

Shape Journal  
**Marxism II**  
Special Issue 19

## **Emergence**

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# Introduction

## Marxism II

Welcome to the 19th Special Issue of the SHAPE Journal, the second installment in our series of issues on Marxism and Science.

Once more the total emphasis in this Issue must continue to be upon the philosophical bases of Marxism. And it will not be a mere historical survey of an already complete, established and adequate standpoint, but, as it should always be, a Work in Progress.

Indeed, to even maintain its original power and method, it must be both rediscovered and rejuvenated, if only because no knowledge or understanding can be absolute.

History is real, and Reality will change and regularly deliver the entirely NEW: how can it ever be complete! Indeed, any complete standpoint based solely upon what has occurred previously will find itself unable to cope with entirely new situations, and will inevitably drift towards the consensus delivered by the dominant Class, and away from the Marxism of Revolution.

The most urgent task of revolutionaries is to constantly extend and renew the Philosophy. As soon as that is sidelined and current “Activity” is allowed to dominate, the ever-sharp tool of Marxism is blunted, and the established routines of past phases take over, and will most certainly not equip us for the tasks ahead.

Indeed, in this Issue there is an account of the attempt to discover the inner trajectory of all revolutions – or, more accurately and abstractly, of a general *Emergence*.

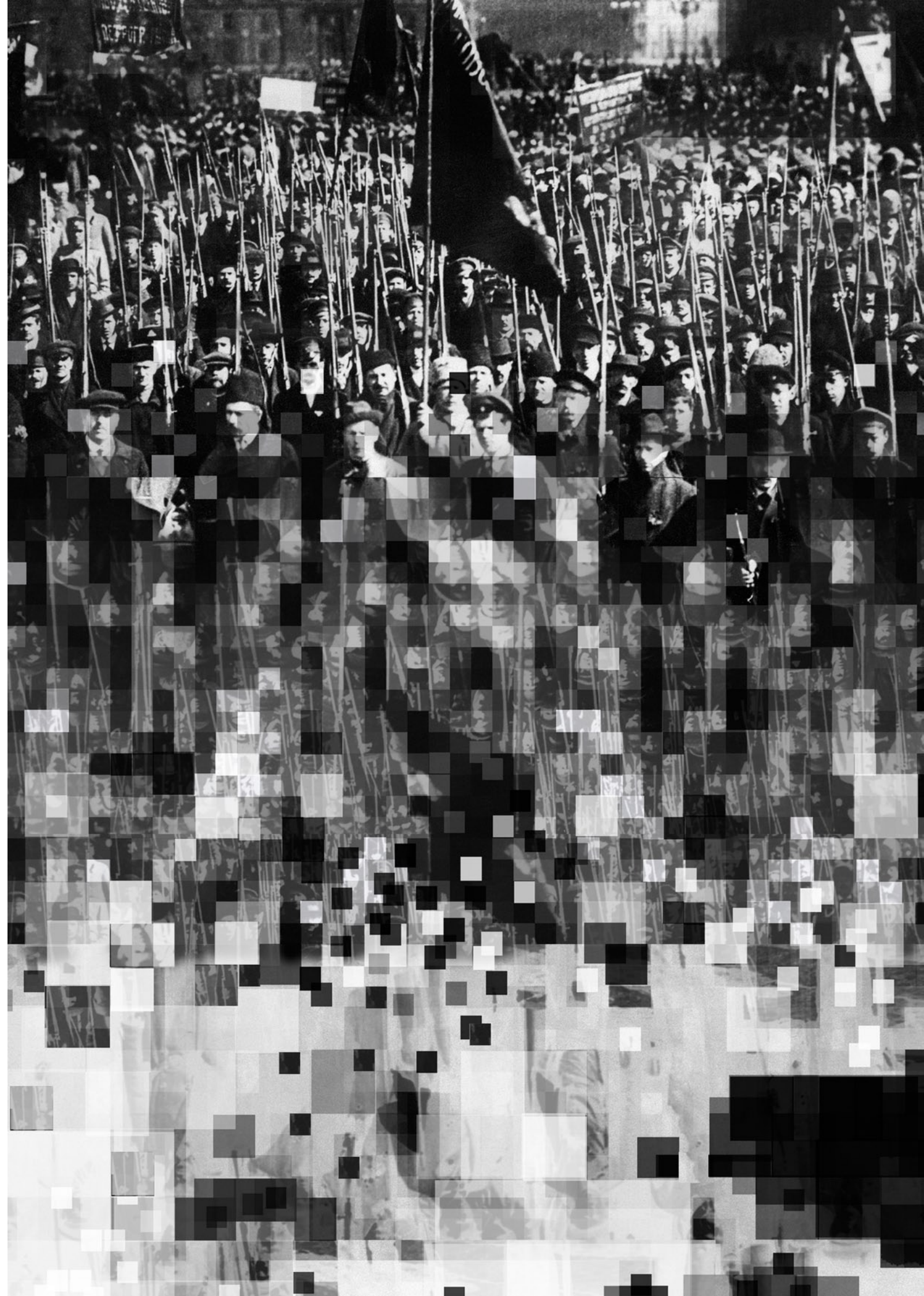
For the contributions of Marx and Engels were significantly added to by the experiences of the Bolsheviks in Russia in two revolutions – an unsuccessful one in 1905 and a successful one in 1917. That revolutionary Party was fused into an effective implement of change in the white heat of revolution, and hence vastly added to what Marx and Engels had delivered in the previous century.

