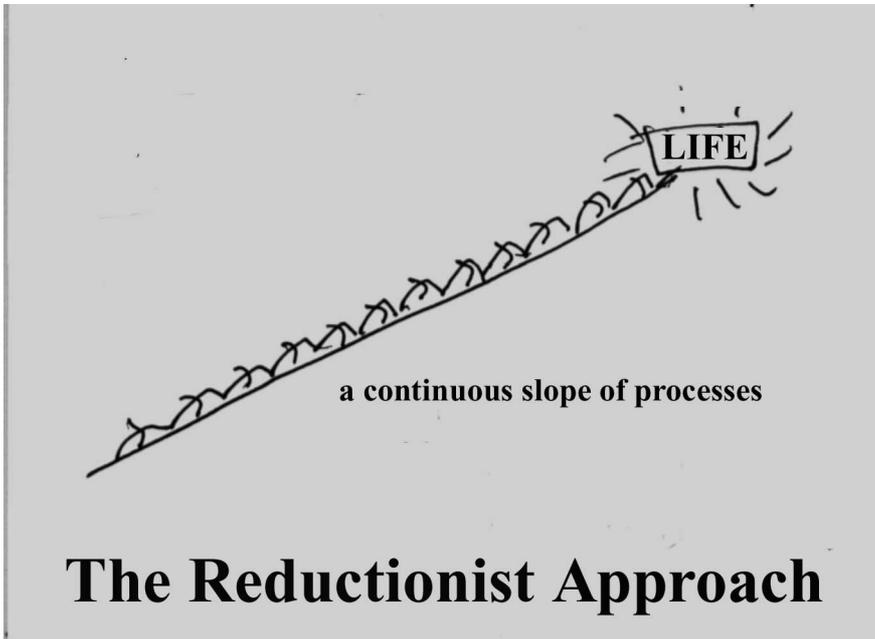


## Diagrams of Emergence

We should start by giving diagrams as an alternative way of showing the differences between a Reductionist Approach and an Emergentist Approach.



As can be seen, this allows of a sequence of reductionist steps starting from some fundamental basic foundation, all the way up to Living Things.

Now, this is not very realistic, and though many individual steps have been found and described, NO extended sequence has ever been established. The known steps are fragmentary, though compelling.

The alternative is, of course, the Emergentist Approach, which sees one continual sequence as impossible, and on the contrary, sees the ascent to Living Things as achieved, not only by short reductionist sequences, but most significantly by a series of Emergent Levels.

**This is NOT a merely formal alternative.**

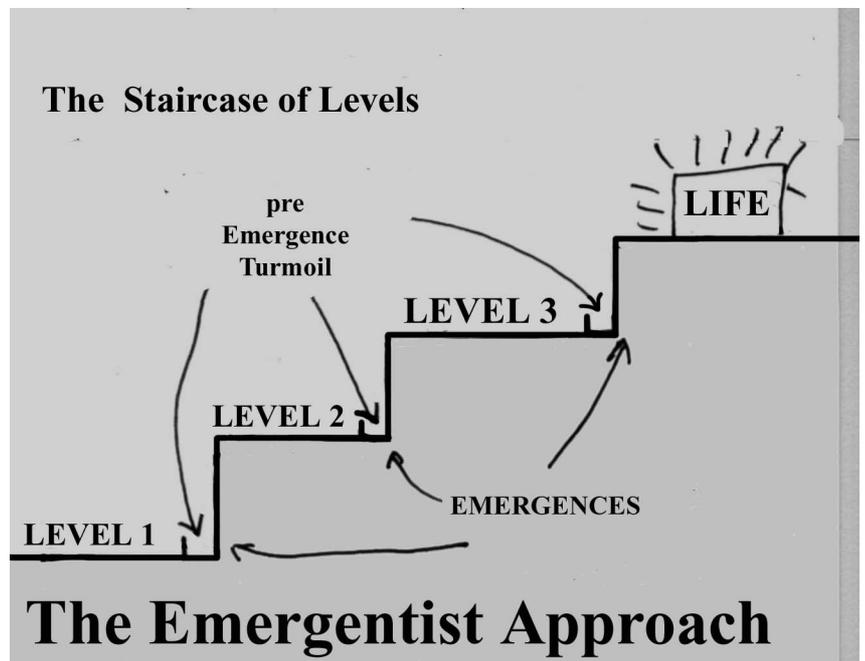
It stems from a standpoint which recognises the finite nature of ALL reductionist sequences for very sound reasons.

