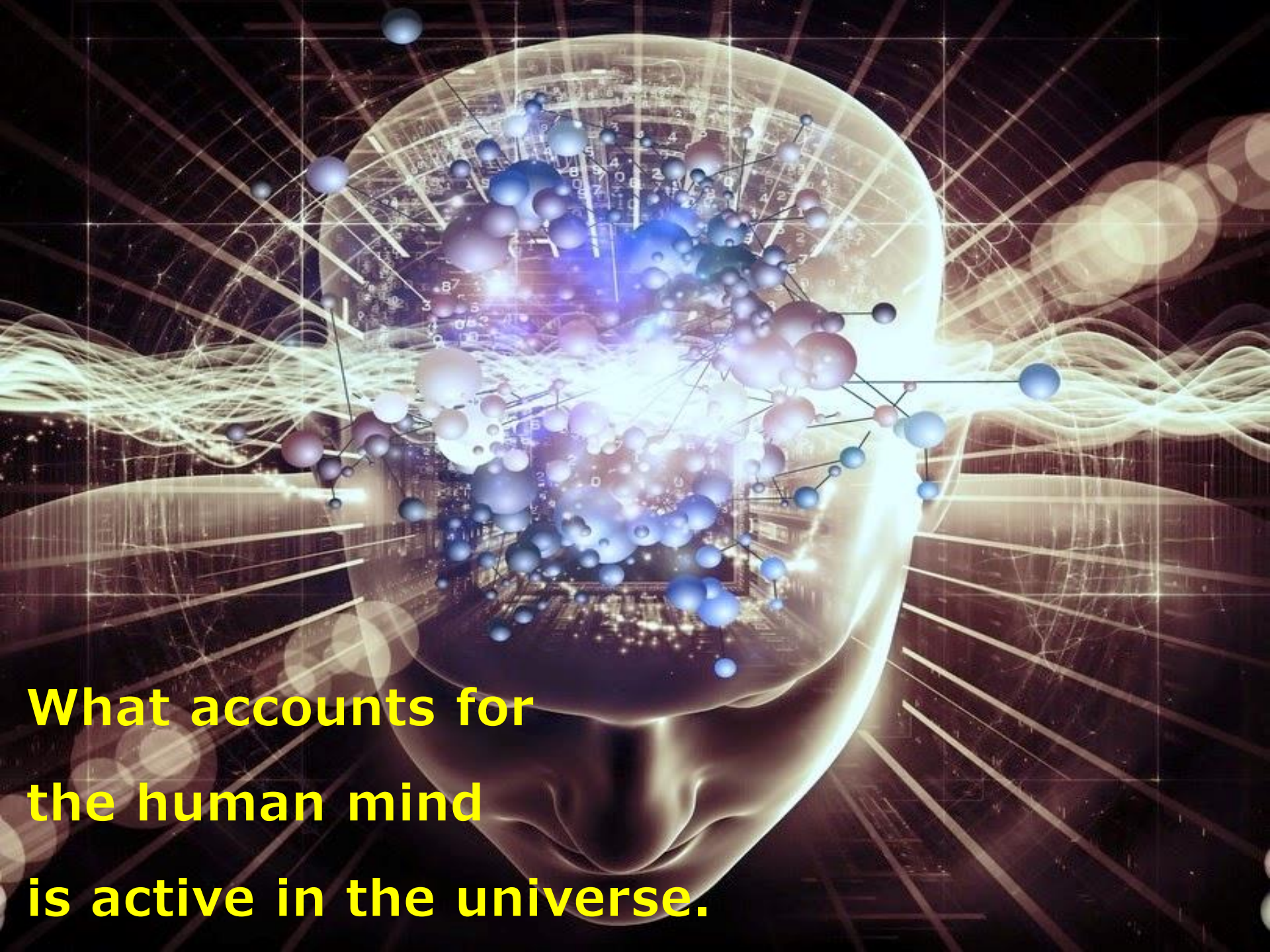
**Without the “other” whom it mirrors, matter would virtually cease to exist.**

---

**Matter does not separate us from the world of essences; it is only by working our way through matter that our minds can expand to the God-dimensions of the universe.**







**What accounts for  
the human mind  
is active in the universe.**

# Implicate Order



Space is not empty. It is full, a plenum as opposed to a vacuum, and is the ground for the existence of everything, including ourselves. The universe is not separate from this cosmic sea of energy.

— *David Bohm* —

AZ QUOTES

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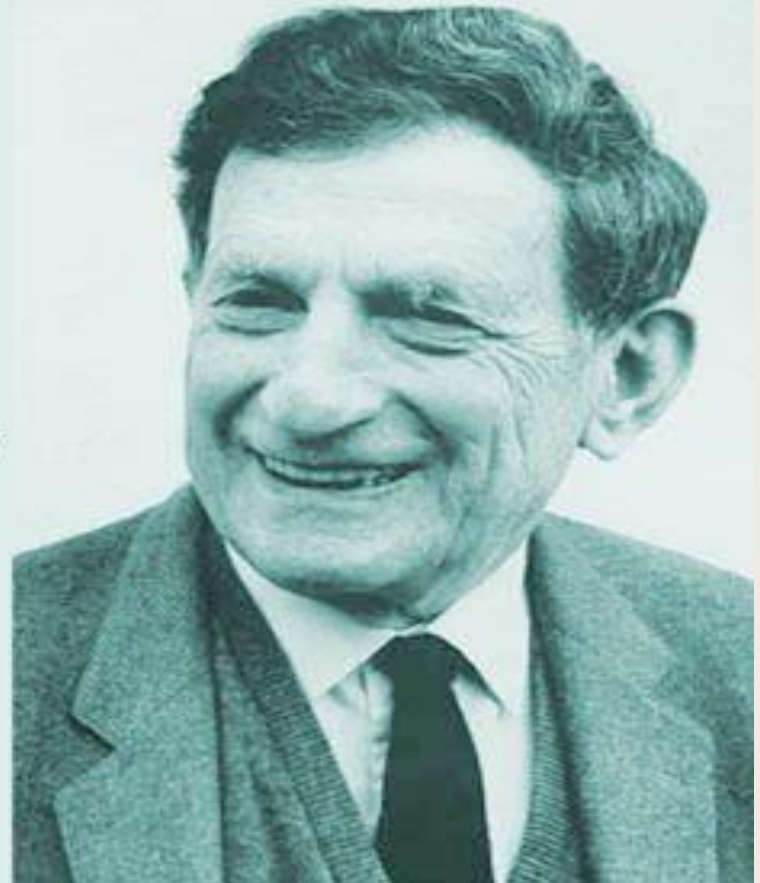
## David Bohm's Implicate Order

The notion of reality as a whole should be such as to allow for an understanding of how reality and consciousness are related.

- *“At each level of subtlety there will be a “mental pole” and a “physical pole” . . .*
- *“But the deeper reality is something beyond either mind or matter, both of which are only aspects that serve as terms for analysis” – a WHOLE*

**“Ultimately, the entire universe (with all its ‘particles’, including those constituting human beings, their laboratories, observing instruments, etc.) has to be understood as a single undivided whole, in which analysis into separately and independently existent parts has no fundamental status.”**

**- David Bohm**

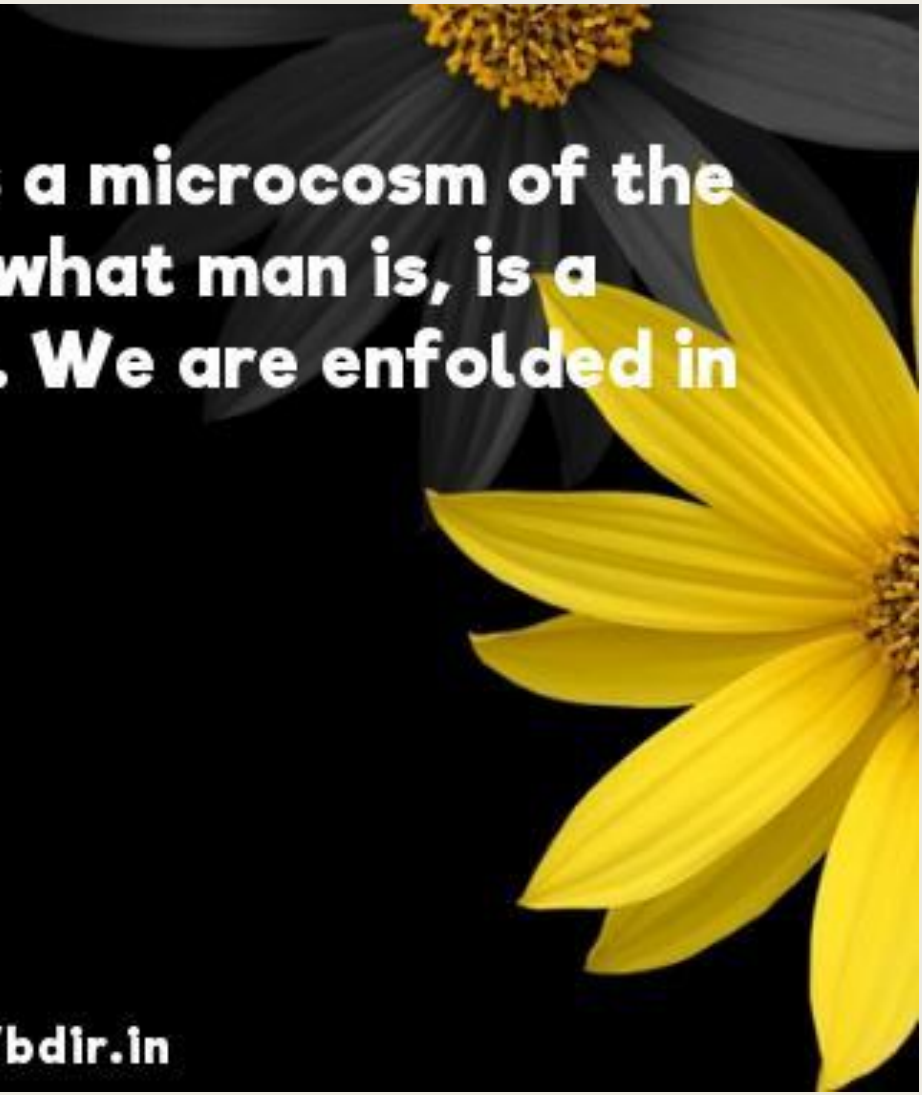




Consciousness is much more of the implicate order than is matter... Yet at a deeper level [matter and consciousness] are actually inseparable and interwoven, just as in the computer game the player and the screen are united by participation.