Yet once more there wasn't time or enough Marxist thinkers to further extend these ideas into an ever wider set of areas, and, most important of all, into Science.

The writer of this Issue is both a Marxist and a Scientist, and has slowly and necessarily had to also become a Philosopher too.

The task here is to investigate the inner processes that take place within an Emergence – the revolution that is possible in all developments, and crucially in Science too.

**Jim Schofield** March 2013







## A Wholly New Paradigm?

Following the extensive series of contributions on Miller's Experiment (see MARXISM I), its updating and development, and the beginning of a definition of a necessary Holist methodology for Science, we must tackle a much more profound stage in development – actual *Qualitative* Change – or put simply The Creation of the entirely New!

Miller's Experiment and even its proposed improvement cannot deliver the answers to this crucial phase. And, when we study both Oparin's work on Sols and Gels, and even Darwin's stupendous contribution upon The Origin of Species, even these cannot address the key question. Though, of course, they contribute to it in various ways. And the reason for the inadequacy of these efforts in tackling the actual Origin of Life is that they don't, and indeed cannot, address Emergent Episodes – the Creative Events that we term Emergences.

On the contrary, they can happen in literally millions of sets of circumstances – many, many species have come into existence. They are really investigations into “normal” or repeatable processes. They can approach the Origin of Life from below as does Miller and Oparin, or from above, by taking Darwin's Origins of Species backwards. But neither approach can automatically and incrementally deliver the actual creative Event of Origin.

And this illustrates an even more significant weakness of the usual standpoint and approach in Science.

We study Stability and quantitative changes, whereas what must be involved in such revolutions as the Origin of Life has to be the cataclysmic events that we call Emergences.

Now, these do crop up in the Arts, and have done so for millennia – like the Phoenix arising from the Flames of Destruction. But, it has never been part of the “scientific revolution”. Yet, it certainly is what is needed here. The Origin of Life was not a quiet, imperceptibly appearing transition, but an explosion of major changes, much like a Revolution in society.

To establish Life in the middle of an inanimate World dominated by the Second Law of Thermodynamics, would have first needed the local, but total collapse, of the prior prevailing Stability.

Only in the swoop towards total oblivion would the constraints which maintained that stability, be also swept away, and in a totally “un-policed” and near-chaotic environment, could the wholly new appear, survive and grow.

Thus, we will not find the answer we need in detailed study of either Darwin or Oparin.

We will have to address Emergence directly and in general first!





Establishment of new Level

The Fall

$a$

$a+b$

$b$





# Miraculous Transformations

The Holism that has been the basis of all that has been dealt with so far also generates major calamities (and even catastrophes), and the most complex, turmoil-ridden Events can totally transform situations – so much so that they become something very different indeed.

The principle of everything affecting everything else may well be made more intelligible by clear dominances in certain cases, but could, without any doubt at all, also result in a form of Total Chaos – and sometimes does!

The crucial thing is that phenomena do not take place on some unchangeable ground – some fixed stage. Indeed, certain processes, especially avalanches of positive feedback, can, and do, transform the very ground which actually caused them to occur. And, if the conditions themselves are open to significant change, you cannot simplify and reliably predict in the old pluralist way.

For that was totally based upon relations and processes being entirely separable – that is independent of their particular contexts. As soon as this banker assumption is jettisoned, any process will not only do what it does upon its initial ground, but also may well significantly transform that ground, and hence lead to a very different situation, in which unpredictable and very different things may well happen. And in a veritable avalanche of avalanches – a consequent series of causal processes, truly vast changes can occur in quite short periods of time. Phase can follow Phase in rapid succession and only terminate when some strong Stability results and establishes itself.

You can see the problem!

Our insistence on a holist standpoint actually guarantees such calamitous Events, and their trajectories will be very different from the usual ordered processes made possible within carefully constructed and rigidly controlled Domains (as in all pluralist Science). So, though we will be able to follow some holistic processes and describe them, what on earth can we do with Revolutions?

Major turnovers in short periods on initial inspection seem like totally inexplicable step-changes, where a new world seems to appear instantly, entirely ready-made.

Life is, of course, the clearest example of this. Can we deal with such changes by our usual means? Surprisingly perhaps, the answer is, “Yes!”

And, it was first delivered in the most complex and difficult circumstances, but ones that can happen now, and therefore can be experienced as they happen, or comprehensively recorded by participants – in a Social Revolution!

Now, though the realisation of the holistic and qualitatively transforming nature of Social Revolution gave us a concrete and available study, it wasn't going to be easy.

The very imperative of acting within an objectively caused revolution meant that things had to be focussed on an absolutely necessary moment-by-moment analysis and immediate consequent actions. [See Michelet's admirable History of the French Revolution]

It could never be an exact science, and you could also get it wrong, and consequently lose! So, apart from these rare interludes of happening-NOW Emergences, the only way to widen and deepen such studies had to be to also address other cases of Emergences throughout Reality.