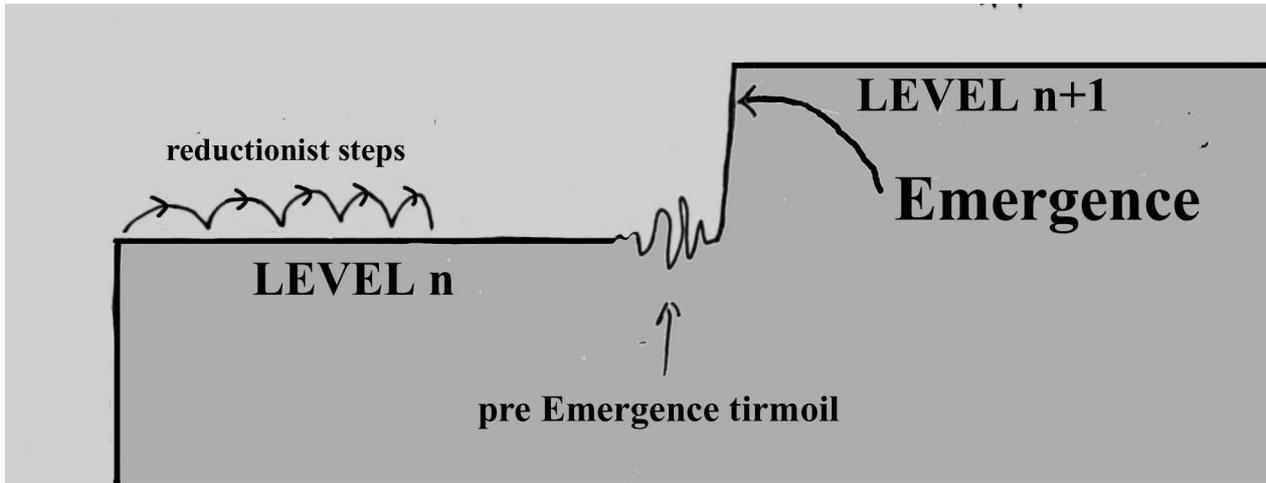
All reductionist steps involve elements which, though both real and significant for a time, ALWAYS vanish from the scene at some later stage, while others, which were totally negligible then, and indeed invisible, will come to dominate the situation. This lack of permanence in the factors involved means that NO continuous sequence of steps can be linked together over any sizeable distance.

The losing of some factors and the

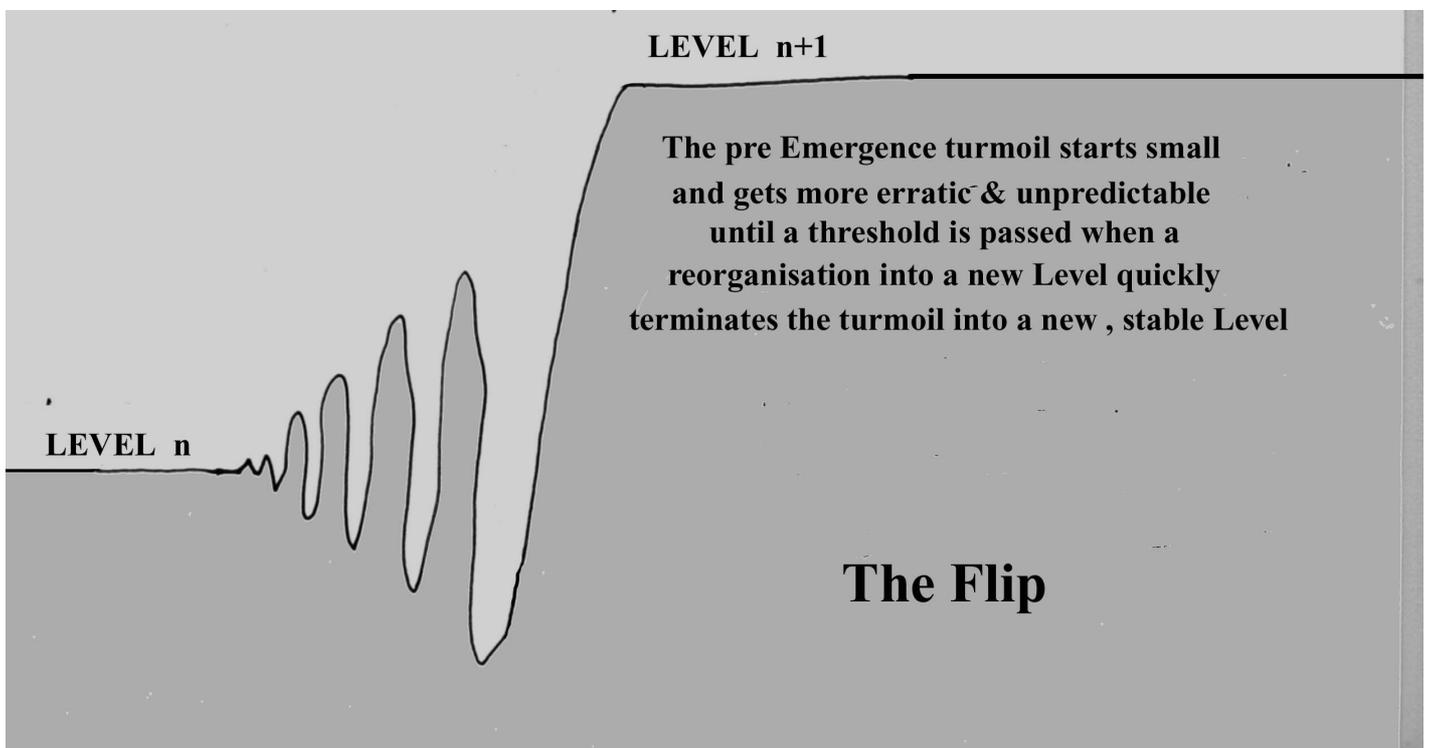
emergence (seemingly from nowhere) of newly significant factors, is seen as evidence of major overturns which are called Emergences. The next diagram is merely a magnification of the one above, but shows more clearly the crucial features involved in emergent change. Three things are included (Diagram overleaf).