— *David Bohm* —

AZ QUOTES



**In some sense man is a microcosm of the universe; therefore what man is, is a clue to the universe. We are enfolded in the universe.**

**--- David Bohm**

<http://bdir.in>

**We are the thinking portion  
of the universe**



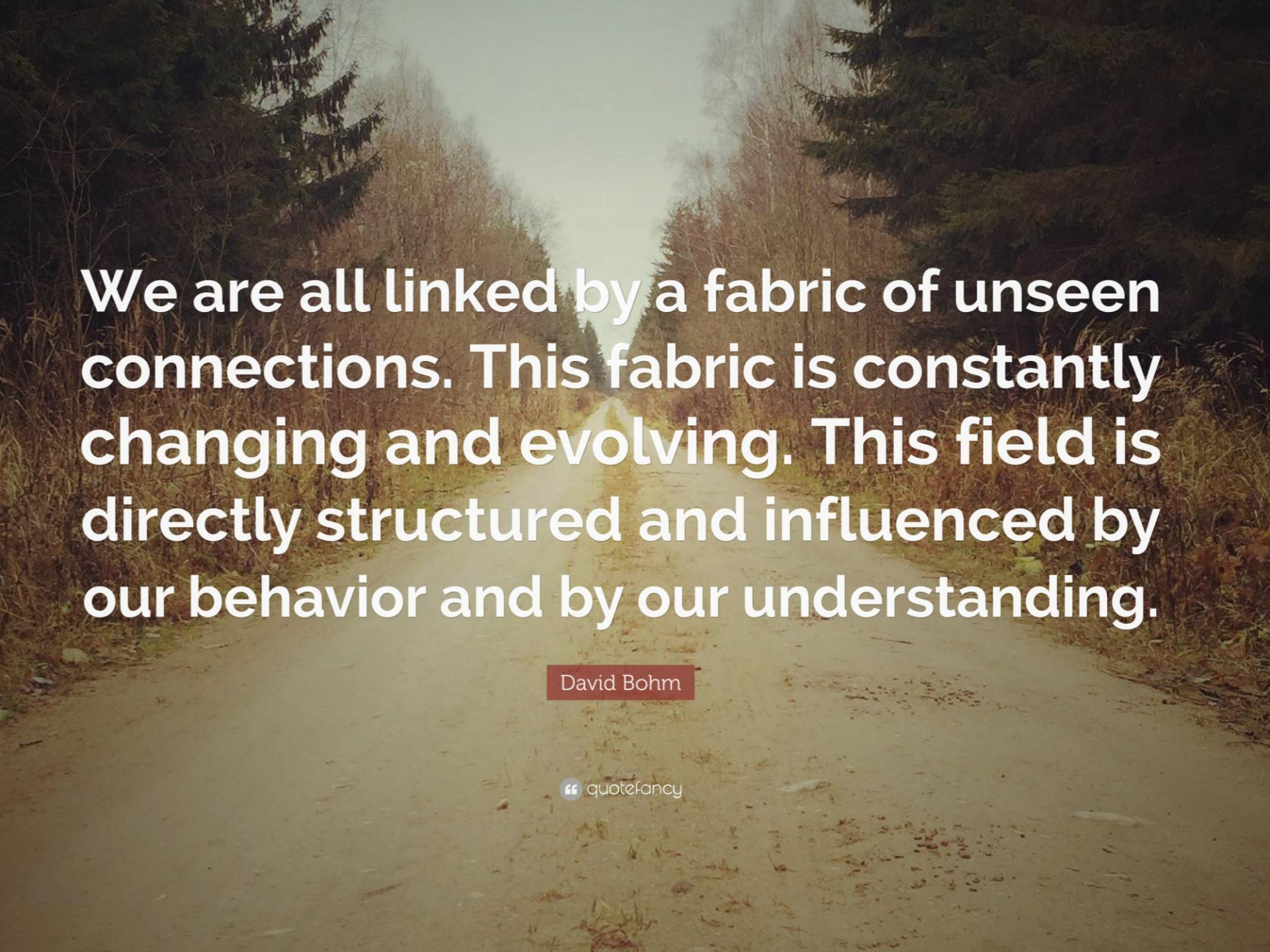


Deep down the consciousness of mankind is one. This is a virtual certainty because even in the vacuum matter is one; and if we don't see this, it's because we are blinding ourselves to it.

— *David Bohm* —

AZ QUOTES





**We are all linked by a fabric of unseen connections. This fabric is constantly changing and evolving. This field is directly structured and influenced by our behavior and by our understanding.**

David Bohm

 quotefancy



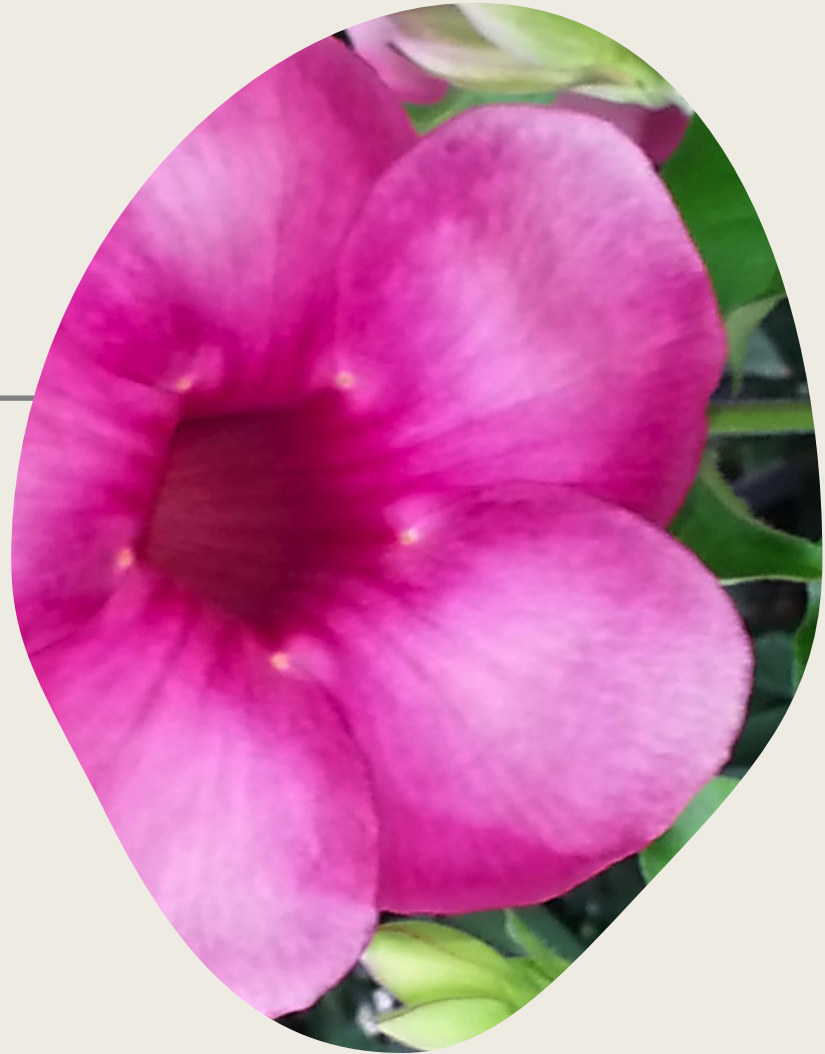
Ultimately, the entire universe...has  
to be understood as a single  
undivided whole.


— *David Bohm* —

AZ QUOTES

**As human beings and societies we seem separate, but in our roots we are part of an indivisible whole and share in the same cosmic process.**

**David Bohm**



A dramatic landscape featuring a large, layered rock formation in the foreground, with snow-capped mountains in the background under a hazy sky. The rock formation has a distinct vertical texture and is partially covered in snow at the top. The sky is a mix of light and dark tones, suggesting a sunrise or sunset.

**Individuality is only possible  
if it unfolds from wholeness.**

David Bohm



**What is needed is to learn  
afresh, to observe, and to  
discover for ourselves the  
meaning of wholeness.**

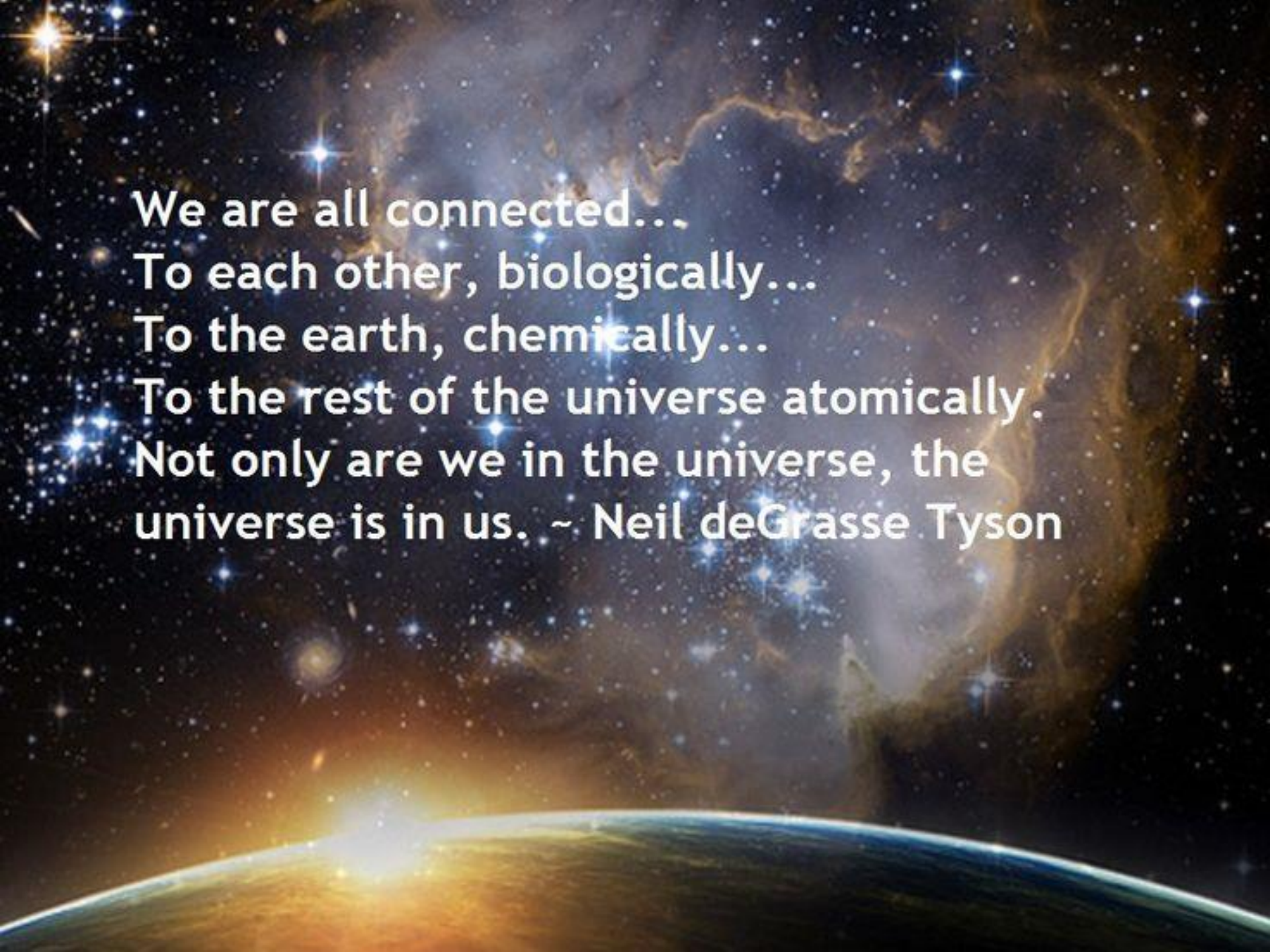
David Bohm

“ quotezofancy



Ego-centeredness is  
not individuality at all.

David Bohm

A cosmic scene featuring a starry background with a nebula and the horizon of Earth at the bottom. The text is overlaid on the upper portion of the image.

We are all connected...  
To each other, biologically...  
To the earth, chemically...  
To the rest of the universe atomically.  
Not only are we in the universe, the  
universe is in us. ~ Neil deGrasse Tyson

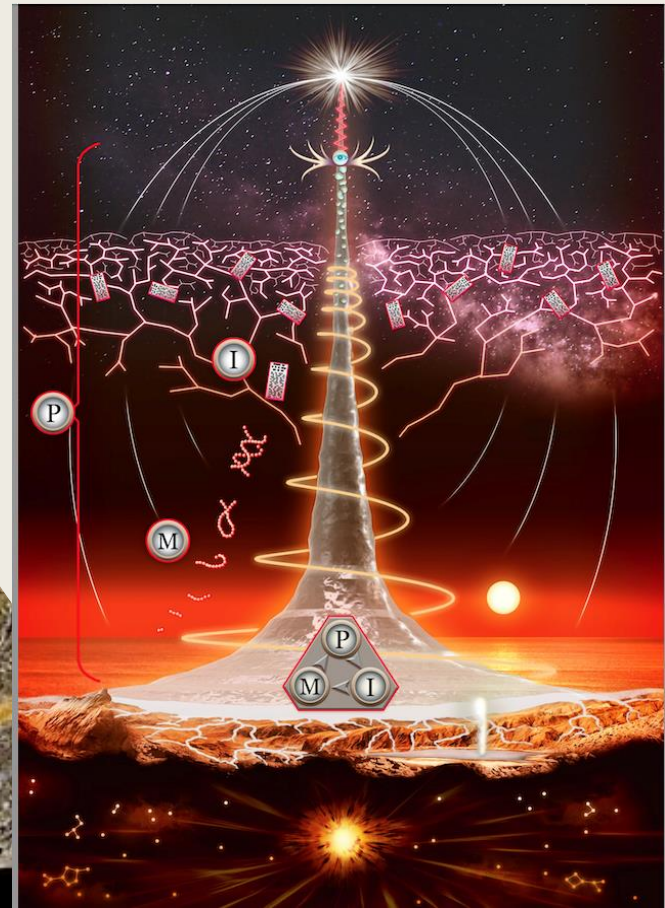
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The Whole is  
in Movement

