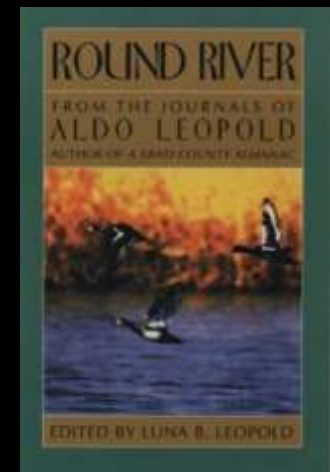
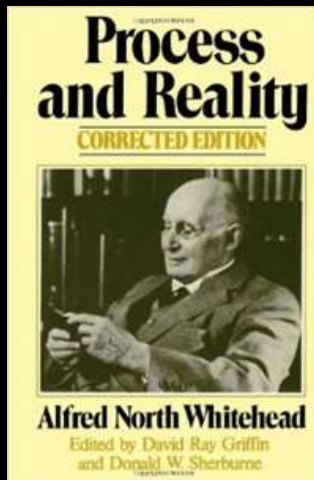


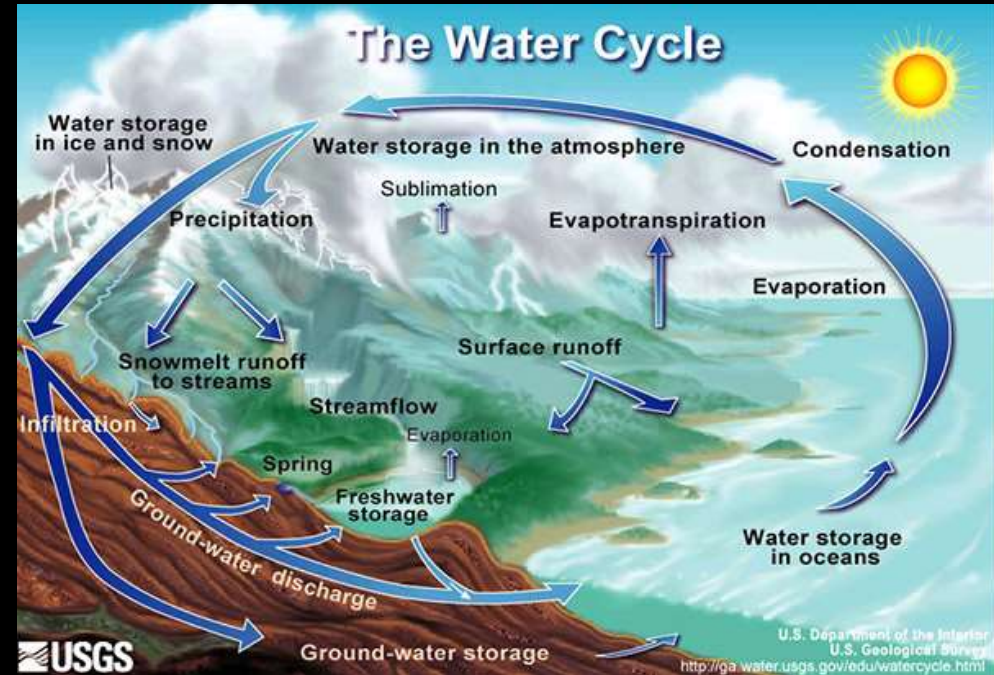


# The Round River: Myth, Meaning, and Flowing Water

Kevin M. Anderson, Ph.D.  
Austin Water – Center for Environmental Research



# The Round River



## The Meaning of Flowing Water

- Greek Mythology and Cosmology
- Western Philosophy and Science

# Greek Divine Geography of Water Okeanos, Earth-Encircling River

Homer, *Iliad*:

"Okeanos, whose stream bends back in a circle."

Hesiod, *Theogony*:

"Okeanos the completely encircling river."

The River Okeanos flowed in a circle around the entire earth. From its stream all the rivers and clouds drew their waters.

The sun, moon, and stars were all believed to rise and set into its waters.

At night, the sun-god sailed around the northern limits of the stream in a golden boat from his setting in the west to his rising in the east.

Okeanos is the font of all the earth's fresh-water: including rivers, wells, springs and rain-clouds.

In a cosmological sense, the river symbolized the eternal flow of time.



# Oceanus and Tethys

Oceanus was the god of the great earth-encircling river Okeanos.

Oceanus was also the god who regulated the rising and setting of the heavenly bodies which were believed to emerge and descend into his watery realm at the ends of the earth.

Oceanus' wife was Tethys, who distributed his water to the earth via subterranean caverns. She was mother of the rivers of the world.

Their children were the Potamoi or River-Gods and Okeanides, nymphs of springs and fountains.



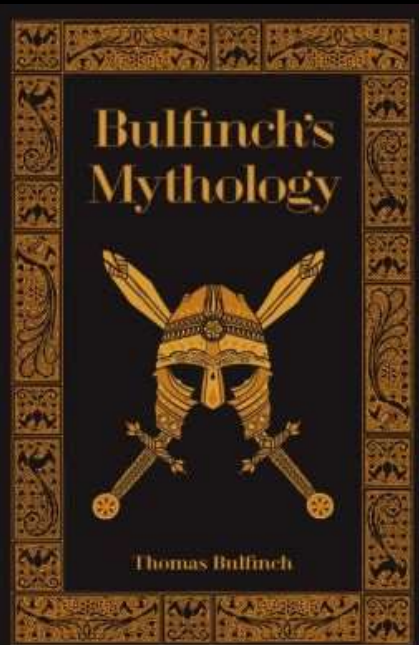
## Greek Fluvial Mythology - Narcissus and Echo – Reflection and Absorption

- In Greek mythology, Narcissus was the son of the river god Cephissus, the son of Oceanus and Tethys, and the nymph Leiriope. He was distinguished for his beauty.
- The classic version is by Ovid, found in Book 3 of his *Metamorphoses* (completed 8 AD).

There was a day when Narcissus was walking in the woods. Echo, a mountain nymph, saw him and fell deeply in love with him. She followed him. Narcissus sensed that someone was following him and shouted "Who's there?". Echo repeated "Who's there?". She eventually revealed her identity.

She made an attempt to embrace the boy. He stepped away from her and told her to leave him alone. She was heartbroken and spent the rest of her life in lonely glens until nothing but an echo sound remained of her.