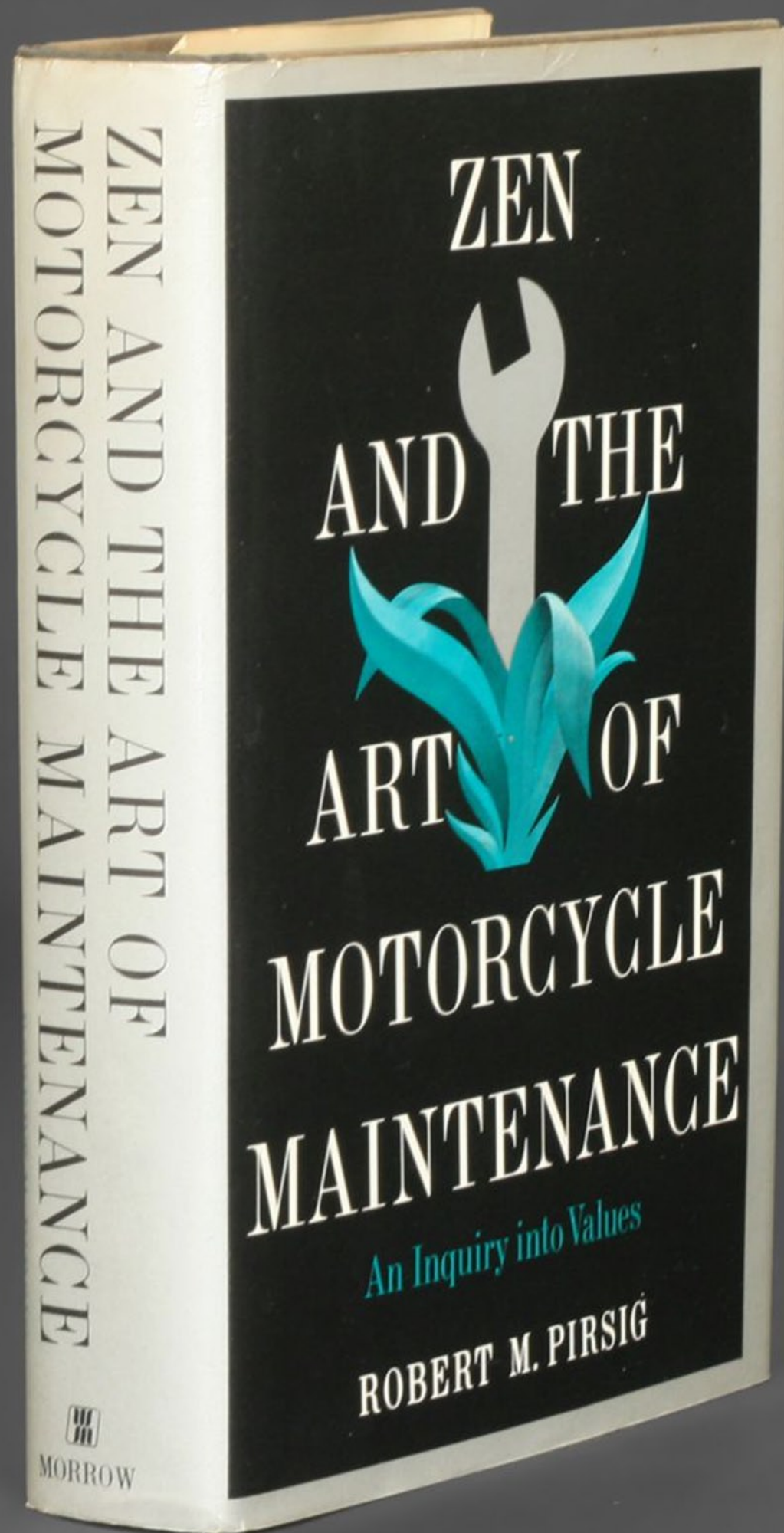
Clearly, Miller's Experiment, especially in its new incarnation, would certainly be a vital area. But, most such happenings were inaccessible because they happened too long ago, and left literally NO evidence from the actual Emergence Event itself, and the methodology had to be to find and study all such cases.

The Origin of Species (Darwin's crucial work) is perhaps an area that could be studied in detail now, and perhaps the most crucial of all will be the actual Origin of Life on Earth.

Hegel knew the richest and currently available place to study – his own Thinking, and it was his revolutionary contributions based upon such studies that enthused both Marx and Engels with their development of his ideas.







## Inner Truths: Paper I

### The Dynamism of an Emergence

In the current series of papers on attempting to define a Holistic Science, I have touched upon what appears to be perhaps a surprising sequence of avalanches that are at the heart the process of Change in every Emergence.

*NOTE: Readers requiring a much fuller description and discussion of these remarkable Events will have to read about them elsewhere, both in my own papers and those of many others.*

What is clear, however, is that such Revolutions of Change do indeed occur and **MUST** be investigated if Qualitative Change, as distinct from Quantitative Change, is to be seriously addressed.

But, these “avalanches” are, as yet, only mere conceptual models for what seems to be happening within these world-changing Events.

These major turnovers must be fairly complex and dramatic processes, for what emerges at their conclusions are not only very different to what was the situation prior to these Events, but also it has become very clear that they cannot be derived from those precursors in any currently known way.