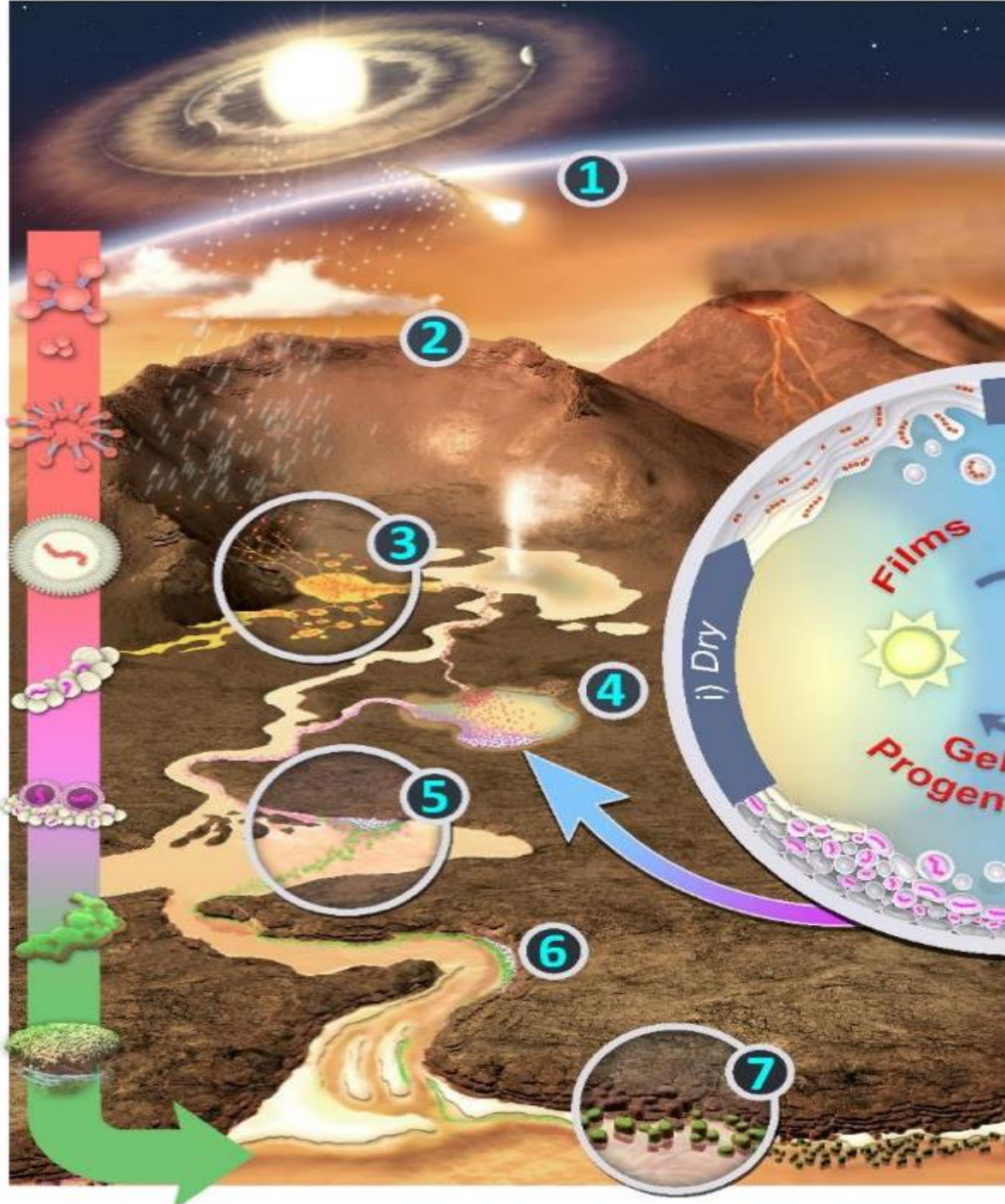




# 3.5 billion years old Stromatolite



a-Organics  
b-Pre-Life ~ c-Early Life  
d-Global Life



1. Synthesis

2. Accumulation

3. Concentration

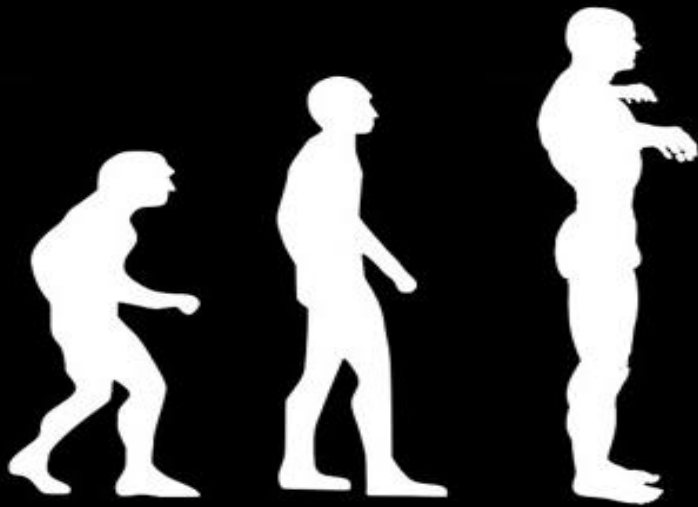
A. Cycling

5. Distribution

6. Adaptation

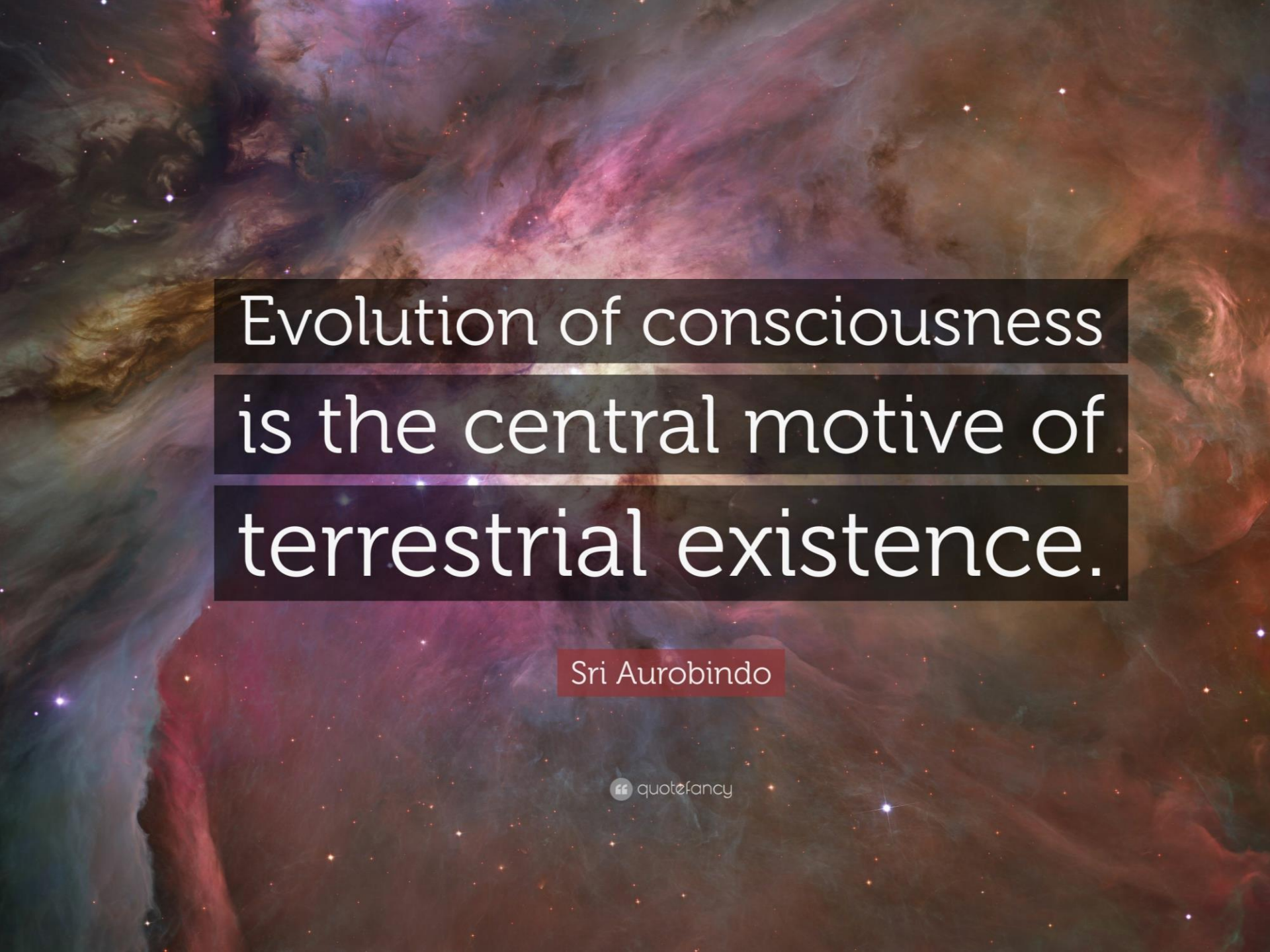
7. Colonization





**Mind – Matter**

**Consciousness -  
Complexity**



Evolution of consciousness  
is the central motive of  
terrestrial existence.

Sri Aurobindo

# Human evolution

**We are unfinished**

**We are being created and are  
creating**

**Life emerges toward  
newness/future**

**An irreversibility of time**

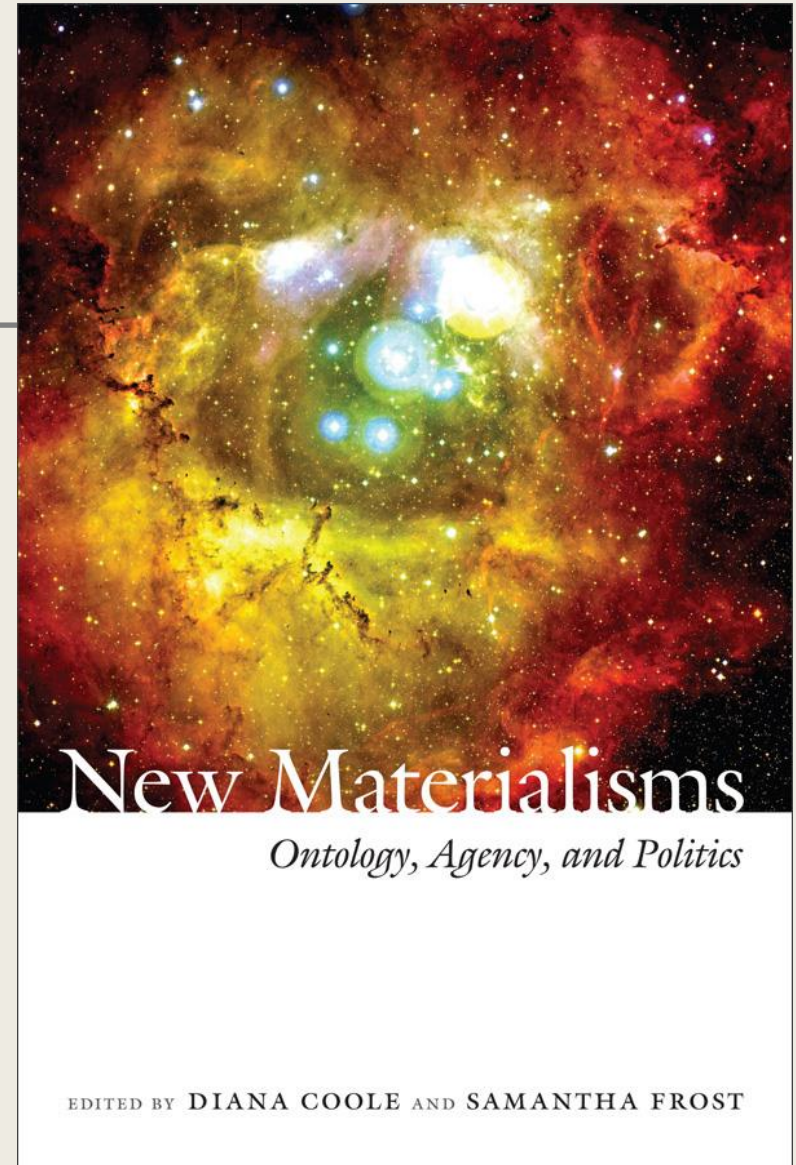
**Life evolves by creative power**

## The turn to matter

- 'New materialist' ontology:
  - Not entities but relations.
  - Not agency but affects (the capacity to affect or be affected).
  - Not structures but un/stable assemblages.
  - Not construction but production.
  - Not textualities but matter.

