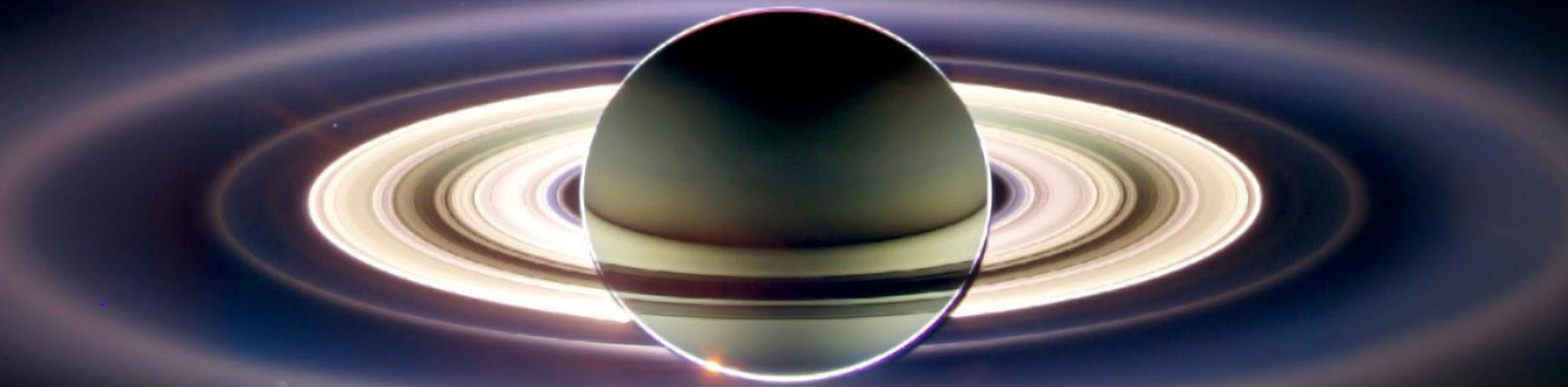
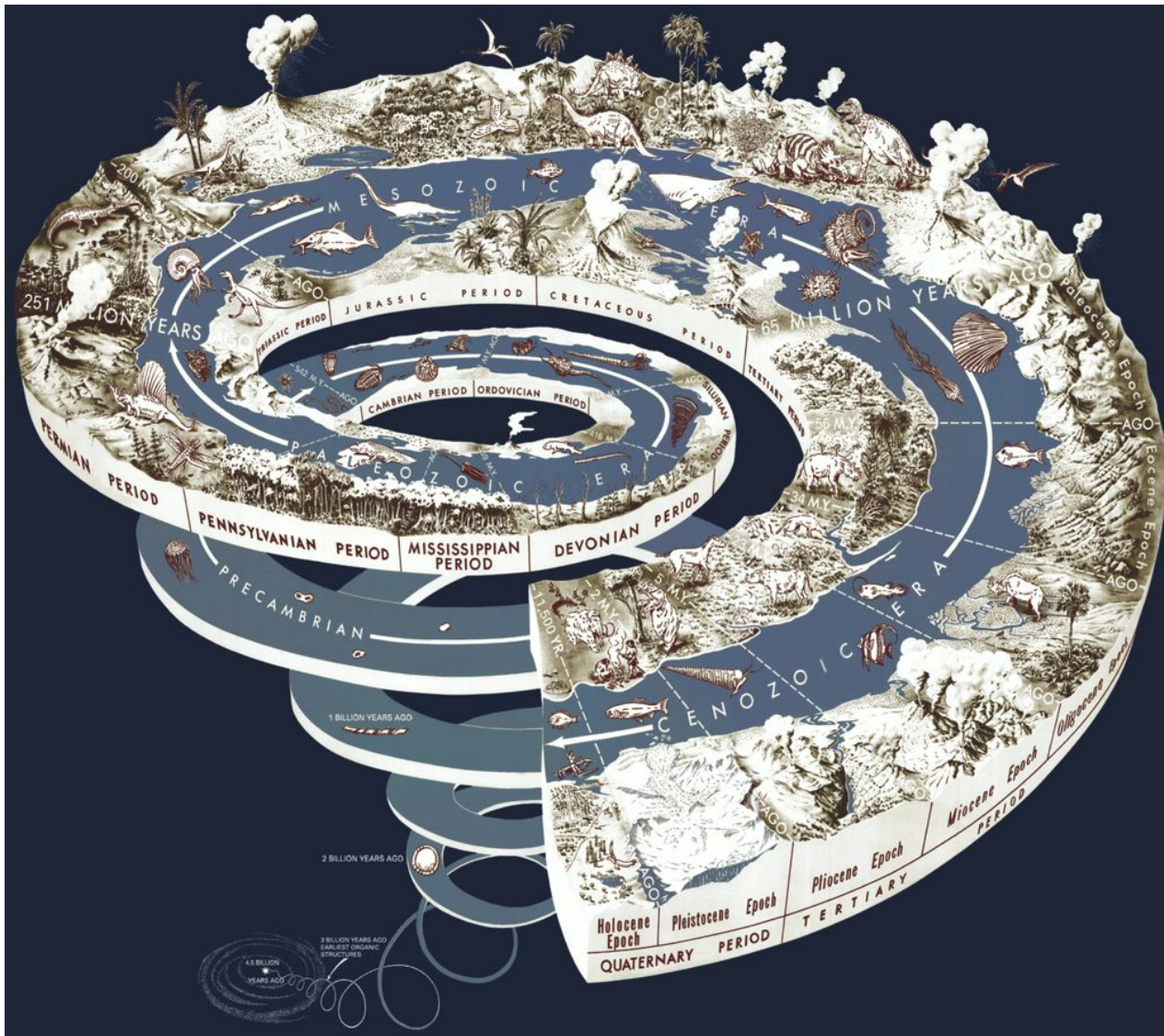