1. A series of reductionist steps within the current Level
2. The so called Period of Turmoil which always precedes a Level transition
3. The Level Transition itself, which is in fact the LAST swing of turmoil which results in a major overturn.



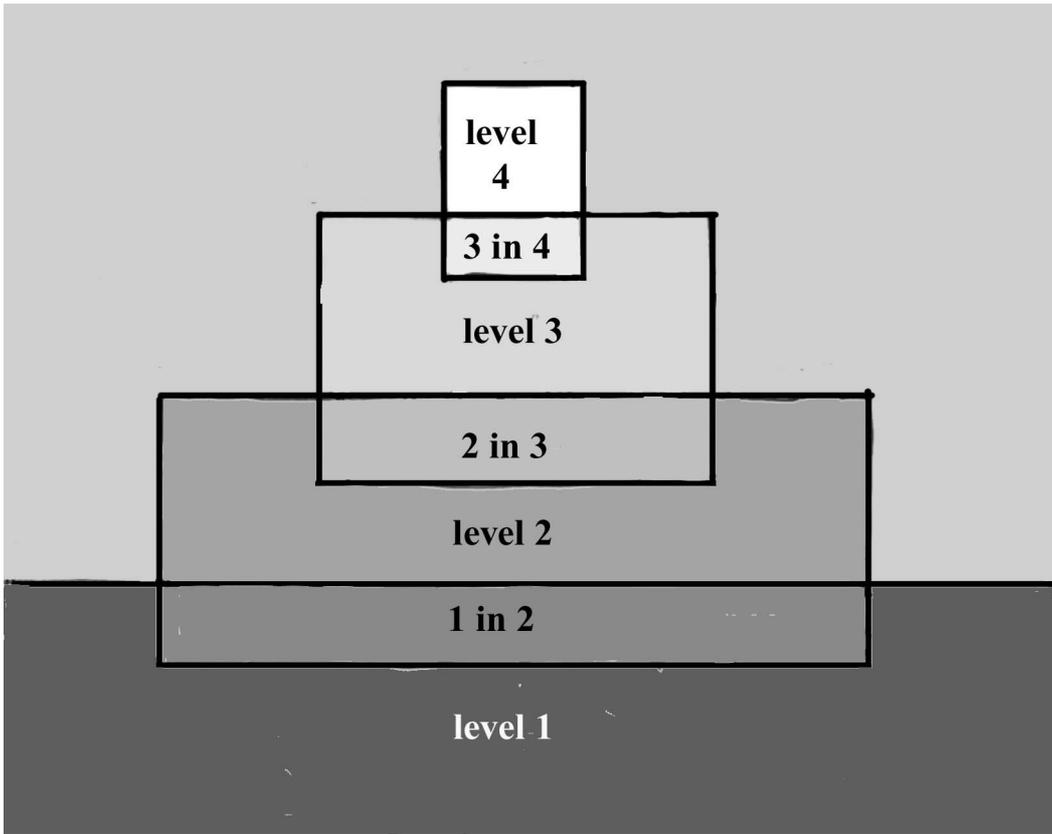


A final magnification is included to make the turmoil/emergence switch a little clearer.