@socnewmat

THINKSTOCK



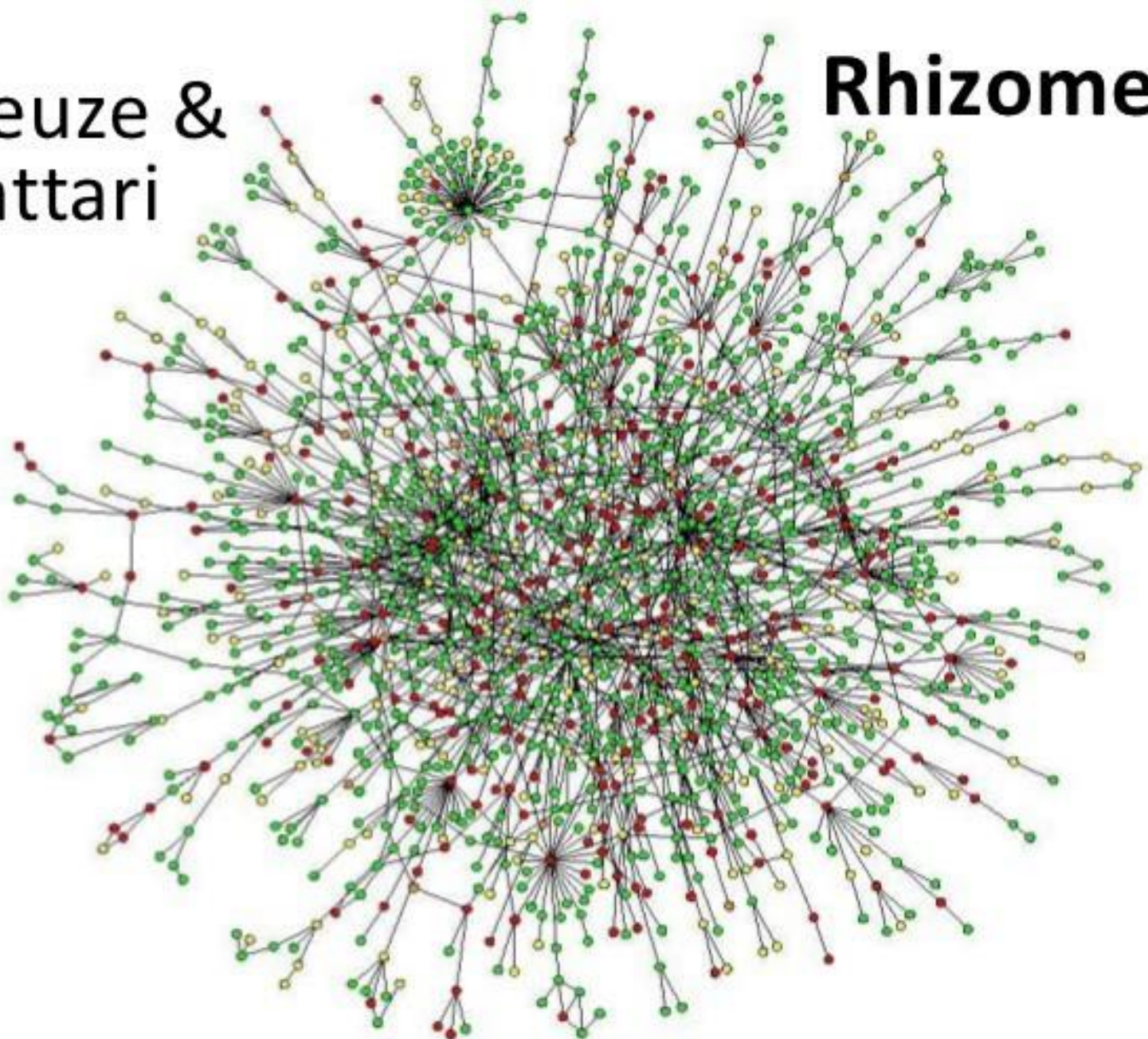
# New Materialisms

*Ontology, Agency, and Politics*

EDITED BY DIANA COOLE AND SAMANTHA FROST

Deleuze &  
Guattari

**Rhizomes**



**Anarchy of the Web**





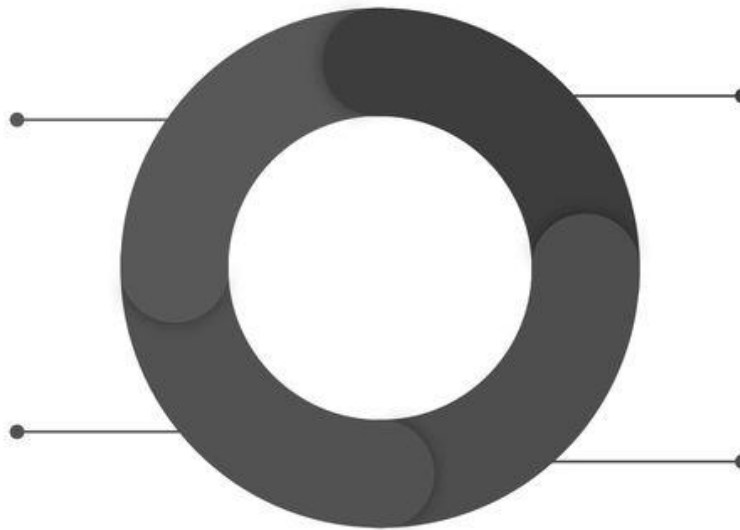
# ***Rhizomic subjectivity***

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**A trans-personal capacity  
distinct from any  
universalism,  
grounded in the radical  
immanence of a sense of  
belonging to and  
being accountable for  
a community,  
a people,  
a territory.**

# The Meaning of Agential Realism

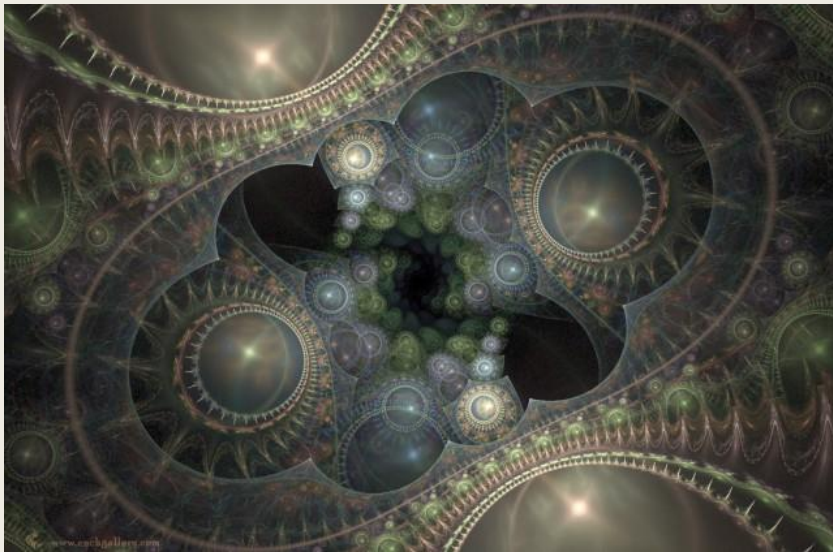
**Meaning and agency  
emerge from intra-actions**



**Continually entangled and  
reconfiguring reality and  
possibility**

**We are ethically responsible  
because our intra-actions  
have significant impacts**

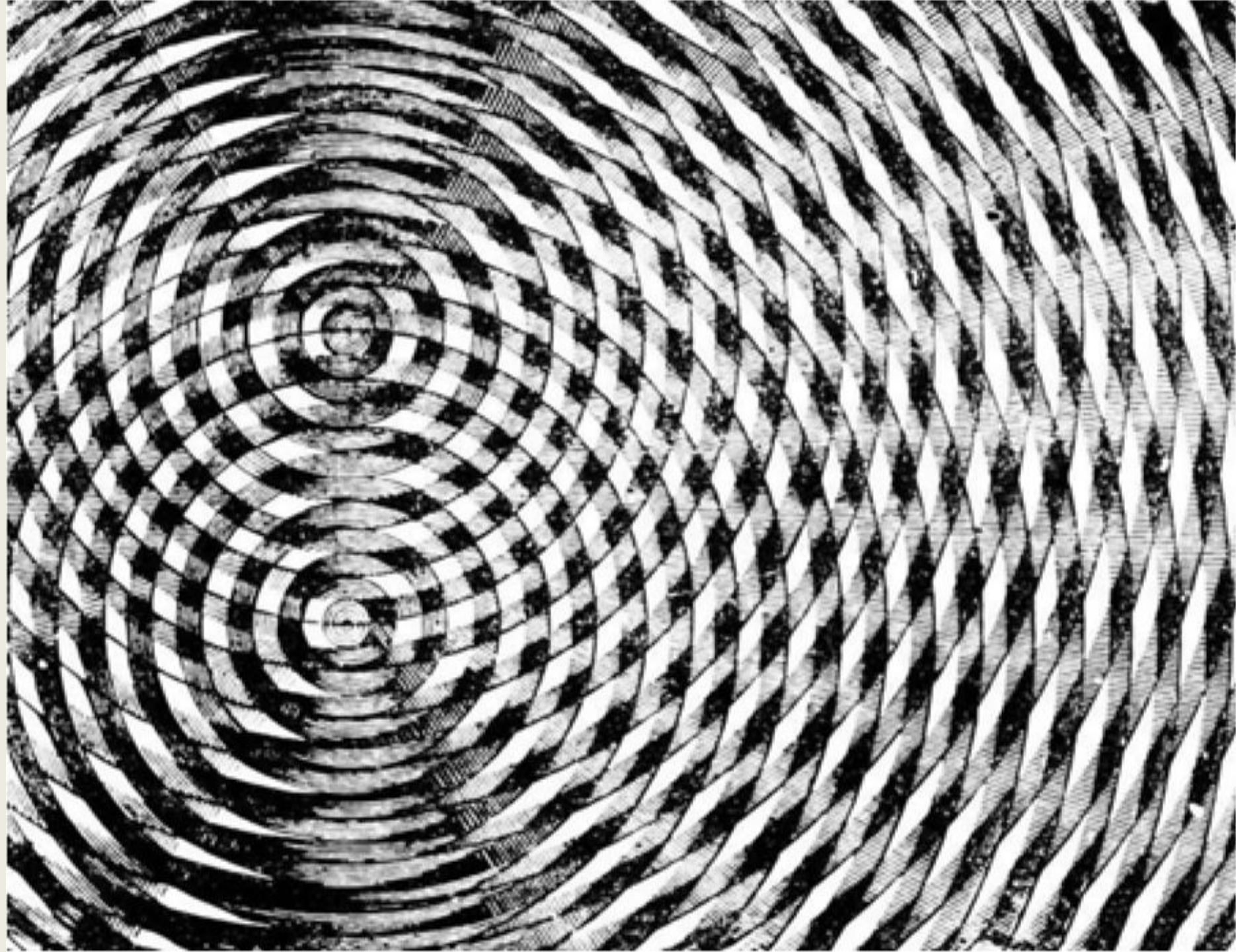
**Because we are entangled,  
we are accountable for the  
performativity of reality**