Why Aren't Animals Human?

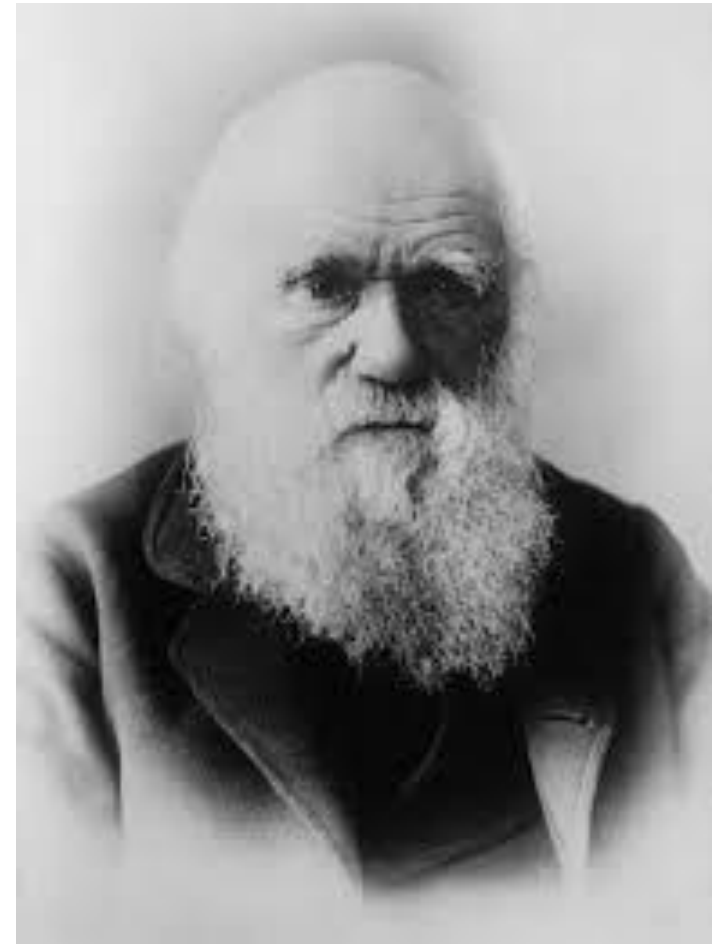




Life is primordial; animals are ancient; humans are very recent



*Punch cartoon by Linley Sambourne, 1882.*



Evolution has been a controversial idea since 1859

How does evolution work?

Lamarck:

Changes arise through **intentional** action

They're preserved by being passed on to descendants

Darwin:

Changes arise by **chance**

They're preserved if they make the organism more able to leave descendants

Oyama: the theory of evolution is evolving

Epigenetics and 'Evo-Devo' resemble Lamarckism

*If we grant our ancestors even a tiny fraction of the free will, consciousness and culture we humans experience, the increase in complexity over the last several thousand million years becomes easier to explain:*

*life is the product not only of blind physical forces but also of selection in the sense that organisms choose.*

Margulis, 1995, What is life?  
Quoted in Scott, 1999, Nonlinear Science.