The Emergence is at present still very much a Black Box, in which colossal changes and creations transform things so dramatically that they can only then be conceived of, and investigated, at an entirely new, and higher Level. Therefore Emergences must be both cataclysmic and complex, and the only natural overturns, with such dramatic properties, that occur elsewhere in Reality are avalanches. So, we must start with something similar to these as a sort of component in the transformations.

A sequence of these, each one causing the next, could indeed very quickly bury all connections from the precursor situation to the newly created **Level**.

*[See Pirsig's idea of the “independence of Levels”, and the role of what he called Quality, in his books **Zen and the Art of Motorcycle Maintenance** and **Lila**.]*

Clearly, prior to any such Revolution, there must be established its necessary Ground.

And this will seem to contain a whole group of well-established and relatively stable entities, properties, relations and “laws”. But these must also be gradually being undermined by a number of increasingly significant processes that were previously (and correctly) considered as negligible and hence ignored.

Under the special circumstances of an Emergence-in-the-making, however, these will increase in significance and begin to undermine the dominant processes of the status quo: a revolution will be brewing!

But, it would be incorrect to see these interlopers as merely “taking over” and replacing the previously stable situation. That would be impossible!

The very persistence of the previous Level was possible because of the inter-relationships of its dominant processes which had in the past established themselves as a continuing and self-maintaining, stable system. The disruptive and separate processes beginning to challenge that stability would not possess the inter-relationships that would be necessary for the replacement of one stability with another. But they could destroy it!

In fact, something very different to a straight replacement would be much closer to the truth. These growing elements would never, as such, have been the bases for a New Order, but only the reasons for a major system dissolution.

The well established equilibrium – the self-maintaining stability of the old order, is by these growing processes, undermined to such an extent that a tipping point is reached and passed, and things career into some sort of Positive Feedback avalanche of major Change.

Indeed, though there would have to be a first such event, its effect would be to “break” the combined stability, and would inevitably push other sub-systems over their individual break-points too. An environment of avalanches would doubtless ensue, and seem to be heading irrevocably towards total chaos and dissolution.

But, to understand the nature of what was being demolished, and (very importantly) how it itself was originally established, we must consider first how the latter occurred!

In a totally holist World, with everything affecting everything else, how on earth did some sort of order coalesce out of the more logical outcome of completely random chaos?

There must have been natural processes in which order grew out of chaos and resulted in a system which was still holistic, but which was self maintaining and inherently (if temporarily) stable. Now, such a system **NEVER** fits into Formal Logic!



Not only is everything affecting everything else, but in addition some sort of stability has been temporarily established, while at the same time the seeds of its own destruction have been allowed to continue (if temporarily somewhat constrained), so as not to get out of hand.

The trajectory of such a system cannot be understood in normal everyday terms. For, we would expect it, once achieved, to persist for ever. But that is never the case! Reality is not a given Set of Things, It is an evolving system! This means that it changes itself, and thus makes its own ground, continuously! In such systems, we have neither total random chaos nor permanent order, but a series of periods of relative stability, punctuated by short, and self-caused interludes of major cataclysmic Change. And these alternating Phases are not necessarily triggered from without: they are more often than not intrinsic to the system evolving of itself alone.

So returning to our avalanches of destruction in the first stage of an Emergence, we see that the famed Second Law of Thermodynamics would seem to be establishing its universally-agreed precedence, and the World would naturally seem to be heading for maximum disorder.

Now, it must be evident that such a cataclysm does NOT gel well with any Notions of Incremental Progress, wherein small “naturally selected” changes accumulate to deliver development. (Such as are rife in crude conceptions of Evolution)