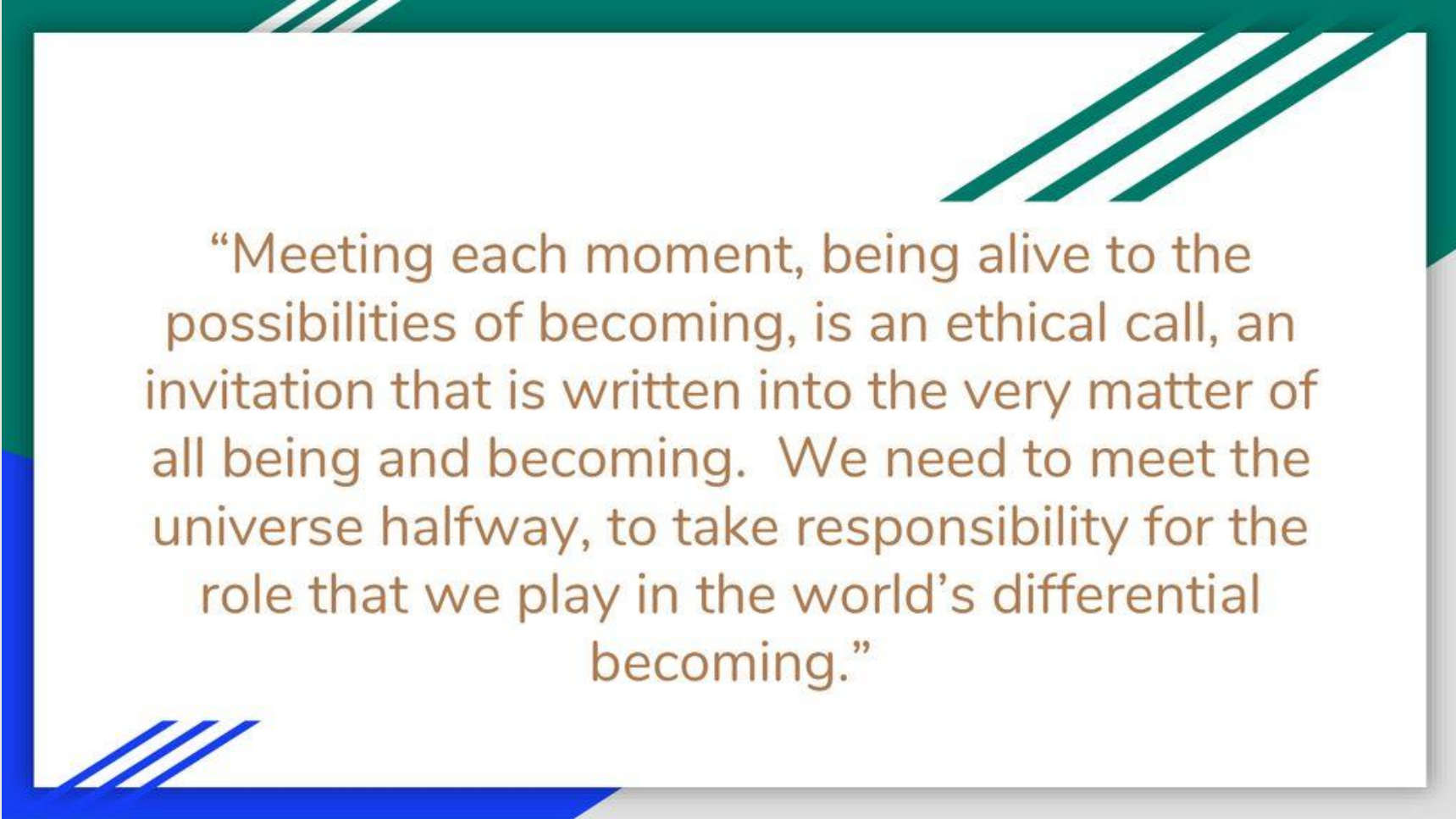


## Intra-action

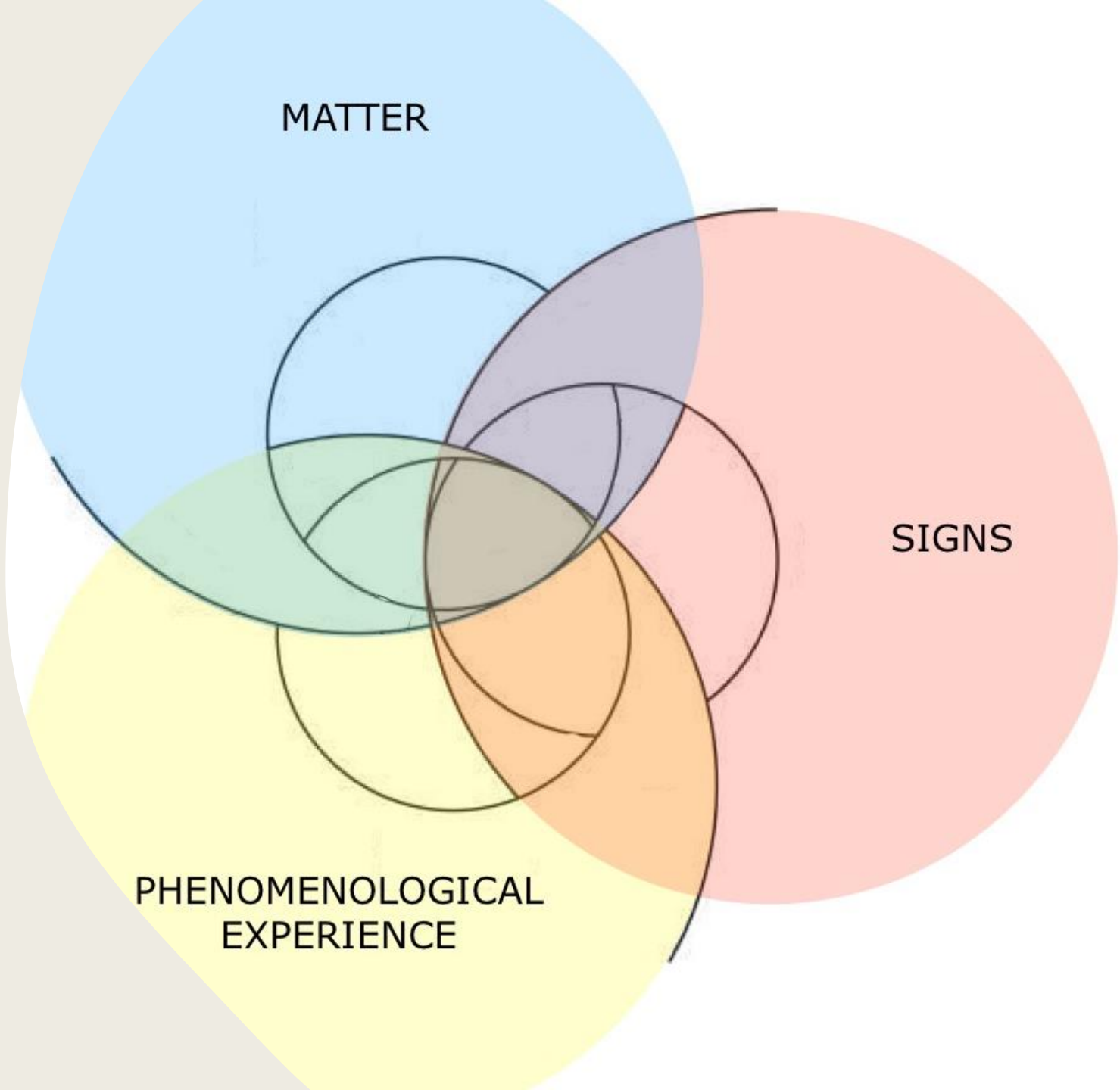
"There is no 'between' as such, human and non-human organisms and machines emerge only through their mutual co-constitution."

Karen Barad





“Meeting each moment, being alive to the possibilities of becoming, is an ethical call, an invitation that is written into the very matter of all being and becoming. We need to meet the universe halfway, to take responsibility for the role that we play in the world’s differential becoming.”



MATTER

SIGNS

PHENOMENOLOGICAL  
EXPERIENCE



## **What is the Human Person?**

**Dynamic becoming, like an  
eddy in a stream**

**Matter-energy complex**

**Radical immanence**

**Transpersonal**

**Part of nature's becoming**

**Deeply relational**

**Complex dynamical system**

**Deeply relational**

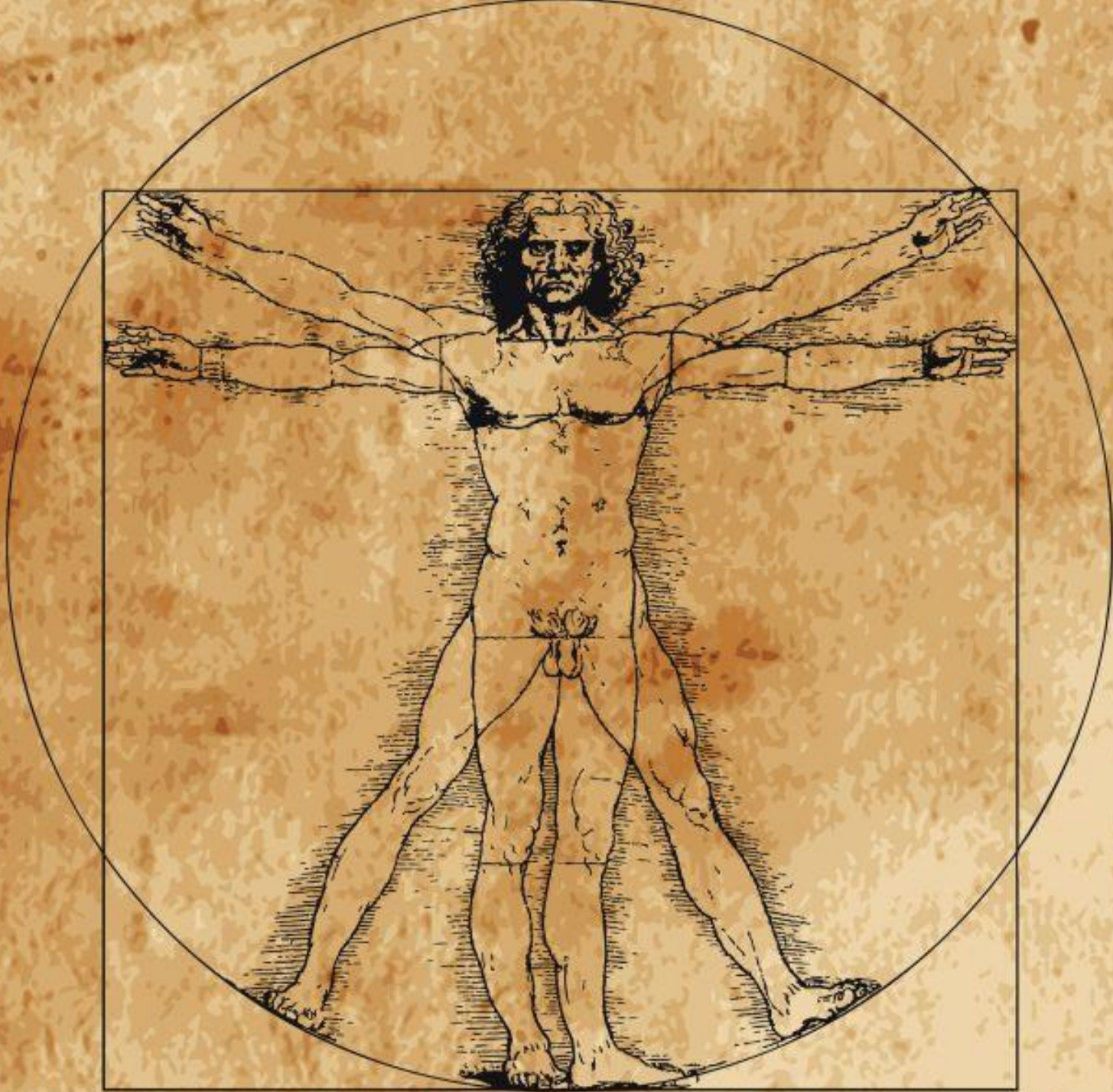
A hand holding a small plant in a field at sunset. The scene is bathed in warm, golden light, with a rainbow visible in the bottom left corner. The background is a soft-focus field of tall grasses and flowers.

## What is a Human Person?

A person is “the creative activity of life as it projects itself to the next instant”

We are *not* autonomous, independent subjects





"Slowly we are beginning to discover that there is ultimately no separation within the field of existence—we belong deeply to this world, and to each other."