Echo and Narcissus (1903) - John William Waterhouse



## Reflection and Absorption

Nemesis, the goddess of revenge, learned of this story and decided to punish Narcissus.

She lured him to a pool where he saw his own reflection.

He was amazed at the beauty of his reflection.

He didn't realize his reflection was only an image and fell in love with it.

Unable to leave the beauty of his reflection, Narcissus died.

The flower that bears his name sprang up where he died.



Narcissus (1597-1599) - Caravaggio

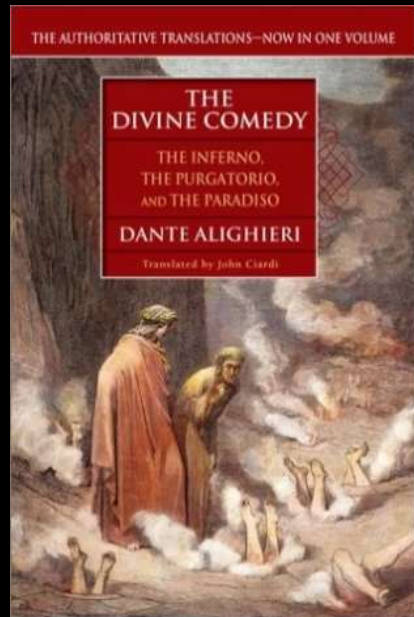


# Fluvial Mythology and Rivers: Lethe and Styx

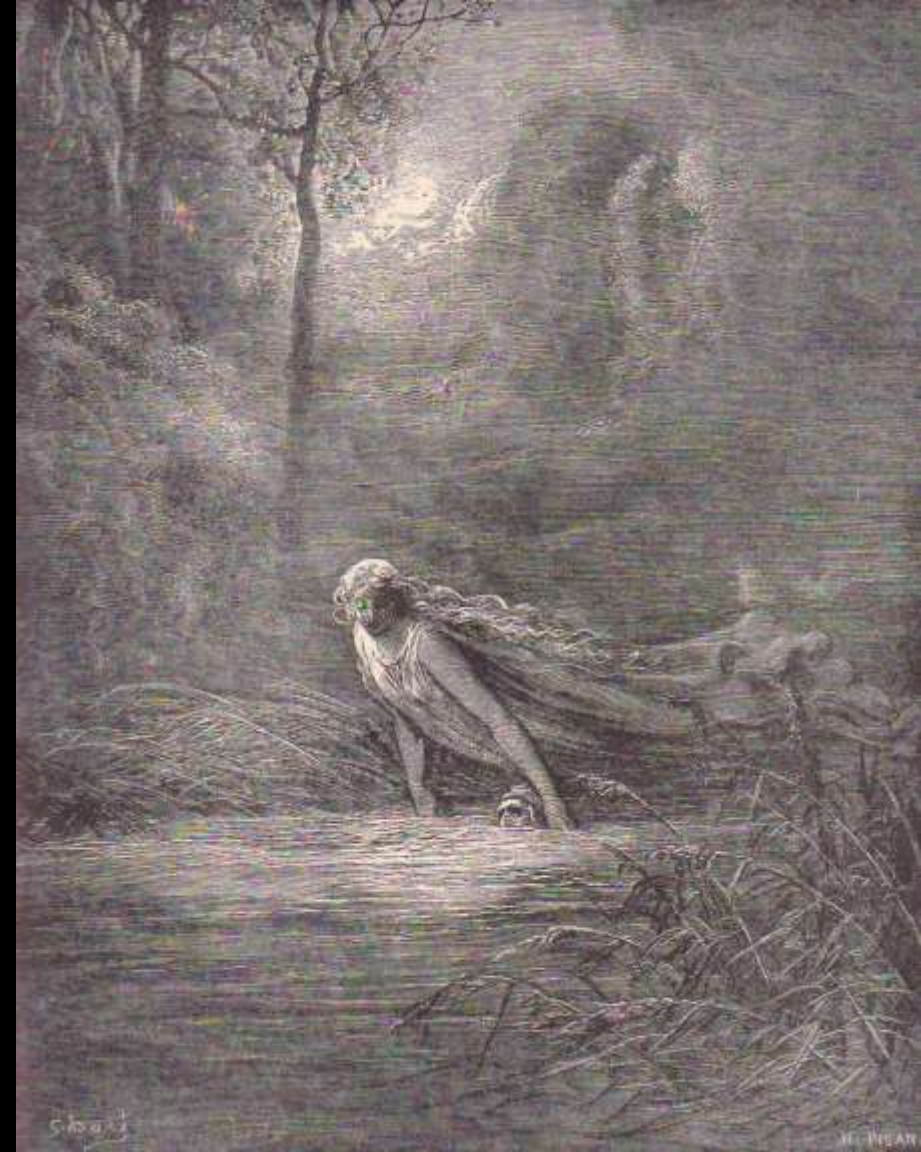
Lethe - In Greek mythology, Lethe was one of the five rivers of Hades. All those who drank from it experienced complete forgetfulness. Lethe was also the name of the Greek spirit of forgetfulness and oblivion, with whom the river was often identified.

In Classical Greek, the word Lethe literally means "oblivion", "forgetfulness", or "concealment".

It is related to the Greek word for "truth", aletheia, meaning "un-forgetfulness" or "un-concealment".



Both rivers are part of the geography of Dante's *Divine Comedy*



Dante in the Lethe  
Gustave Dore 1861

# Fluvial Mythology and Rivers

Styx - The Styx (also meaning "hate" and "detestation" adjectival form: Stygian) is a river in Greek mythology that formed the boundary between Earth and the Underworld (often called Hades which is also the name of this domain's ruler).

In order to cross the River Styx and reach Hades, a dead person must pay a fee to the ferryman, Charon. If the correct fee is paid, Charon will take the dead across.

If the dead cannot afford the fee, however, they will be forced to wander the banks of the River Styx as Wraiths for eternity.



Crossing the River Styx  
Gustave Dore 1861



# Crossing the Styx - The Myth of Orpheus

Orpheus was a legendary musician, poet, and prophet in ancient Greek religion and myth.

The major stories about him are centered on his ability to charm all living things with his music.

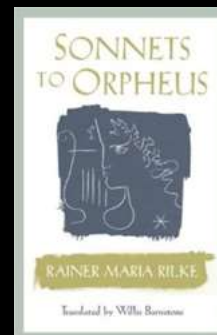
The love and loss of Eurydice and the death of Orpheus involves the passage over and into rivers.