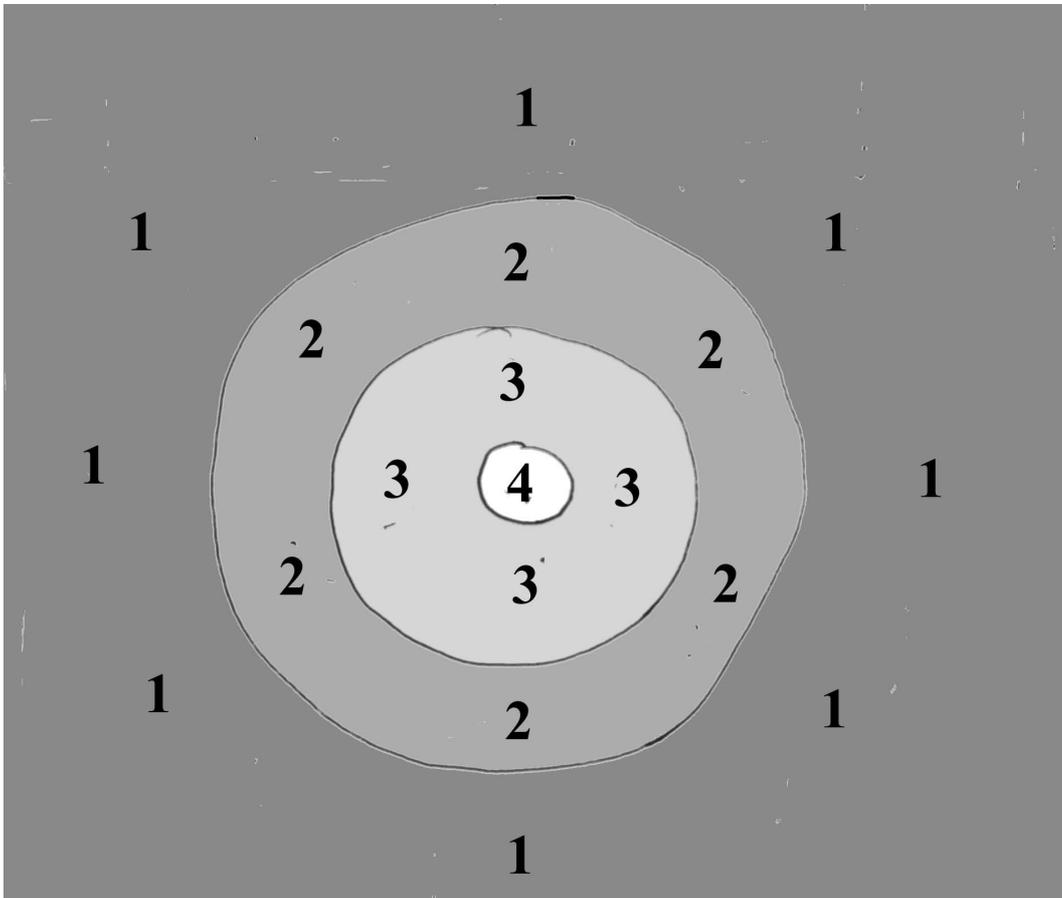


Now, the images shown so far do NOT show the true relationships between Levels. This was necessary as a first approximation in order to clarify the “transitions” themselves and how they occurred. Now, we must deal with the relationships between the Levels.

When a new Level emerges, it does NOT replace the old Level. The old Level, just as it was BEFORE the new Level appeared, continues to exist in parallel with the new Level. All the things that used to happen in the old Level will continue to happen there after the change, but NOT where the new Level is in residence. There the old Level processes are encapsulated within the new Level, and this changes them in a unique way. The laws of the old Level still pertain in this enclave, but it is controlled by the new Level. Within the new Level the old, yet persisting, processes have been *transcended yet maintained!* What processes are allowed is determined by the new Level, which constrains them to a limited set which are conducive to the maintenance of the new Level. In other words a limited subset of the old Level continues under the aegis of the new Level, still obeying the laws of the old Level, but *selected* for compatibility with the new. This is the opposite of the ideas behind purely reductionist sequences. There we have a *bottom up* determination ONLY. Here we have a special sort of *top down* determinism, which doesn't change the lower Level processes, but *SELECTS* those that will remain in action within its domain. Let us attempt to show this in a new diagram.