# Religion and Evolution

## Pre axial

Tribal

Mythic

Ritualistic

Communal  
community

## Axial Period

autonomy

transcendence

freedom

person

## Second Axial

relatedness

immanence

ecological

global



# **The Emerging Myth of Relational Holism**

**(HOLISM IS) THE TENDENCY IN NATURE TO  
FORM WHOLES THAT ARE GREATER THAN  
THE SUM OF THE PARTS THROUGH  
CREATIVE EVOLUTION...**

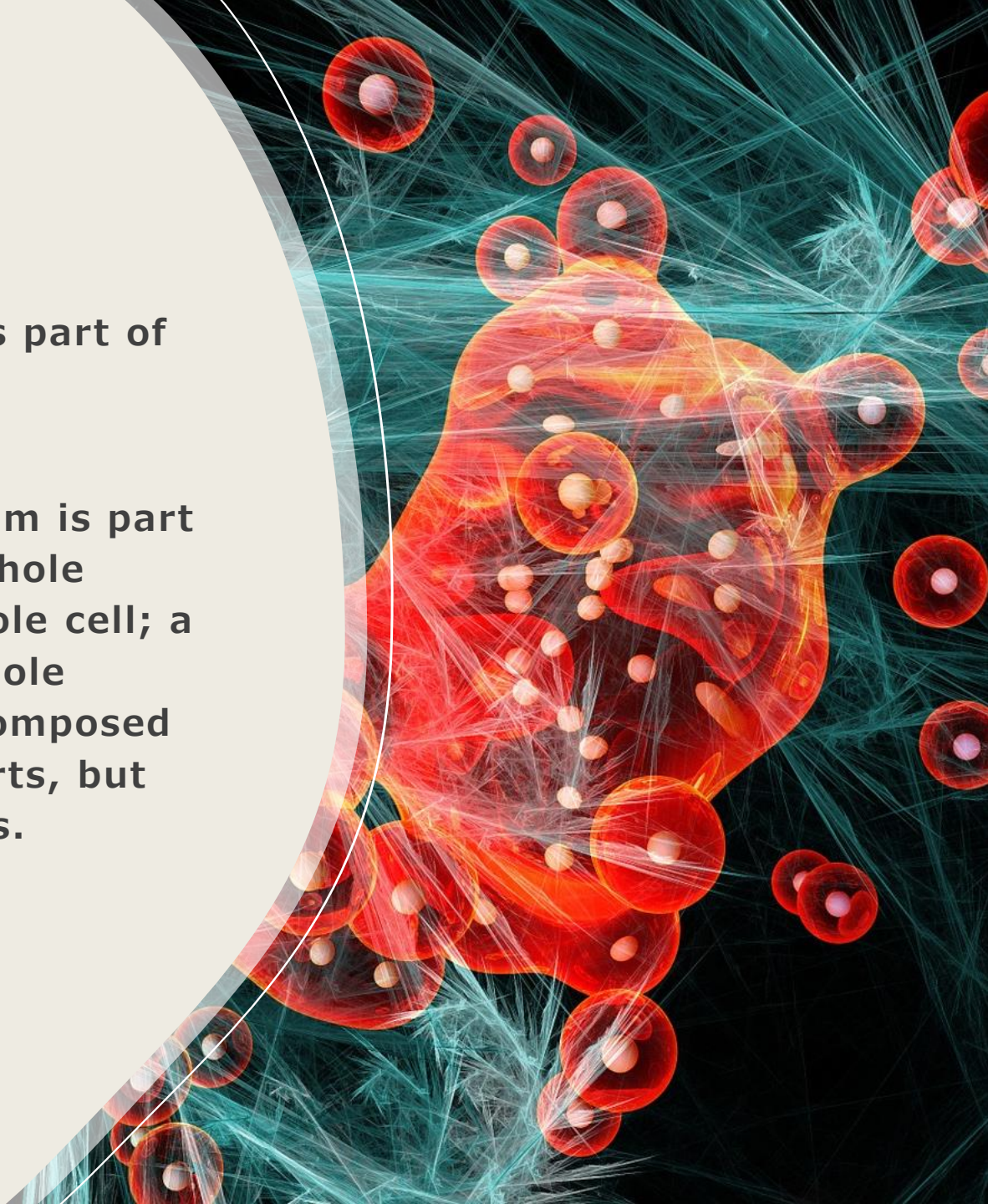
**- JAN SMUTS -**

# HOLONS

*A holon* is a whole that is part of other wholes.

For example, a whole atom is part of a whole molecule; a whole molecule of part of a whole cell; a whole cell is part of a whole organism. . . Reality is composed of neither wholes nor parts, but of whole/parts, or holons.

*Ken Wilbur*



# **HOLISTIC WORLD VIEW**

**World is an integrated whole rather than parts.**

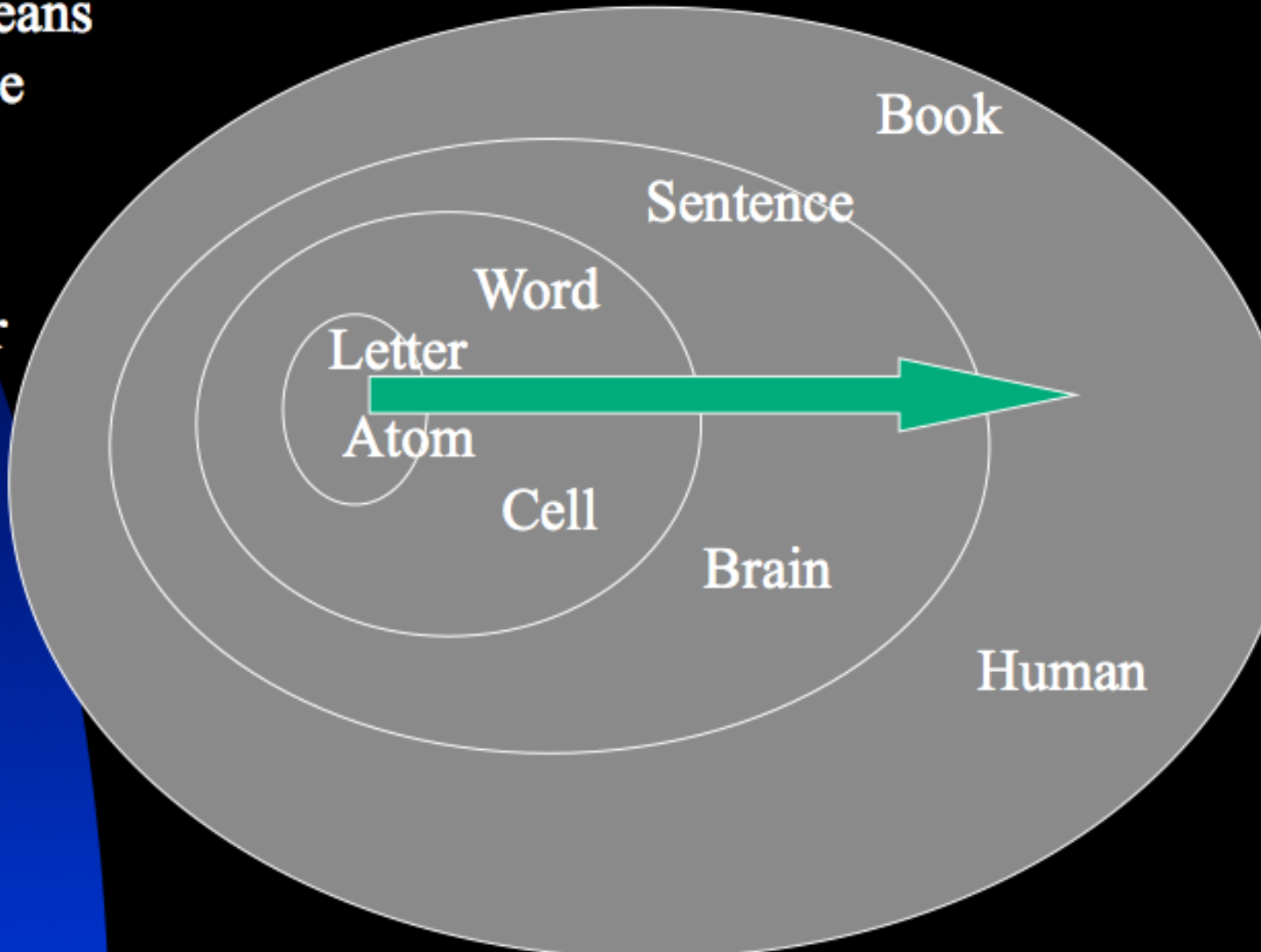
**Phenomena are fundamentally interconnected and interdependent.**

**Recognizes intrinsic value of all living beings and views humans as one particular strand in the web of life.**

A “holon” describes the relationship between a part and a whole

Higher Order means an increase in the complexity

Higher orders depend on lower orders.