Auguste Rodin  
Orpheus & Eurydice (1887)



Orpheus  
Roman mosaic

“Tree arising! O pure ascendance!  
Orpheus Sings! Towering tree within the ear!  
Everywhere stillness, yet in this abeyance:  
seeds of change and new beginnings near.”



*The Sonnets to Orpheus* Rainer Maria Rilke, 1922

## The Myth of Orpheus and Eurydice

Orpheus falls in love with the beautiful nymph Eurydice, and the two make plans to wed. But on their wedding day, Eurydice steps on a snake, which bites her.

She is killed, and Orpheus is stricken with terrible and all-consuming grief.

Disconsolate, Orpheus finds a cave which leads to the Underworld and follows Eurydice.

Armed only with his lyre and his beautiful voice, Orpheus makes his way past every terrifying danger the underworld holds to the crossing of the river Styx.

Charmed by his music, Charon the boatman carries him across the river, and Orpheus meets Hades, the god of the Underworld and his wife, Persephone.



John Roddam Spencer Stanhope  
Orpheus and Eurydice on the Banks of the Styx (1878)

His music softens the hearts of Hades and Persephone, who agreed to allow Eurydice to return with him to earth on one condition: he should walk in front of her and not look back until they both had reached the upper world. He set off with Eurydice following, and, in his anxiety, as soon as he reached the upper world, he turned to look at her, forgetting that both needed to be in the upper world, and she vanished for the second time, but now forever.

The devastated Orpheus attempts to return to Hades and rescue her again, but this time Charon refuses to carry him across the river.

He sits on the shore starving, hoping for death, so that he may join Eurydice. But the gods will not let him die.



Orpheus Leading Eurydice from the Underworld  
Jean-Baptiste-Camille Corot (1861)



Auguste Rodin  
Orpheus & Eurydice (1887)

Reluctantly, he returns to the upper world, finding solace only in his music.

He spent the rest of his days scorning women, not willing to love another so as to stay true to the memory of Eurydice.

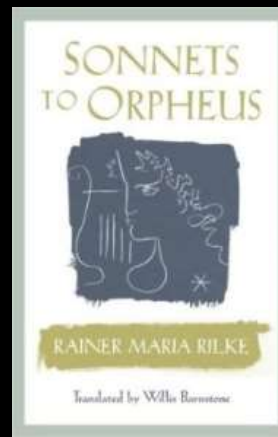
He wandered the earth before being torn apart by the women of Thrace, who were angry at him for spurning their love and companionship.

They threw his head into a river, and it kept on singing all the way to the sea.

“But you, divine one singing on the brink of destruction while legions of forsaken maenads tore at your flesh; you vanquished their shrieks with harmony, oh bright one, while from utter devastation rebounded your song afresh.

And though you fade from earthly sight,  
declare to the silent earth: I flow.  
To the rushing water say: I am.”

Rainer Maria Rilke *The Sonnets to Orpheus* 1922



John William Waterhouse (1849–1917)

"Nymphs Finding the Head of Orpheus"  
1900



## Roman and Medieval Fluvial Mythology Round River - The Mouth of Truth

Dating back to the 1st century, the Mouth of Truth is a tall stone disc carved into a humanoid face with hollow holes for eyes and its gaping mouth.

The original purpose of the large medallion may have been a ceremonial well cover. The face itself has been said to represent a pagan god although exactly which one is up for debate with scholars guessing at everyone from sea god Oceanus to a local river god.

The legend surrounding the stone carving is that if one were to stick their hand inside the disc's mouth and tell a lie, the rocky maw would bite the offending hand off. This belief seems to have originated during the Middle Ages.

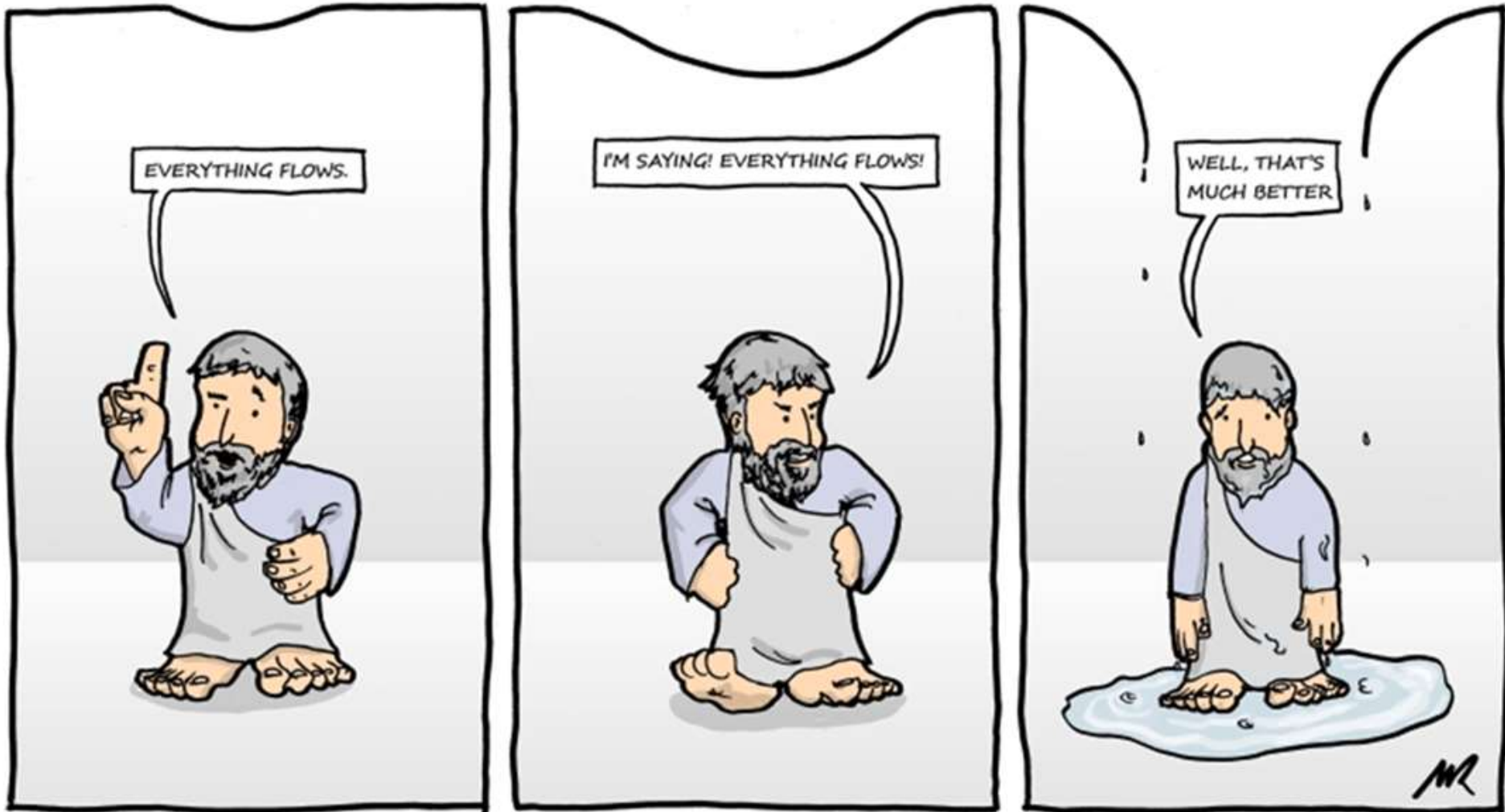
It now rests outside the doors of the Santa Maria in Cosmedin church in Rome and has been used most famously in the 1953 movie, *Roman Holiday*, starring Gregory Peck and Audrey Hepburn