Human evolution is now more cultural than biological

Humans make more complex choices than any other species





## Minds make choices

Different forms of life have evolved different minds

There's an evolutionary continuum from 'open' to 'closed' minds

The continuum traces the balance between learning and innateness



How well can we know those minds?

Nagel: “What's it like to be a bat?”

Psychology has often neglected animal minds, for various reasons

Behaviourists claimed minds can't be studied - only behaviour

Studying animal minds is more acceptable to biologist and zoologists  
such as Darwin, Konrad Lorenz and many others

Human and animal minds may be on a continuum but they're profoundly different

Why, is it language?

## What we say to dogs

Okay, Ginger! I've had it!  
You stay out of the garbage!  
Understand, Ginger? Stay out  
of the garbage, or else!



## What they hear

blah blah GINGER blah  
blah blah blah blah blah  
blah blah GINGER blah  
blah blah blah blah...



## What we say to cats...

Well, Fluffy, you've clawed  
the furniture for the last  
time! I'll not tolerate  
that behavior any longer!..



## What they hear



If language is what makes humans different, can animals acquire it?

There have been many attempts to find out

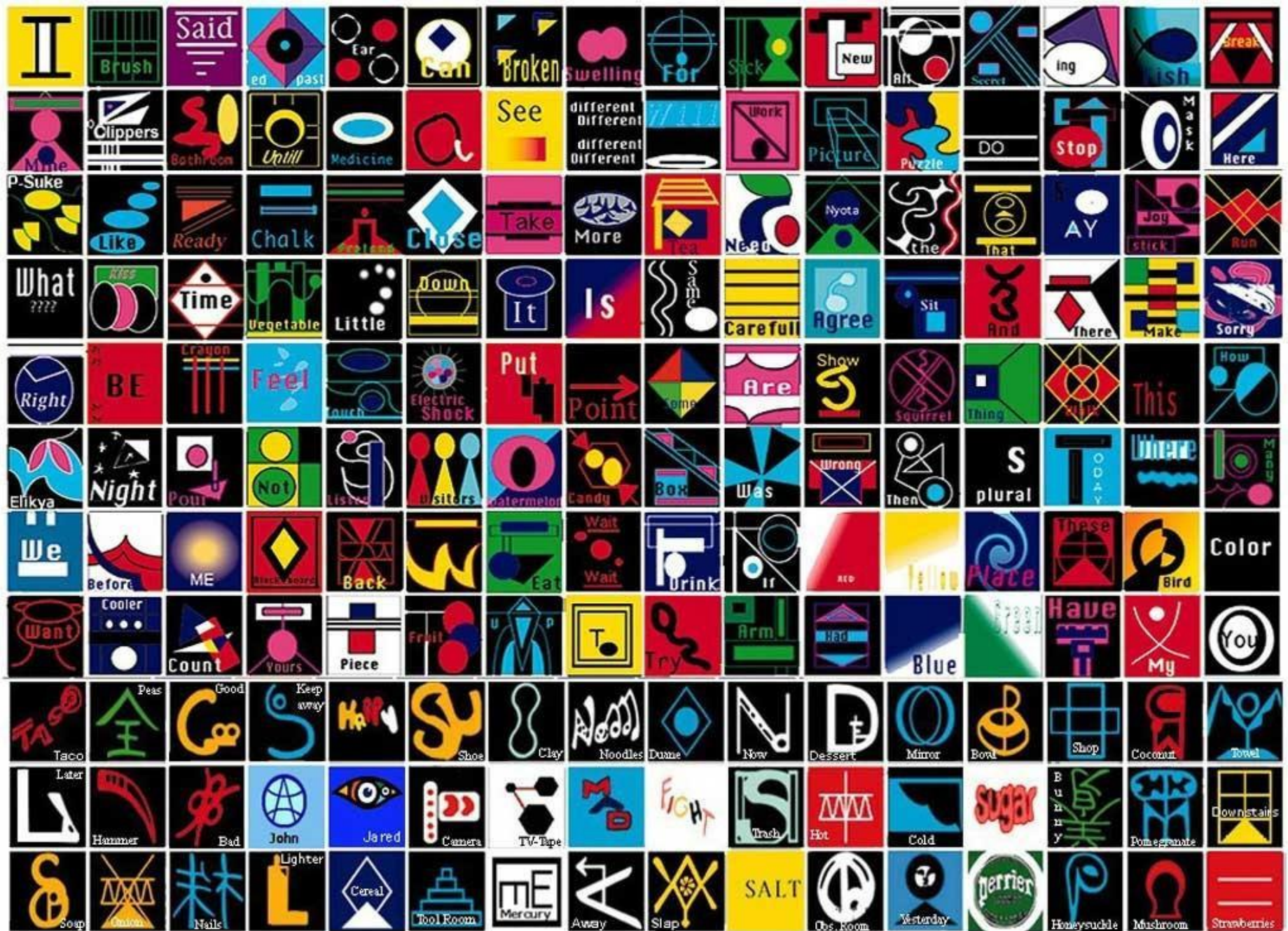
Savage-Rumbaugh claims Kanzi is “on the brink of the human mind”