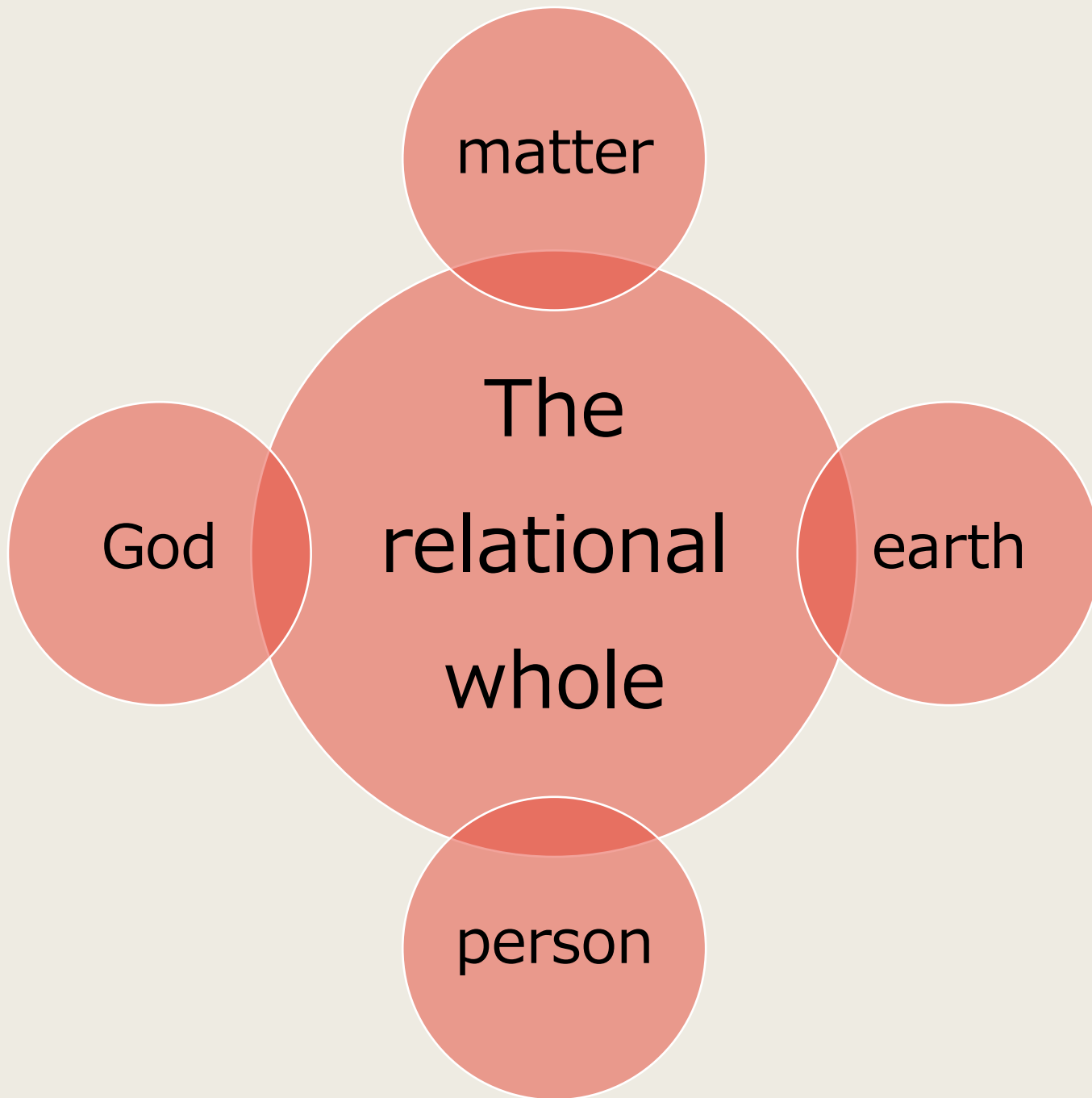





# The Holonomic Person



**SCOZBOR**  
HOLONS ALL THE WAY





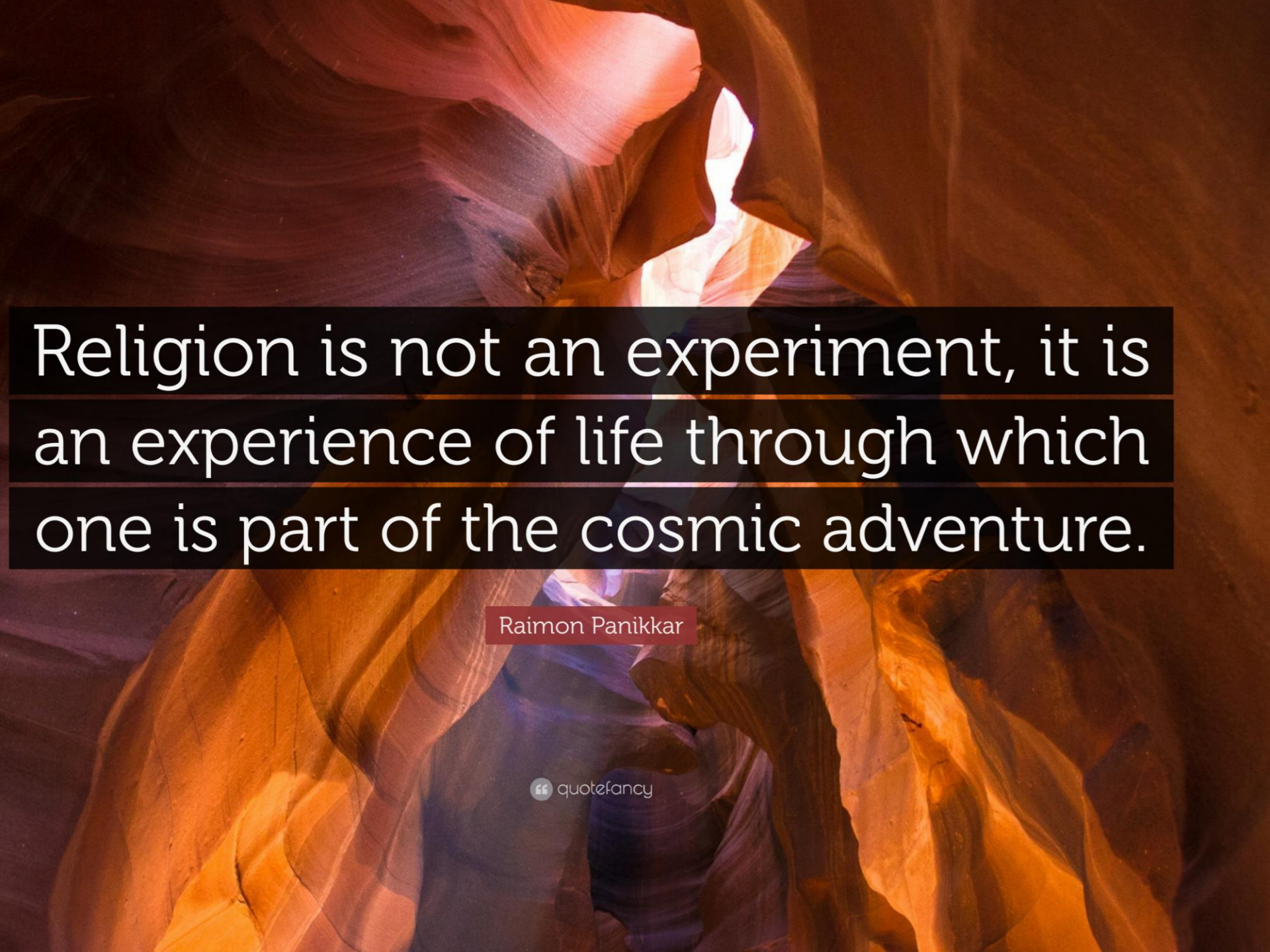
Religion is concerned with the depth dimension of nature, the place of ultimate concern.

The sacred ordering of nature is an ongoing process – religious meanings do not disappear; they change and new forms of treating nature as sacred are generated.

Spirituality does not contradict science or empirical reality, but rather proposes what that reality can become.

Secular society and contemporary science came into being not by breaking with religious thought but through transformations of the sacred.

The function of religion is to create stories of mythic depth.



Religion is not an experiment, it is  
an experience of life through which  
one is part of the cosmic adventure.

Raimon Panikkar

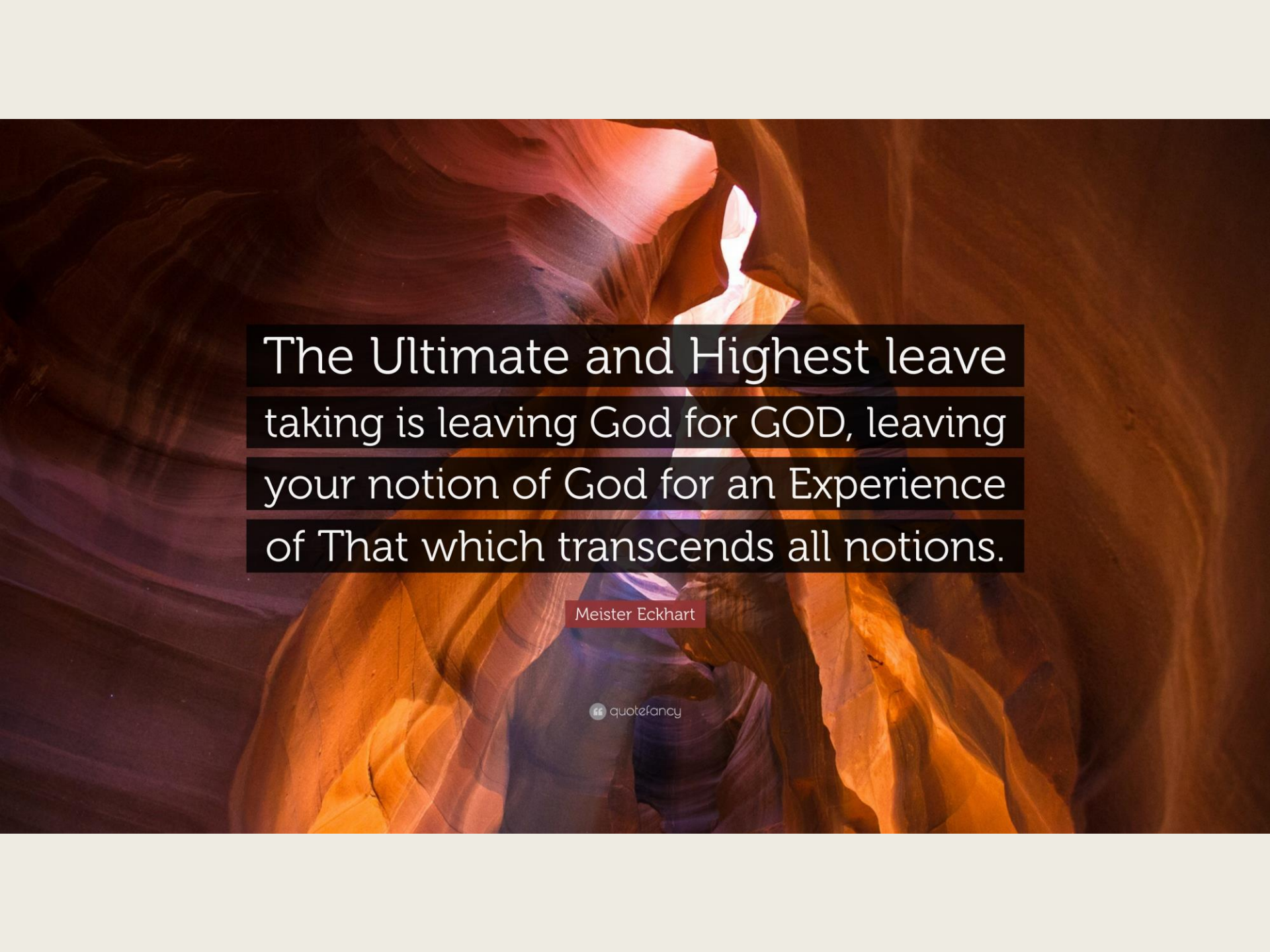
“ quote fancy

Discourse about God is radically different from every | other discourse on every other subject because God is not an object. Were God to be spoken of as object, God would become nothing more than an idol.

-Raimon Panikkar

God is so great that the  
greatness precludes existence.

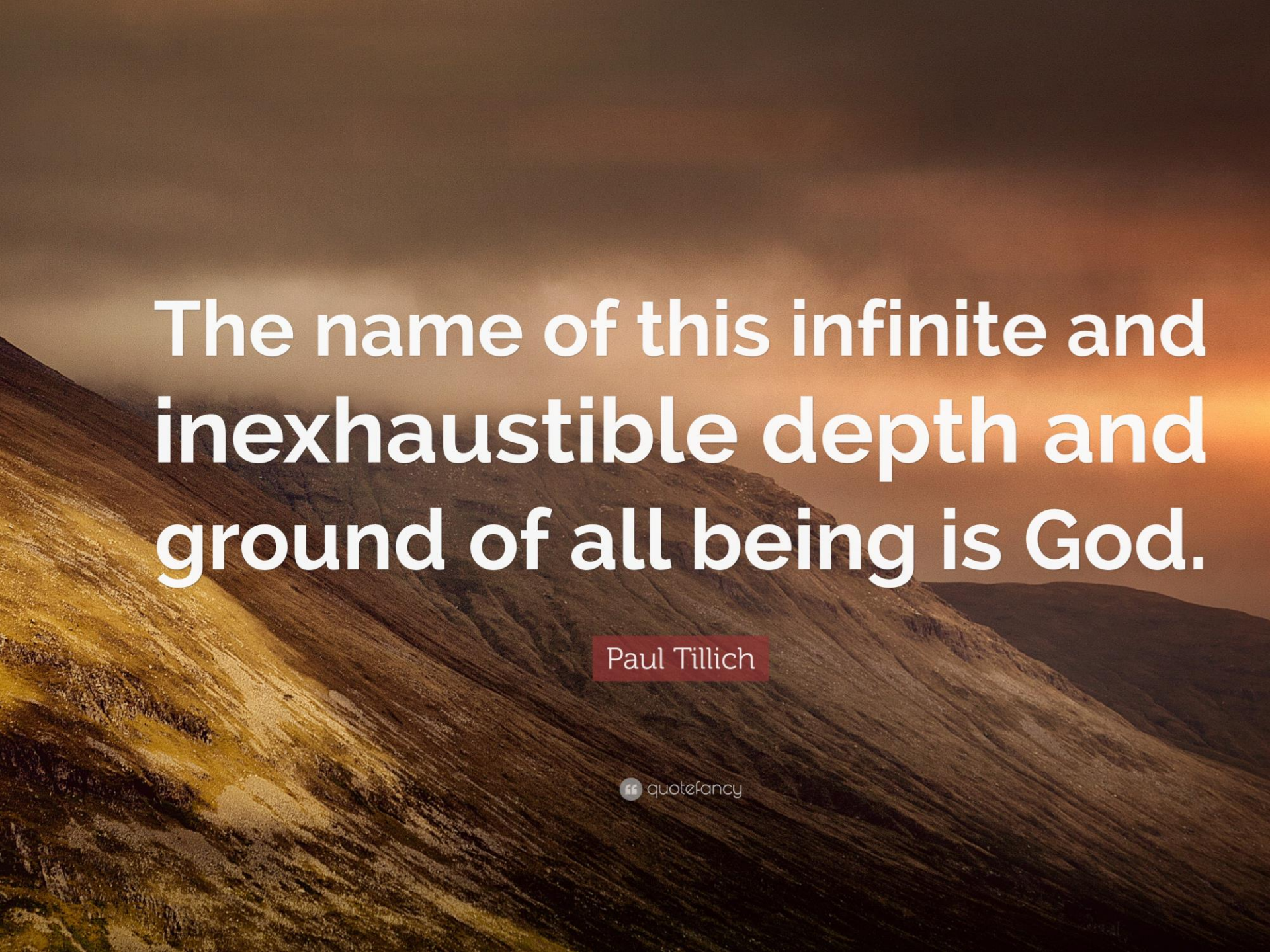
Raimon Panikkar



The Ultimate and Highest leave  
taking is leaving God for GOD, leaving  
your notion of God for an Experience  
of That which transcends all notions.