# Fluvial Philosophy

## Western Philosophy and Science

Can you step into the same river twice?



FL020FX:PL

# Fluvial Philosophy

Can you step into the same river twice?

We call a body of water a river or stream precisely because it consists of changing waters.

If the waters should cease to flow it would not be a river or stream, but a lake or a dry streambed.

There is a sense, then, in which a river or stream is a remarkable kind of existent, one that remains what it is by changing what it contains.



## Fluvial Philosophy - Heraclitus c. 535 – c. 475 BC

- A Greek philosopher of Ephesus, Heraclitus propounded a distinctive theory which he expressed in short, fragmented statements.

### The River Fragment

Plato: “Heraclitus, I believe, says that everything changes and nothing remains still ... and ... you cannot step twice into the same stream” and “All entities move and nothing remains still”  
(Plato *Cratylus*)



Heraclitus by Johannes Moreelse (1602–1634)

The image depicts him as "the weeping philosopher" wringing his hands over the world, and as "the obscure" dressed in dark clothing.

"Among the wise, instead of anger, Heraclitus was overtaken by tears, Democritus by laughter."



## The River Fragment

What Heraclitus actually said is the following:

“On those stepping into rivers staying the same, other and other waters flow.”

- The message of the river fragment is not that all things are changing so that we cannot encounter them twice, but something much more subtle and profound.
- It is that some things persist only by changing.
- Material reality exists by virtue of a process of constant turnover in its constituent matter like a flame or a river.
- Here constancy and change are not opposed but inextricably connected.



## Being and Becoming – Permanence and Change

- Some things stay the same only by changing – Flux or Process
- *Panta rhei*, "everything flows"
- Fire is the basic material of the world.
- "We both step and do not step in the same rivers. We are and are not."
- A human body could be understood in precisely the same way, as living and continuing by virtue of constant metabolism (fire) –as Aristotle later understood it.
- On this reading, Heraclitus believes in flux or process, but not as destructive of constancy; rather it is, paradoxically, a necessary condition of constancy.

Understand?



# Fluvial Philosophy

Can you step into the same river twice?



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# The Stream of Consciousness – Mental Flux and Indeterminism

William James 1842 –1910

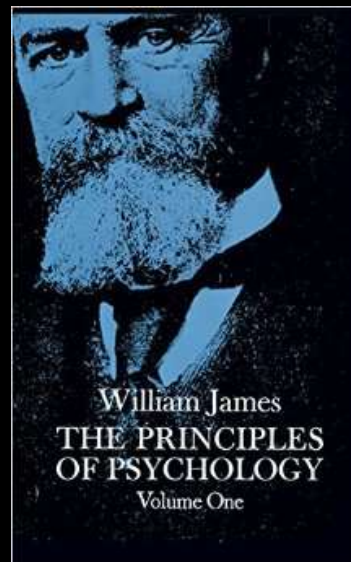
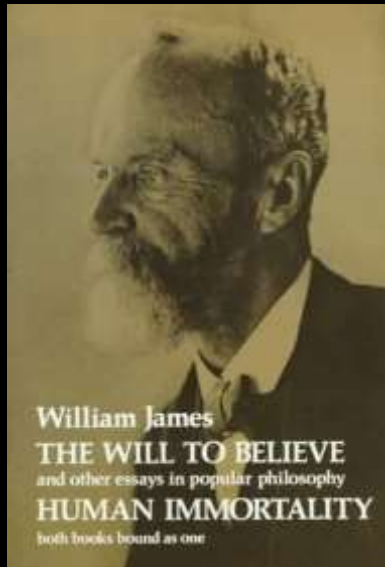
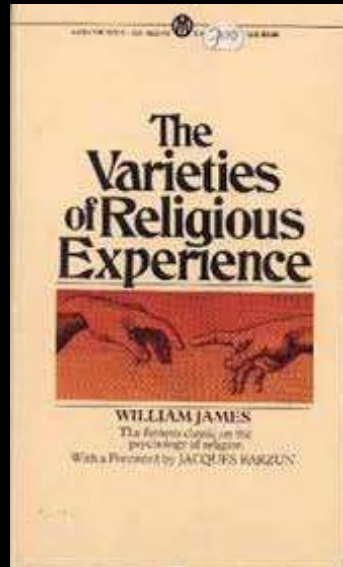


"Consciousness, then, does not appear to itself chopped up in bits. Such words as 'chain' or 'train' do not describe it fitly as it presents itself in the first instance. It is nothing jointed; it flows.

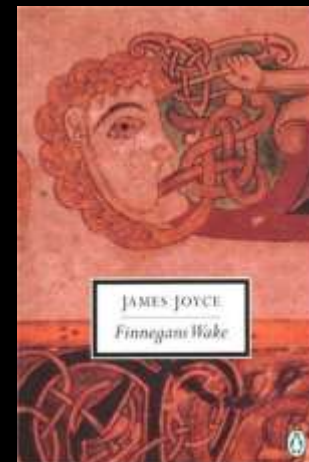
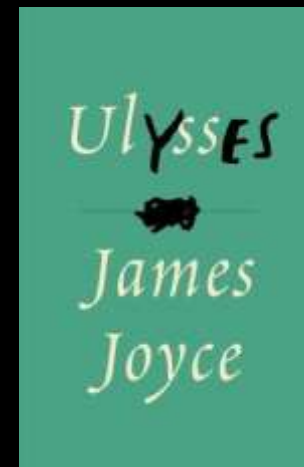
A 'river' or a 'stream' are the metaphors by which it is most naturally described. In talking of it hereafter let us call it the stream of thought, of consciousness, or of subjective life."