# Kanzi

© Great Ape Trust







Do animals have episodic memory?

Suddendorf & Corballis:

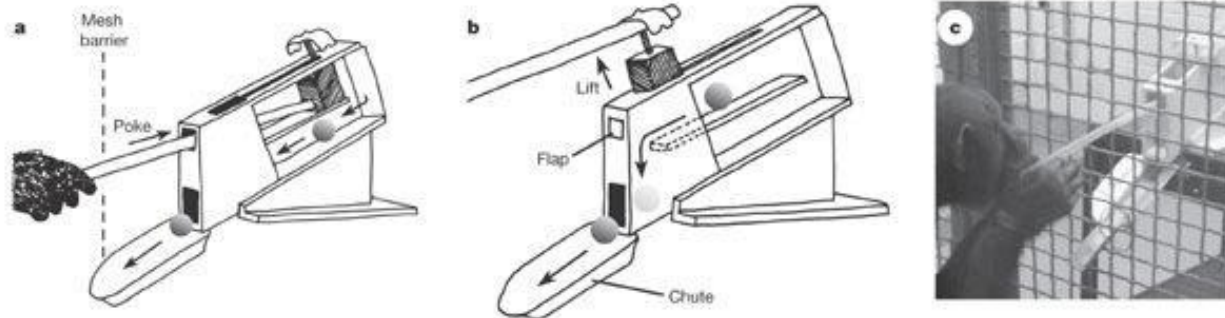
No, only humans have that

Clayton, Bussey & Dickinson:

Yes, some birds seem to remember when they hid food

## Do animals have cultures?

Whiten et al., Biro and others have shown that chimpanzees have cultures



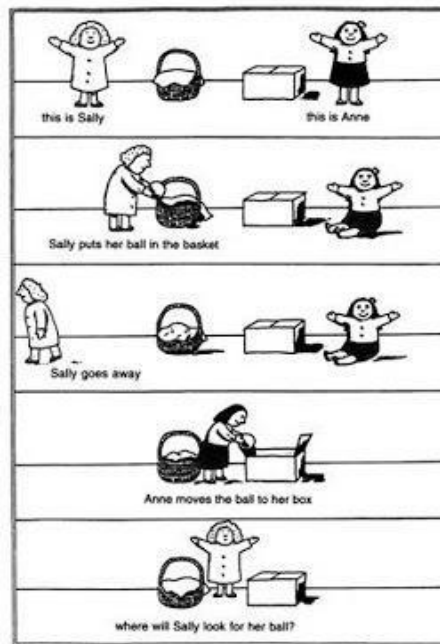
Byrne and Whiten

Machiavellian behaviour doesn't need language

How near are animals to a ‘Theory of Mind?’

Povinelli  
Suggestively close

Tomasello  
Close, but not close enough



Are animals self conscious?

Gallup

Yes: they can recognise themselves in mirrors

Heyes

No: self-consciousness is too difficult to evolve

Humphrey

Sort of: self-consciousness evolved to facilitate social interaction

How should we study animals?

Objectively, by detached observation

or

subjectively, through empathic participation?



Smuts

Empathetic participation, definitely!