Meister Eckhart

 quote fancy



The name of this infinite and  
inexhaustible depth and  
ground of all being is God.

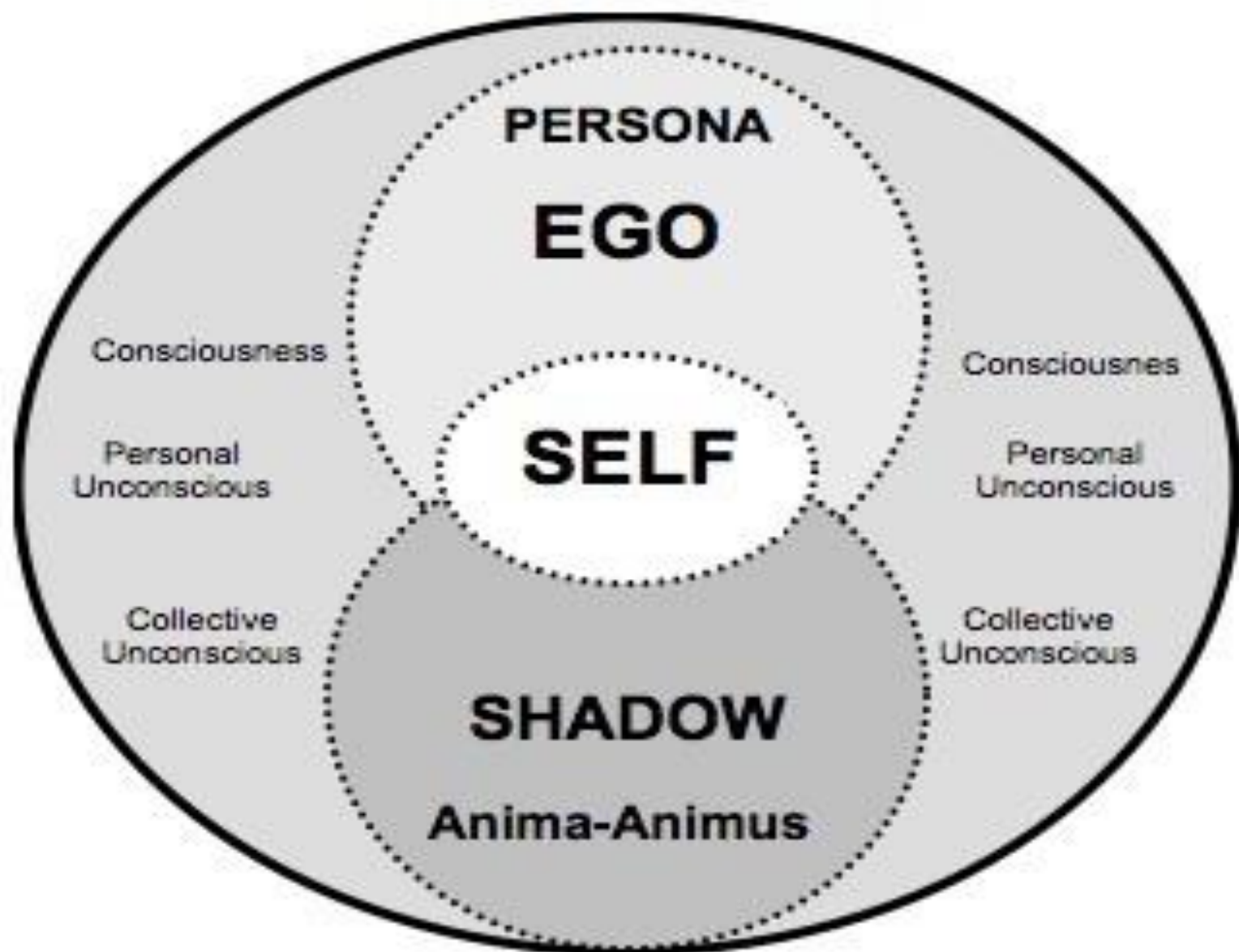
Paul Tillich



**1. The consciousness that created the universe dwells within us. 2. We exist in the energy web and are one with it. 3. Consciousness weaves and directs energy. 4. Everything exists for us as a possibility.**

John Kehoe

**OUTER WORLD**

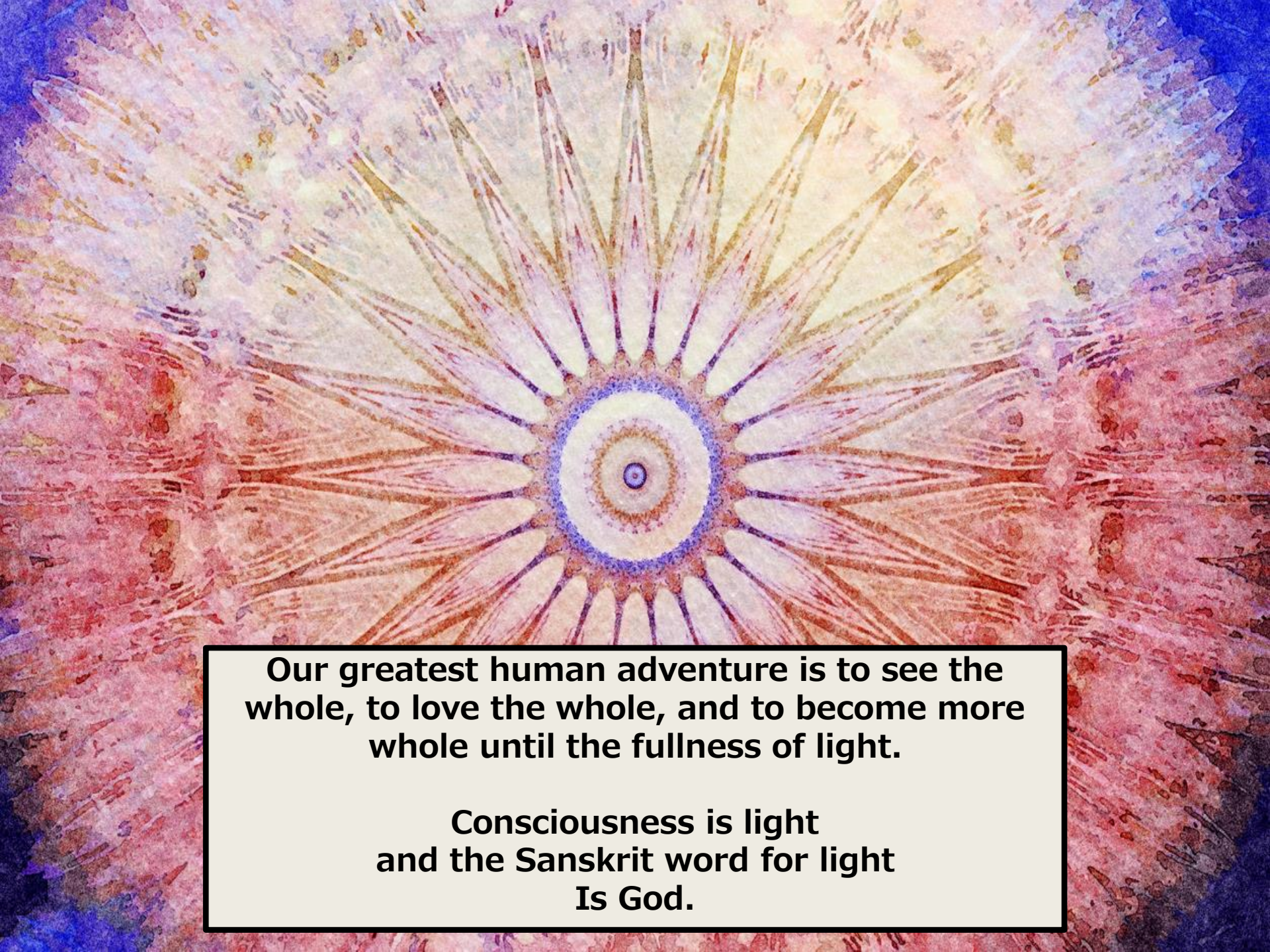


**INNER WORLD**

**The Eye with which I see God**




**Is the Same Eye with which God sees Me**



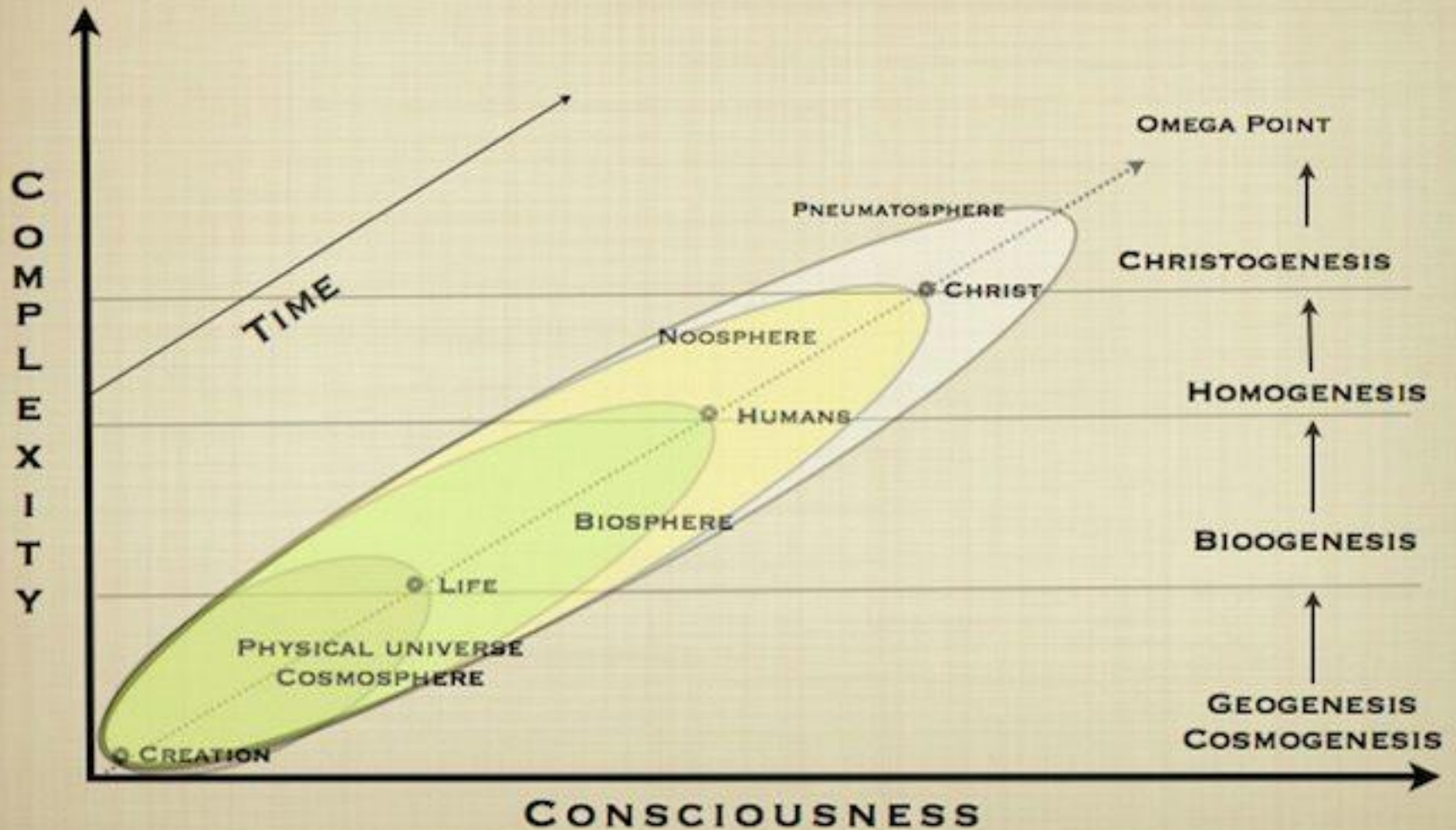
**Our greatest human adventure is to see the whole, to love the whole, and to become more whole until the fullness of light.**

**Consciousness is light  
and the Sanskrit word for light  
Is God.**



Cosmo-  
theandric  
Whole

# TEILHARD'S PERSPECTIVE





Our duty, as man and women, is to proceed as if limits to our ability did not exist. We are collaborators in creation.

*~ Pierre Teilhard de Chardin*