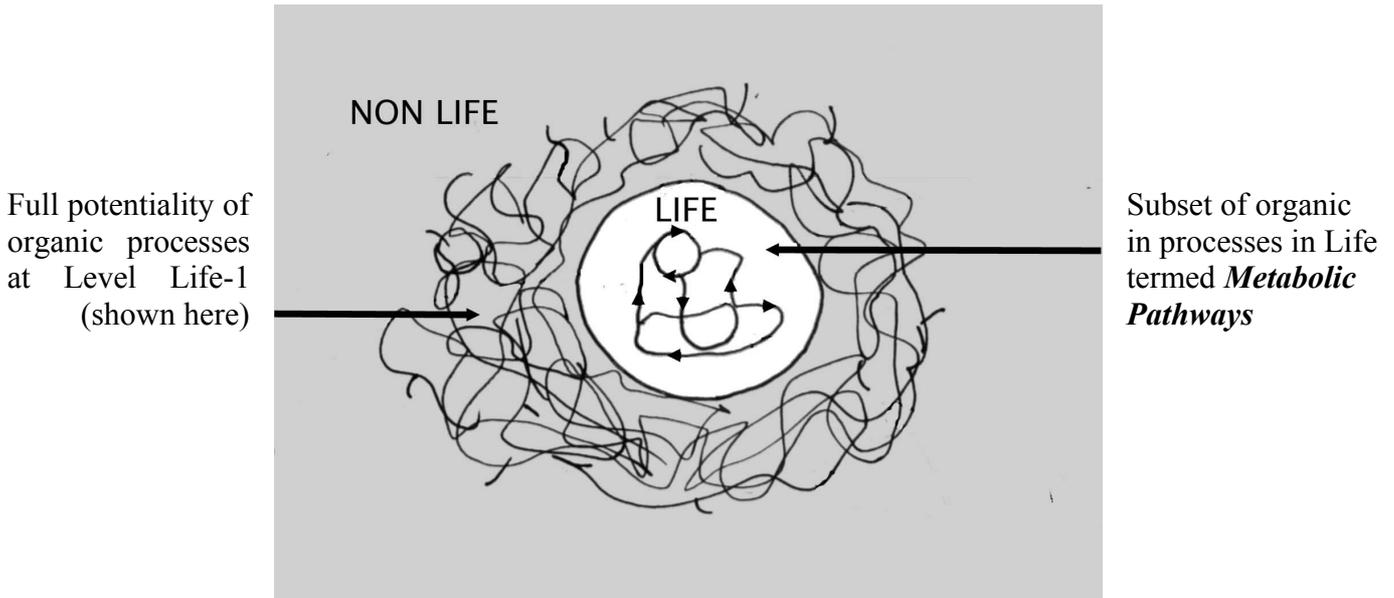


Notice the lower Level processes constrained by the higher Level. If it will help, here it is in plan.



Let us compare sequences and cycles of organic processes INSIDE and OUTSIDE the Life Level. Obviously many diverse organic processes would form PRIOR to the advent of Life, and these could be very complex. Indeed, without the emergence of such processes in the immediate pre-Life period, there could be NO Emergence of Life itself.

The full potential set of processes and unlimited environment OUTSIDE the Life Level means that the particular subset that will ultimately form the Metabolic Pathways WITHIN the Life Level will be both VERY unlikely, and sometimes so much so as to be termed “impossible”



The restrictions, linkage and perfect supporting environment of Metabolic Pathways WITHIN the aegis of the Life Level, means that all its contributing elements are very likely indeed – in fact **certain** to occur.

These points about the probabilities of certain processes occurring are crucial in considering many of the arguments against Life being a self organisation of Matter.

The strongest point made is that the precise conjunction of processes necessary to ultimately produce the coordinated set of Metabolic Pathways “by chance” is so very unlikely as to be *impossible*. The crucial opposing feature implicit in an Emergence, is that the impossibility in a prior NON LIFE level is correct, but it is the actual *Processes of Emergence* which change-the-game.

Local, protected environments are created with different conditions, in which the coordinated, mutually supporting set of processes that make up the Metabolic Pathways proliferate, while OUTSIDE in the NON Life Level, the old impossibilities still pertain.

We say that those lower Level processes encapsulated WITHIN the aegis of the New Emerging Level, still follow the same laws of the lower Level, but are constrained to a limited set of conducive processes within the higher Level.

(849 words)