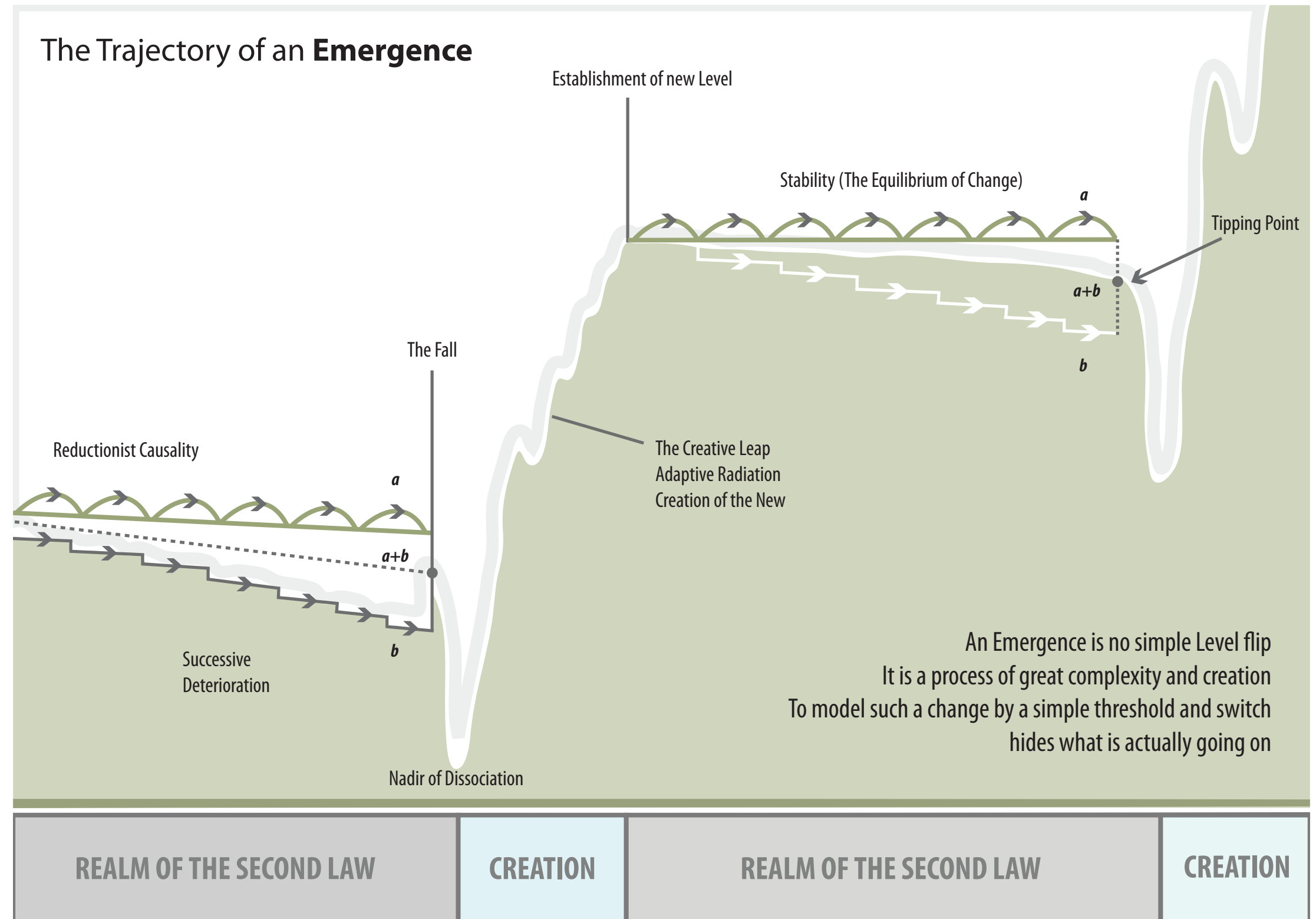
On the contrary, however it was established, the situation prior to an Emergence, was one of interlocking and mutually supporting negative feedback situations, which kept things more or less as they were.

Though changes did happen, and even accrue, they were not so much the “demands of a nascent New World”, as the incipient, potential destructors of the Old regime. The initial model for the precipitation of an Emergence therefore must be wholly and generally destructive – a kind of Armageddon would describe it rather accurately.

But the Second Law of Thermodynamics is NOT the basic law that it is claimed to be. It is a Law of the inevitable dissolution of temporary and natural, or even of contrived, *stability*.

It was conceived of in our pluralistically modified World, where all achievements required appropriate artificial local environments to be even remotely possible, and hence all made-stable scenarios were bound to dissociate if they couldn't be constantly maintained.

It was a Law born of the Industrial Revolution, and saw the underlying threat of insidious Rust in all our erections. But is only one side of a Natural Process!





# Inner Truths: Paper II

## The Dynamism of an Emergence

In Reality, stable overall situations will inevitably be overturned, but such “philosophical Words of Wisdom” are not nearly enough!

They are a prejudice arising out of our (that is Mankind’s) man-made stabilities, and which are seen as Nature’s Law counter-posing Mankind’s imposed order to achieve his aims.

But, the World existed before Man, and even before Life. And apart from its catastrophes, it also, and always, *Evolved!*

Reality was a *self-building* system. It was not mere dissolution. Quite the reverse, in Fact! To have a Dissolution Law like the Second Law of Thermodynamics, you HAD to have **Order to destroy**.

Where would that order come from? If there was ONLY dissolution, you would have to invent God to deliver an initially maximally ordered Reality, which would simply run-down, obeying the Second Law, until everything was absolutely total chaos.

Alternatively, there would have to be another, creative process too – a process which naturally moved things towards Order: a process which selected mutually conducive processes in preference to mutually contending ones, so that the movement was towards increasing Order, and the opposite of what we see in the Second Law.

A version of this must surely have been present in the very existence and development of Living Things, which we term the Evolution of Life, but in addition, it must have always been happening even before Life had appeared. The actual first emergence of Life must be the most profound proof of the existence of such an ordering process within Reality. Is not Life more ordered than non-Life?

Now, these are general arguments, meant to focus our attention on Emergences. If they hold water, there must be this opposite of the Second Law, which is the engine of the Evolution of Reality. And, just as the Second Law is not the only story, so it must be with this necessary Law of Increasing Order.

The almost religious belief in “Progress” is as much a prejudice as the belief in an unstoppable drive to Total Disorder. Clearly BOTH are in action, and together govern the trajectory of all Qualitative Change that constitutes changing Reality AS IS!

And we have discovered that Events must occur in order to encapsulate both in every episodic Revolution.

It starts with an undermining of the status quo, which ultimately causes an acceleration into a cataclysm of destructive, positive feedback. The system is successively dismantled, and seems to be heading for Total Disorder. But that never happens!

