

# A Parable of Interdependence

***Imagine a living cell . . .***

- ☞ It is a dissipative structure.
- ☞ It maintains itself, that is it exhibits
  - ⇒ That is, it is recognizable from moment to moment, yet it changes continuously.
  - ⇒ The components which make it up are never the same, but it remains recognizable as a unique individual.
  - ⇒ It is like the fountain which has a recognizable form even though the water which makes it up changes continuously.

***This cell is also an integral part of the environment.***

- ☞ It cannot be separated from the environment.
- ☞ The existence of a cell boundary makes it seem separate (just as our skin makes us seem separate and individualistic).

- ☞ But it is continuously receiving positive and negative feedback from the environment (in terms of energy, information, and materials).
  - ⇒ (It cannot possibly be isolated since feedback is integral to any dissipative structure).

***Also, this cell changes the environment.***

- ☞ Removes nutrients
- ☞ Adds wastes
- ☞ It is, in fact, part of the biogeochemical cycles of the earth since we know that biological links are integral to cycling of water, oxygen, carbon dioxide, methane, sulfur, iron, carbon, phosphorous, etc.

***Now, imagine this cell is part of a multicellular organism.***

- ☞ The same that can be said of the cell as part of the body can be said of the animal.
  - ⇒ It is a dissipative structure.
  - ⇒ It is an open system
  - ⇒ Trying to define it independent of the ***milieu*** (environment, surroundings) in which it exists is impossible.

Now, work up the hierarchy

- ☞ Demes
- ☞ Species
- ☞ Clades
- ☞ Communities
- ☞ Ecosystems

All are autopoietic, but must be so in the context of positive and negative feedback with their surroundings, not only of energy and information, but also materials.

Also, ***because these entities have all originated from a single primordial cell*** and developed by continuous expansion and diversification, their organization, distribution, and patterns are fractal.

- ☞ They are the result of non-linear processes and are, therefore, and
- ☞ They are and operate on the principles of
- ☞ They also exhibit

***How far up can we expand this?***

- ☞ Can it be expanded up to the global level???
- ☹ Some have responded, "No", because at the global level there is no "environment" for the world to interact with and therefore the analogy breaks down.
- ☞ I find this a curious criticism.

It is true that material interaction with surrounding space may be limited.

- ☞ But, the autopoiesis is still inherent.

⇒ still goes on. Life absorbs and stores energy from the sun, using that energy to construct meaning (information in the structures of all these entities)

⇒ . That is, changing environments through time (temperature, salinity, atmospheric composition, dissolved nutrients, land areas, isolation and island biogeography, etc.)

What we are dealing with is the eternal metaphor . . .

## **Environmentalism or Internalism?**

- ☞ What is the relationship between life and earth. Is it  
**Environmentalism or Internalism?**
- ☞ But we recast it differently.

The questions are:

[1]

. . .

or

[2]

The second idea is inherent in Darwinism - biological change is induced by environmental changes

- ☞ It is also inherent in the Modern Synthesis, and most of the ideas in paleontology on what causes large scale evolutionary changes and patterns.

The first idea is called the and it is that  
which we explore now.