Determinism - My first act of free will shall be to believe in free will... the human will chooses from among alternative possibilities, which are generated by chance "spontaneous variations"

*The Principles of Psychology 1890*



Stream of Consciousness





## Process, Time, Science, and Reality

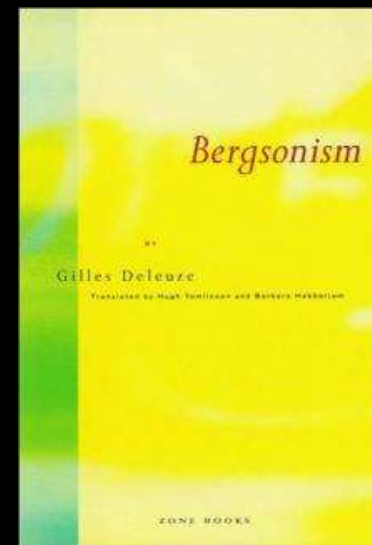
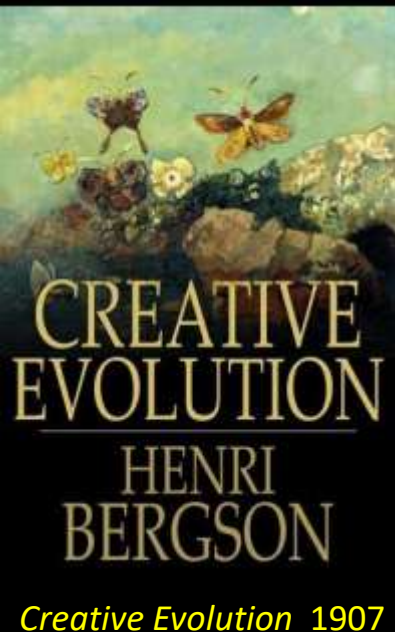
Henri Bergson 1859 – 1941

French philosopher, the first to elaborate what came to be called a process philosophy, focus on reality as motion, change, and evolution.

He was also a master literary stylist, of both academic and popular appeal, and was awarded the Nobel Prize for Literature in 1927.

- The world is a process of creative evolution in which the novelty of successive phenomena rather than the constancy of natural law is the significant fact.
- While the space world of science and common sense is taken to be an interpretation put upon sense images in the interest of practical activity and as a falsification of free-moving reality.
- Duration and time are fundamental parts of experience, and, hence, reality.
- A true apprehension of reality is to be gained not by the analytic procedures of mathematics and science but by that intuition that can grasp wholes.

- Élan vital
- Duration
- Memory
- Multiplicity
- Creativity
- Novelty
- Intuition



Gilles Deleuze 1966

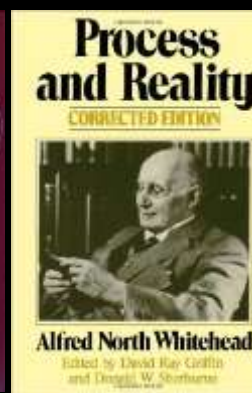
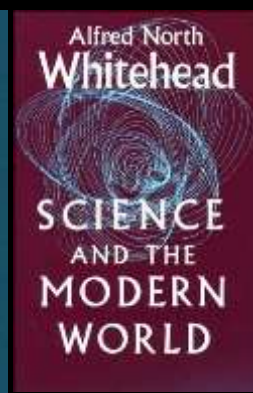
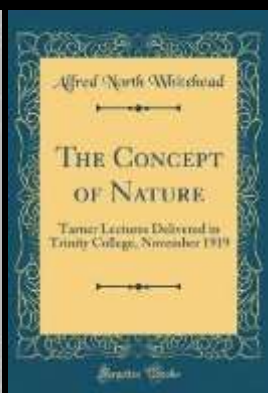
# Process Philosophy Organisms and Reality

Alfred North Whitehead  
1861 – 1947



Renewing Empiricism - Whitehead rejected the Cartesian idea that reality/nature/being is fundamentally constructed of bits of matter that exist totally independently of one another, in favor of an event-based or "process" ontology in which events are primary and are fundamentally interrelated and dependent on one another.

- Time - The most basic elements of reality can all be regarded as experiential, indeed that everything is constituted by its experience. He used the term "experience" very broadly, so that even inanimate processes such as electron collisions are said to manifest some degree of experience. And he insisted that time/duration is a fundamental part of nature – experience always had duration.
- Unity of Experience – Against Descartes and Locke idea of two different kinds of real existence, either exclusively material or exclusively mental – there was no "bifurcation of nature" between primary and secondary qualities.
- Whitehead referred to his metaphysics as "philosophy of organism" but it would become known more widely as "process philosophy"



*Principia Mathematica* (1910–1913) is Whitehead's most famous mathematical work. Co-written with former student Bertrand Russell

*The Concept of Nature* 1919

*Science and the Modern World* 1925

*Process and Reality* 1929

*Adventures of Ideas* 1933

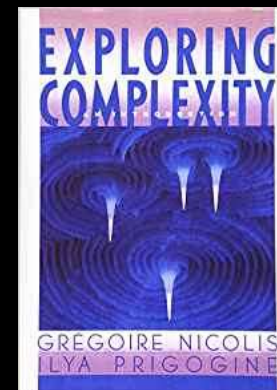
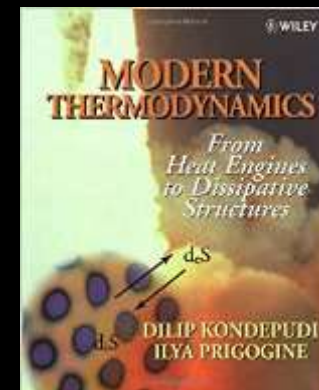
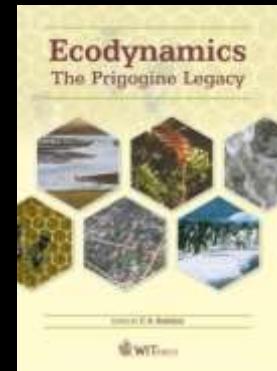
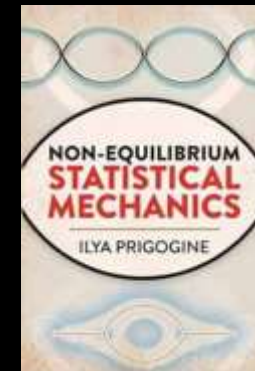
# Order Out of Chaos – The Scientific Account

Ilya Prigogine 1917– 2003

Prigogine is best known for his definition of dissipative structures and their role in thermodynamic systems far from equilibrium, a discovery that won him the Nobel Prize in Chemistry in 1977.