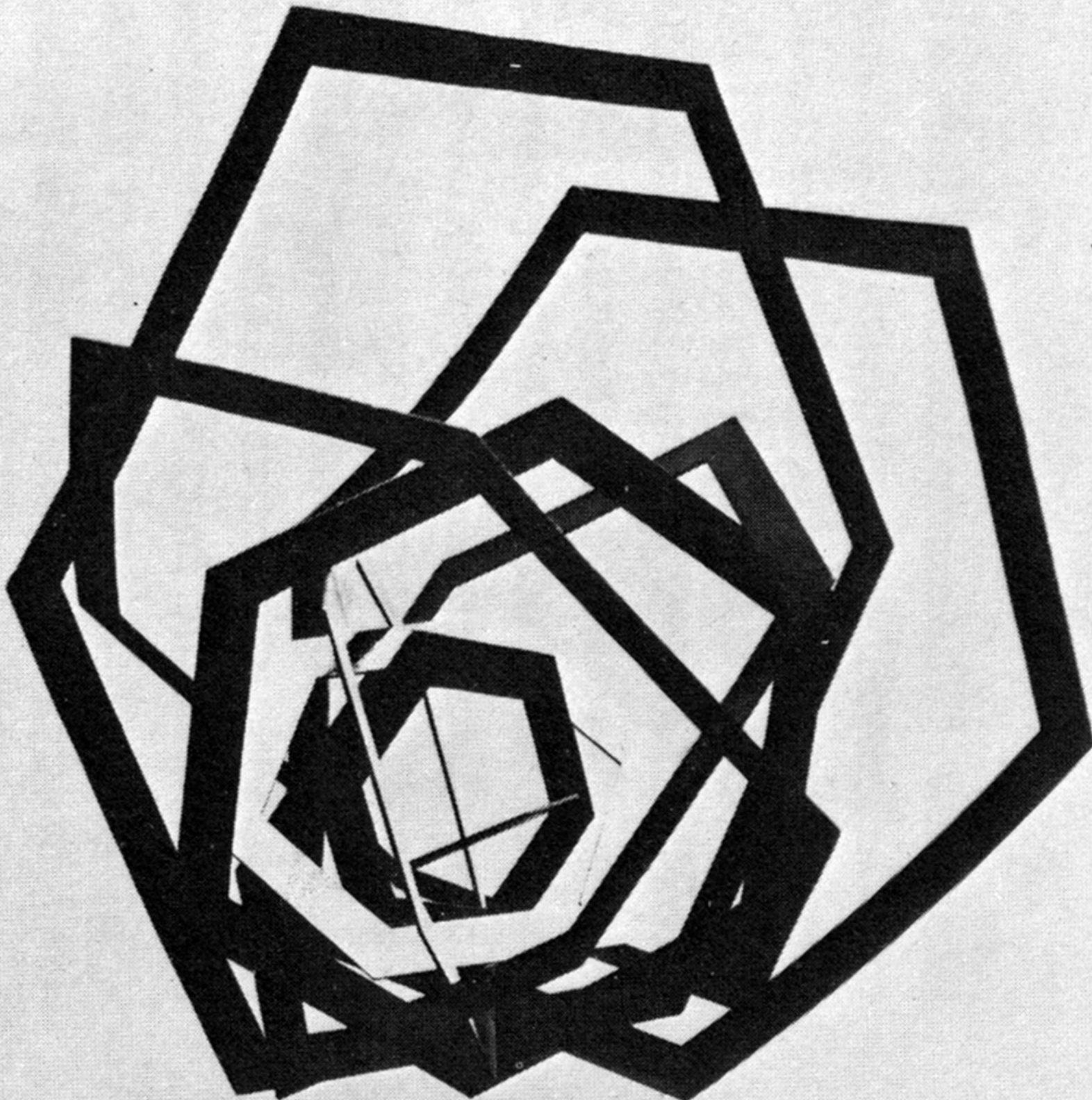
The built-in constraints of the old Stability were not only maintaining the then current status quo, they were also inhibiting any Innovatory Changes too.

They were a defensive barrier to ALL change.

They both maintain the status quo AND prevent anything dramatically new as well. Thus, in order to get significant progress, it could only have any chance of happening, if the inhibitory bonds of the status quo are shattered, and the results of the Second Law then allows the Law of Increasing Order to come into its own. To allow the latter to get a grip, the Old order would HAVE to have been destroyed.

An Emergence cannot be a Single Event! It has to be TWO Events, back-to-back, and the first enabling the second! It is the death of the Old Order, via the increase in contending and disruptive processes, which can accelerate to a complete overturn of the whole appletart, and allow the coming to prominence of its complete opposite. That drive is a natural and inevitable process, which ends the prior stabilities. But, in so doing, the shackles of the Order are broken, and in the new, general turmoil, the possibilities of what processes can occur are greatly multiplied. NOT, it must be emphasized, merely the possibilities of progress, but the total range of all possibilities.

And when this occurs, the Natural Laws of Selection become dominant (like Darwin’s version, but pre-Life) – this means that conducive, mutually-supporting processes will do better and be greatly augmented. And they will grow in number at the expense of the other mutually-contending processes. From chaos, positive feedbacks can facilitate the dominance of these processes, and enable the establishment of locally conducive environments, in which the various processes support one another, even to the extent of forming conducive chains and even cycles. This line of development, no longer inhibited by a still existing and self-maintaining order, can only be facilitated by the circumstances, and hence the dominant direction of the changes MUST be towards increasing Order.