To understand animals, you have to live with them and become like them

But “like” is not “the same as”

## Tomasello's Puzzle:

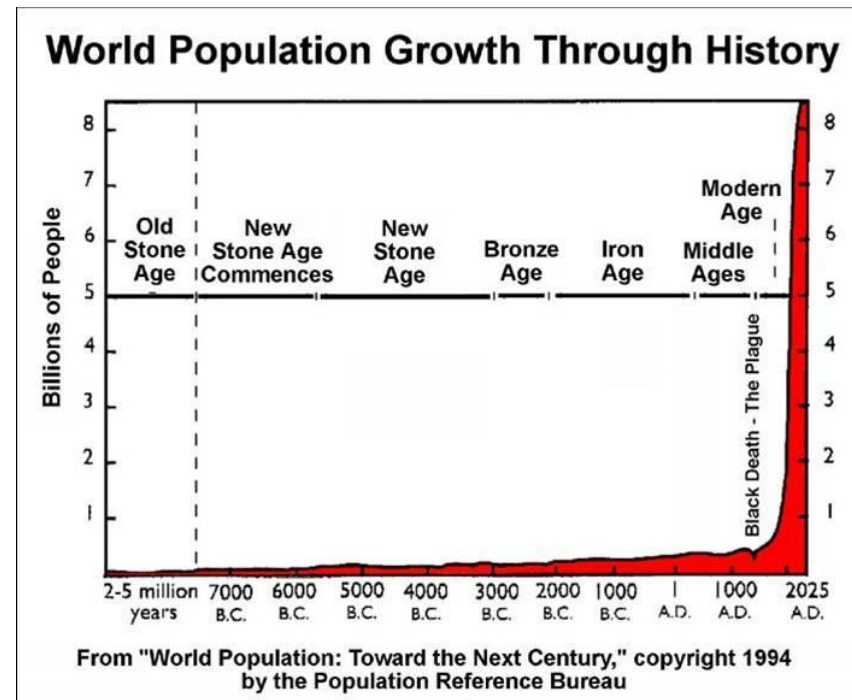
*The basic puzzle is this. The 6 million years that separate human beings from other great apes is a very short time evolutionarily, with modern humans and chimpanzees sharing something on the order of 99 percent of their genetic material ....*

*The fact is, there simply has not been enough time for biological evolution involving genetic variation and natural selection to have created, one by one, each of the cognitive skills necessary for modern humans to invent and maintain complex tool-use industries and technologies...*

The Cultural Origins of Cognition.



3000000000 years of biological evolution.



100000 years of cultural evolution.

Human beings are a very recent species.

Tomasello's answer seems to be:

Theory of mind

The intention to assist

The capacity to use symbols

The 'ratchet-effect'

Donald

The Origins of the Modern Mind

There have been three major psychological transitions in human cultural evolution

Episodic → Mimetic

Mimetic → Mythic

Mythic → Theoretic

Episodic

Social cohesion through shared recall, but without representation

Mimetic

Representation and communication through mimesis

Mythic

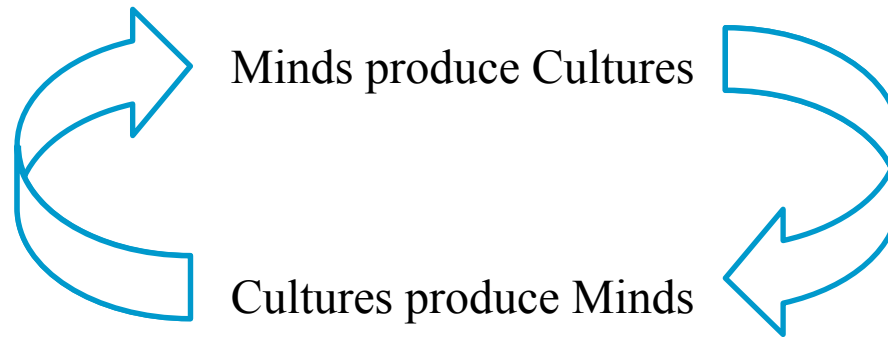
Internalisation of culture through stories

Theoretic

Analysis and experiment through symbols



Human minds emerge from a loop:



Minds produce: ideas, practices, symbols, technology ... etc.

These produce minds: skills, knowledge, beliefs, values ... etc.

## The Loop accelerates

Period	Years ago	Techne	Logos
Prehistoric	50000	Tools	Dream
Ancient	5000	Structures	Myth
Modern	500	Energy	Law
Postmodern	50	Information	Code

Technology is dissolving the boundary between what is alive and what is not.



Biology + Computing = Informatics

The Science of the Code

*What has really let loose the Machine in the world, and for good, is that it both facilitates and indefinitely multiplies our activities. It fulfils the dream of all living creatures by satisfying our instinctive craving for the maximum of consciousness.*

Teilhard de Chardin, 1969, The Future of Man

Neither humans nor animals are machines

But animals aren't human because their evolutionary path lacked the 'ratchet effect'

Yet humans long to share animal consciousness

<http://youtu.be/FZ-bJFVJ2P0>

Thanks for listening.