He discovered that importation and dissipation of energy into chemical systems could result in the emergence of new structures (hence dissipative structures) due to internal self reorganization.

- Dissipative structure theory led to pioneering research in self-organizing systems, as well as philosophical inquiries into the formation of complexity on biological entities and the quest for a creative and irreversible role of time in the natural sciences.
- Prigogine was particularly captivated by the problem of explaining how ordered structures—biological systems, for example—can develop from disorder... As a young man, Prigogine was strongly influenced by the thinking of Henri Bergson, who emphasized the differences between the concept of time used in science and the time of ordinary experience.

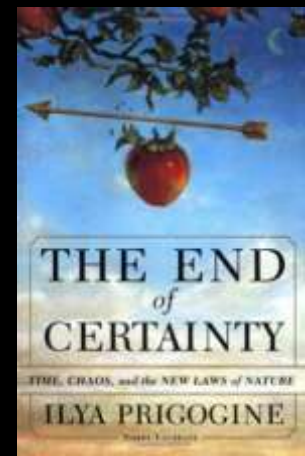
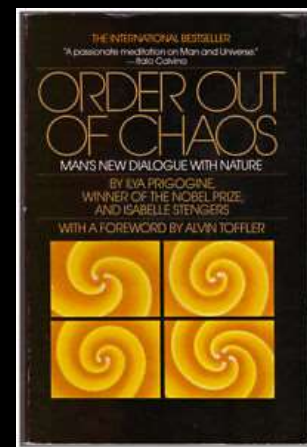


# Arrow of Time and the End of Certainty

Irreversible systems have an arrow of time which appears to be incompatible with Newtonian and quantum dynamics, which are reversible theories. This incompatibility of the reversible foundations of science with the irreversible behavior that is actually observed in chemical, hydrodynamic, and biological systems remains one of the great mysteries of science.

- Time - Prigogine viewed the arrow of time and irreversibility as playing a constructive role in nature. For him the arrow of time was essential to the existence of biological systems, which contain highly organized irreversible structures. It must be a fundamental property of nature.

- Determinism - In his 1996 book, *La Fin des certitudes*, co-authored by Isabelle Stengers and published in English in 1997 as *The End of Certainty: Time, Chaos, and the New Laws of Nature*, Prigogine contends that determinism is no longer a viable scientific belief: "The more we know about our universe, the more difficult it becomes to believe in determinism." This is a major departure from the approach of Newton, Einstein and Schrödinger, all of whom expressed their theories in terms of deterministic equations. According to Prigogine, determinism loses its explanatory power in the face of irreversibility and instability.



*Order Out of Chaos* 1984  
*The End of Certainty* 1996  
Coauthored with Isabelle Stengers



# Renewing Empiricism - *Thinking with Whitehead* - Isabelle Stengers b.1949

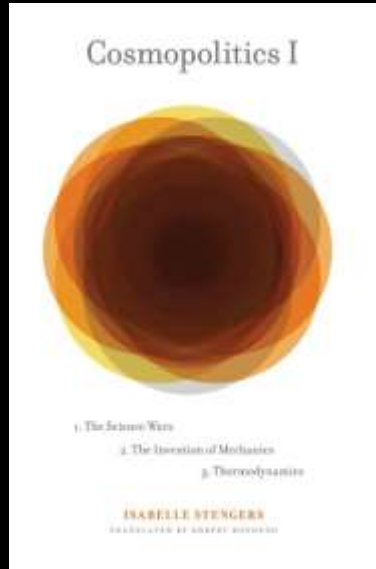
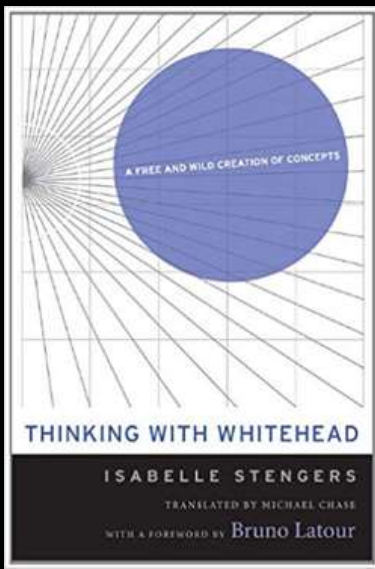
Professor of Philosophy at the Université Libre de Bruxelles.

The whole book turns around the most arduous question of Whitehead...to decide whether or not empiricism can be renewed so that "what is given in experience" is not simplified too much...the feature of Western thought that occupied Whitehead for most of his career, what he calls "the bifurcation of nature," that is to say, the strange and fully modernist divide between primary and secondary qualities...