# Inner Truths: Paper III

## The Dynamism of an Emergence

*NOTE: We are NOT talking here about simultaneous, ever-present processes here, but a necessary sequence! The processes of dissolution were necessary in order to create the appropriate conditions for the processes of creation. They were the products of the particular conjunction of multiple underlying processes and current conditions, and were precipitated at a higher level. Only when the generated conditions were sufficient, was a new dominant law created, due to the emerging, new conjunction of processes and conditions, (in a sense, the two Laws operate in very different circumstances, each produced by the action of the other). The simplistic idea of Holism, which has everything affecting everything else simultaneously, is a first order, lower level extraction from Reality. It is NOT the whole story! For, if it was, NO Form would be evident – only chaos! Whereas in true holistic Reality, Form appears everywhere, and is generated always by particular conjunctions of factors. It is not, as some believe, essential or primary in any way. On the contrary, Form is totally dependant on what temporarily creates it within ever-moving, ever-changing Reality.*

Now, from these ideas, it is clear that Emergences are THE most important interludes in the development of Reality. And, as with Geology, we, on recognising these Events, notice first the incremental, everyday processes. Why is this so?

It is because they are immediately evident. We saw them everywhere, and settled on the main principle of Geology, which is – the past was constructed out of the self-same processes that we see all around us even today.

But also, as in Geology, we found that these immediately evident and everyday processes were by no means the full story. Evidence for dramatic, indeed cataclysmic changes were being unearthed more and more, and geologists began to talk in terms of widespread volcanism, Orogenies (mountain building), and even cosmic collisions which precipitated major changes.

Indeed, it was also these same scientists who first found, and correctly interpreted, the fossils that proved the existence of long extinct animals and even plants. And these showed changes throughout that were so significant that the history of the Earth had to be divided into Geological Eras, with mostly well defined boundaries. Later, it was clear that some of these boundaries were the result of cataclysmic changes. Initially, these were seen as global calamities – mass extinctions, and so they were. But, each always led to new explosions of Life in new directions. The term Adaptive Radiation was devised to cover amazingly fast speciation, and finally, in the 20th century, Wegener’s idea of Plate Tectonics was proved correct, and a changing background with both incremental AND cataclysmic phases was linked to our changing World.

Of course, the most significant change of all – much more important than the geological eras was that of the Origin of Life on Earth.

So, in the same way, in our awareness of Emergent Events, we first noticed their incremental outcomes, so that the Events were accordingly seen mainly in their productive mode. But, of course, we began to see the other side of the coin too. Every Emergence was NOT only the creative second phase, it also required an initial cataclysmic phase, indeed a whole sequence of such destructive cataclysms, which not only proved to be necessary to dismantle the constraining effects of the prior stability, but to also destroy and actually remove any trace of the very entities, properties, relations and Laws which we always considered to be vital links in a continuous, reductionist chain of causality. They couldn’t be any such thing because they then no longer even existed. They had been temporary manifestations of that prior stable interlude. They actually were the order distilled into that stability – actually a conflux of all elements in a genuinely holistic way. They were NOT really existing entities: they were temporary Forms, and we could handle them as such, and to a limited extent, also find causes for them.

But, their temporary nature meant that they could NOT persist across an Emergence. This being so, our belief in universal reductionism was demolished too.

NO continuous chain of linked causalities was available all the way back the immutable basic units and laws. Nor could we, as we all do to this day, consider that such links exist back to the Origin of the Universe. The whole “History of the Universe”, from the Big Bang to today, is NOT a reductionist continuity.

Innumerable Emergences have occurred throughout this period and at each one the entities, their properties and their laws of interaction, would vanish, and be replaced by

a whole new set after each and every Emergence.

We are, if all this is confirmed, looking at the wreck of Old Science: the end of many, many assumptions and particularly of both plurality and reductionism as principles.

So, in suggesting a new direction for Science, we are not merely “adding” a new “layer”, totally and evidently dependant on those that have gone before, but we are demolishing most of the old, dearly-held beliefs, which have formed the Ground for our accepted form of Science for millennia.

The Study of Emergences will transform Science. It is not the “one or two outstanding problems”, to quote Hilbert speaking of his World of Mathematics, but, for the very same reasons that he was wrong, such a conception of Emergences would also be wrong.

The study is necessary to re-ground Science, or perhaps more accurately to actually *properly* ground Science for the first time to match the holistic universe.



# A Necessary Addendum: Guaranteed Progress?

In spite of the necessity of revealing the evolving processes of development in Reality, we must NOT simplify this into a naturally ever-upwards slope of unremitting Progress.

Even with the two Phases of an Emergence, the initial destructive Phase seems to be always more than-made up for by the second, creative Phase. It is easy to consider that things always happen in this way with an overall result of “guaranteed Progress”. But that is not always true!

Directly retrievable catastrophes are NOT the only kind. If the Sun became a Supernova and destroyed Planet Earth, all the billions of years of progress situated here would be destroyed in an instant, and the local conditions would be re-wound almost all the way back to the conditions prior to the formation of the Solar System. Cosmological catastrophes are much harder and slower to heal!