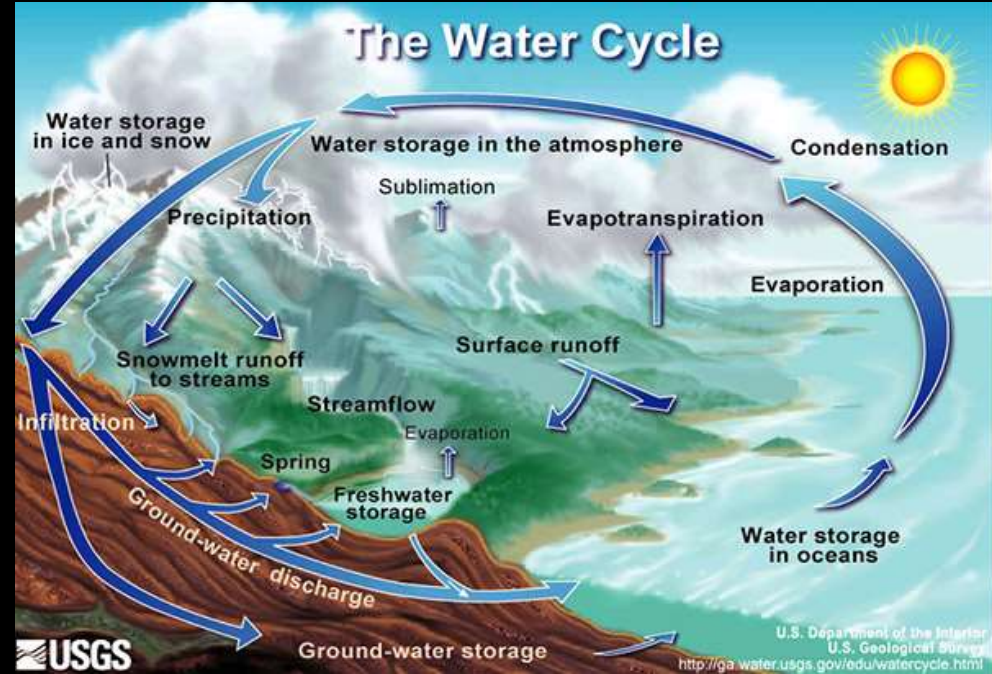
If nature really is bifurcated, no living organism would be possible, since being an organism means being the sort of thing whose primary and secondary qualities - if they did exist - are endlessly- blurred. Since we are organisms surrounded by many other organisms, nature has not bifurcated.

Corollary: if nature has never bifurcated in the way philosophy has implied since the time of Locke, what sort of metaphysics should be devised that would pay full justice to the concrete and obstinate existence of organisms? — Bruno Latour, Foreword *Thinking with Whitehead* 2003

2002



# The Round River and Ecology



# American Mythology

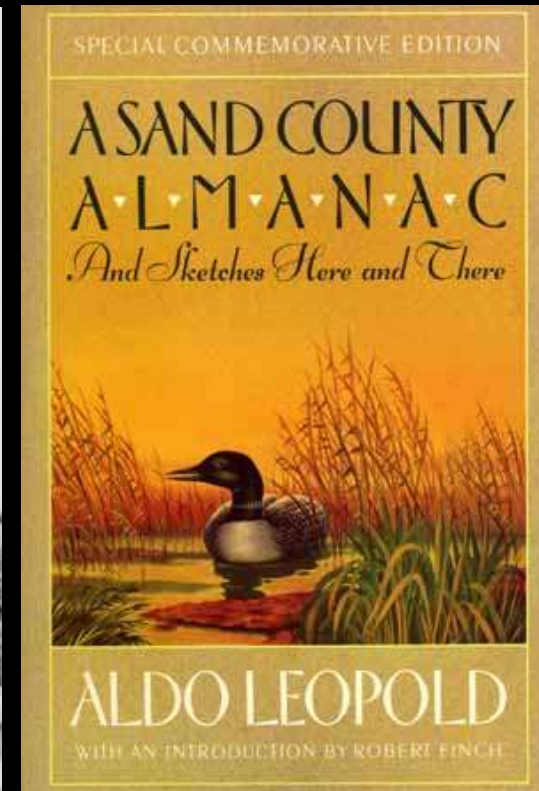
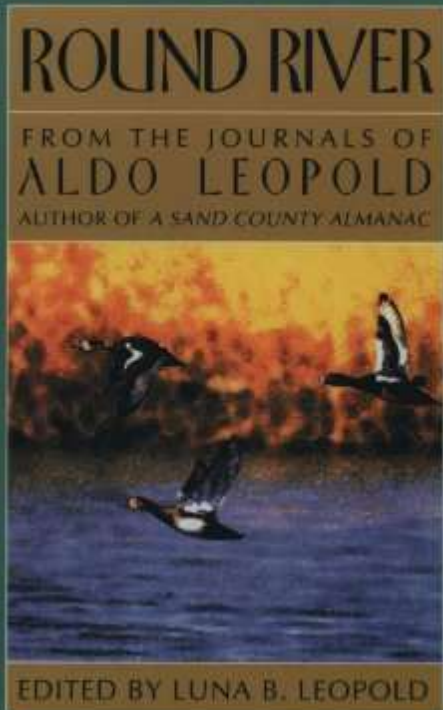
## The Round River – Aldo Leopold

"One of the marvels of early Wisconsin was the Round River, a river that flowed into itself, and thus sped around and around in a never-ending circuit.

Paul Bunyan discovered it, and the Bunyan saga tells how he floated many a log down its restless waters."

### Metaphor for ecology

Aldo Leopold 1887-1948



How does Nature work?

Aldo Leopold and The Round River – A Metaphor for Ecology

"a river that flows into itself"

"The current is the stream of energy which flows out of the soil into plants, thence into animals, thence back into the soil in a never ending circuit of life...

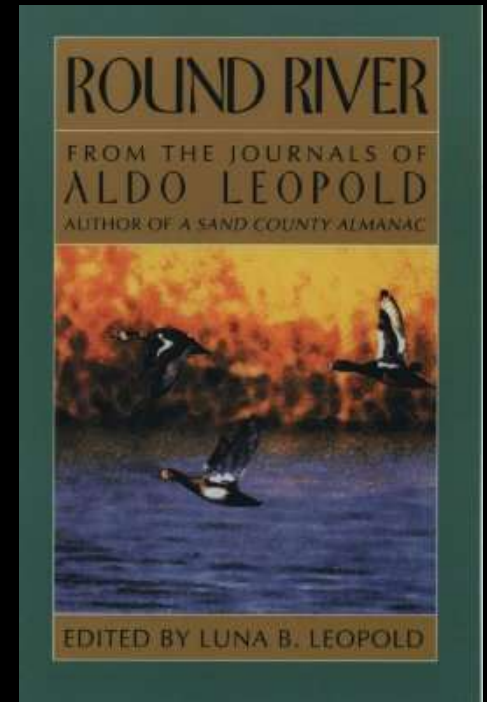
In our educational system, the biotic continuum is seldom pictured to us as a stream.

From our tenderest years we are fed with facts about the soils, floras, and faunas, that comprise the channel of Round River (biology), about their origins in time (geology and evolution), about the technique of exploiting them (agriculture and engineering).

But the concept of a current with droughts and freshets, backwaters and bars, is left to inference.

To learn the hydrology of the biotic stream we must think at right angles to evolution and examine the collective behavior of biotic materials.

This calls for a reversal of specialization; instead of learning more and more about less and less, we must learn more and more about the whole biotic landscape"



1953

# Biotic Navigation

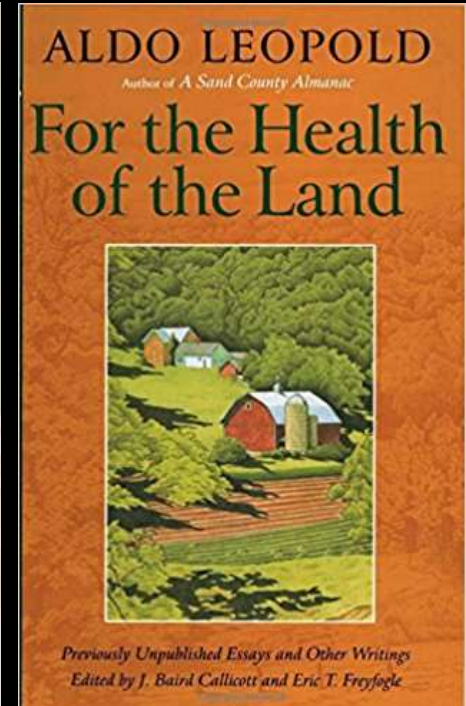
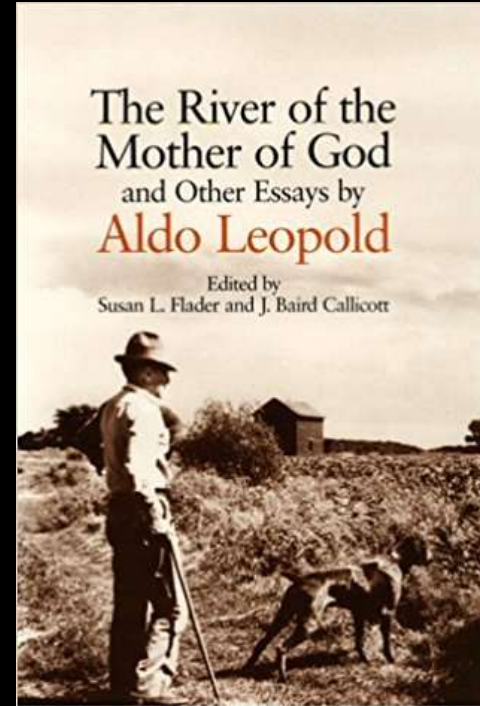
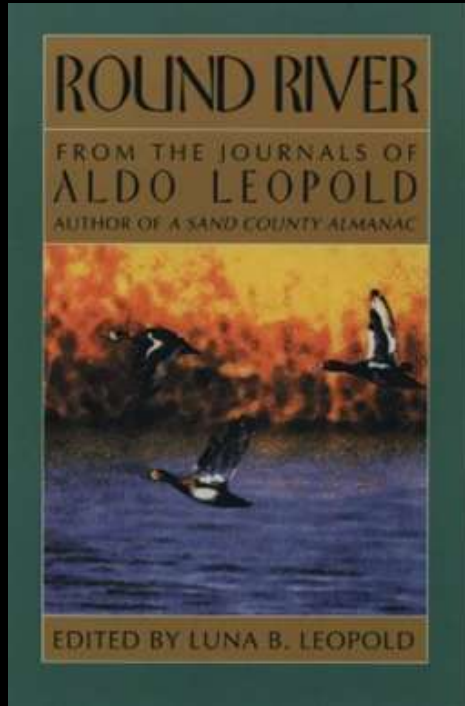
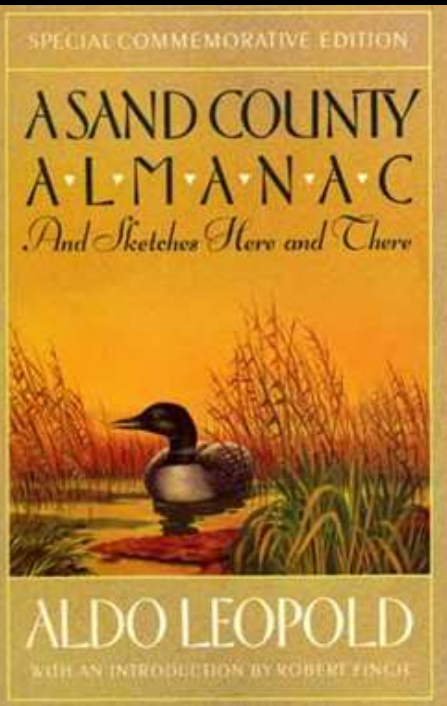
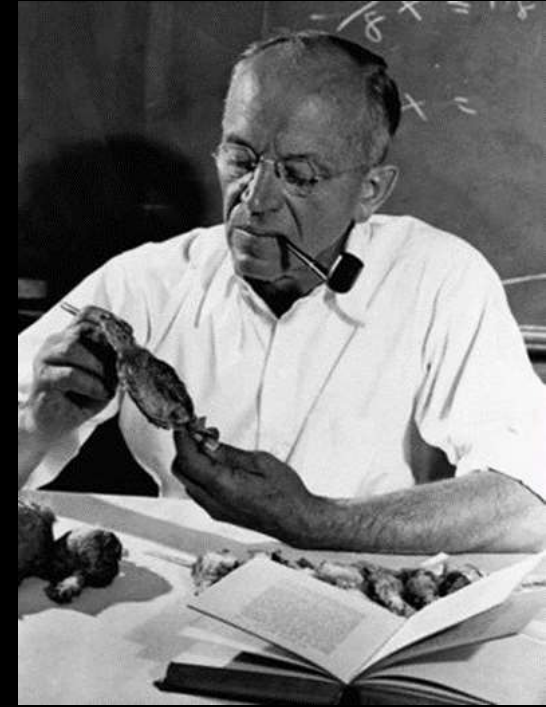
“Ecology is an infant just learning to talk, and, like other infants, is engrossed with its own coinage of big words.

Its working days lie in the future.

Ecology is destined to become the lore of Round River, a belated attempt to convert our collective wisdom of biotic materials into a collective wisdom of biotic navigation.

This, in the last analysis, is conservation.”

Aldo Leopold 1948



# Understand?



An underwater photograph showing a dense field of green seaweed or kelp. Sunlight filters through the water from the top, creating bright, shimmering spots and rays. The seaweed blades are long and narrow, and their movement is captured in a way that suggests a gentle current. The overall scene is vibrant and dynamic, illustrating the concept of 'Everything Flows!'.

Everything Flows!