The tempo of the then subsequent events would, of course, be desperately slow.

Now, though our cosmologists delight in informing us that we are made of star-dust, (by which they mean that the necessary elements for our appearance in the Cosmos would have been impossible without, first the processes of star formation, then that of their phased continuance via higher order versions of Nuclear Fusion, and finally via their deaths as Supernovae. It is only via ALL of these stages that the heavier elements necessary for planets and for Life are produced.

Obviously, we can conceptually shrink such a process, and compare it with the Phases of an Emergence, but they are on a very different scale, and at a vastly different tempo. There are catastrophes that are almost irretrievable, and on a smaller scale similar events which do result in a large retrenchment, which can take eons (and quite different paths) to overcome, and then even pass, the previous high.

There are examples in the history of Mankind, wherein a large retrenchment can put back advances by centuries – even millennia.

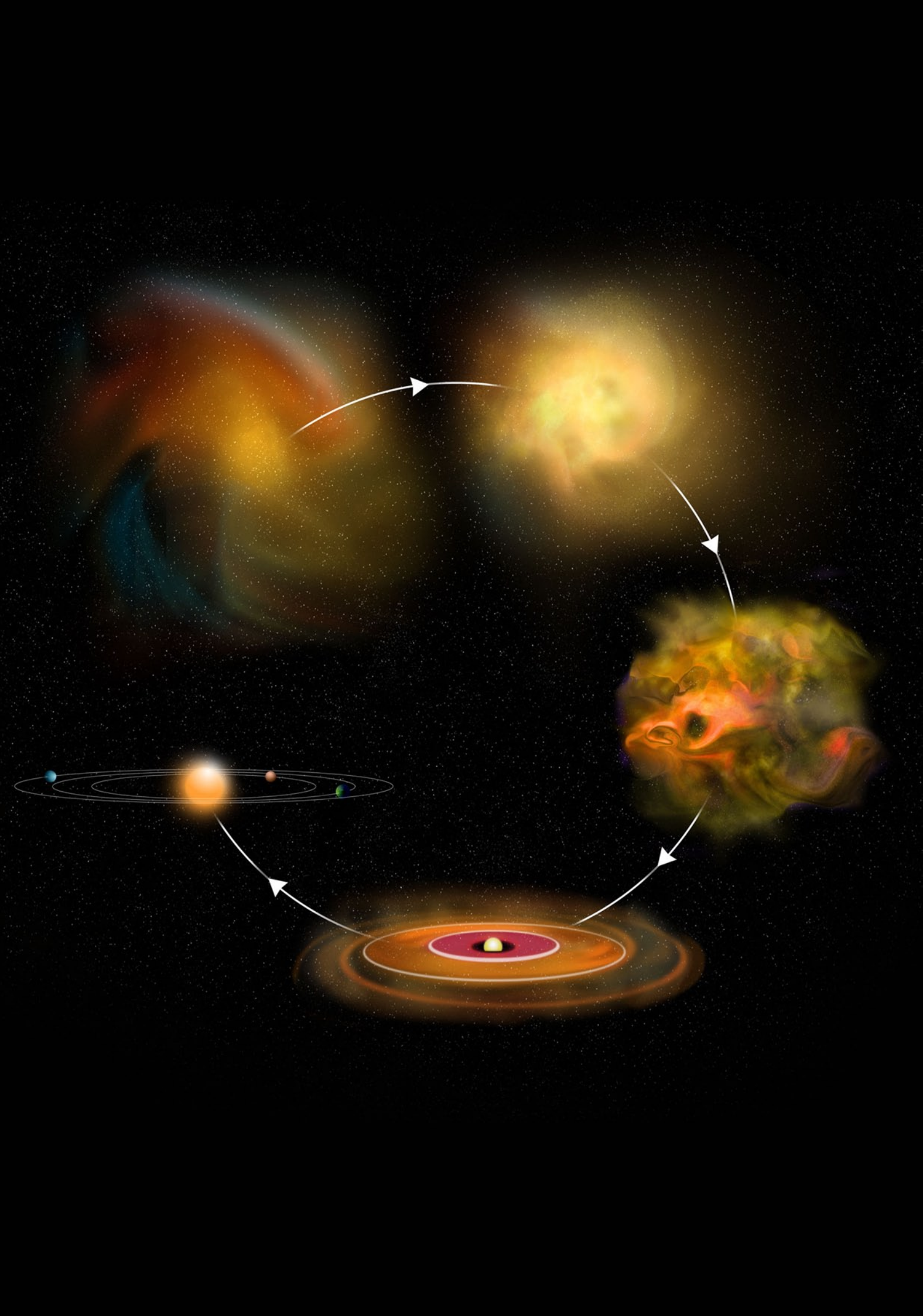
A currently popular theory in American palaeontology puts forward that the first Human Beings in America were from Europe, and that their Clovis culture in flint knapping, was almost identical to that which had occurred only in Europe. But, these early Americans were somehow totally wiped out, and all traces of the Clovis culture in following deposits vanished. By this theory, it was not until a new wave of humans, tens of thousands of years later, entered America from Siberia, that Mankind was able to re-populate the continent. And the culture of these people had clearly NO relationship to the Clovis culture, and NO intervening forms have been discovered.

It is clear that they were NOT the same people.

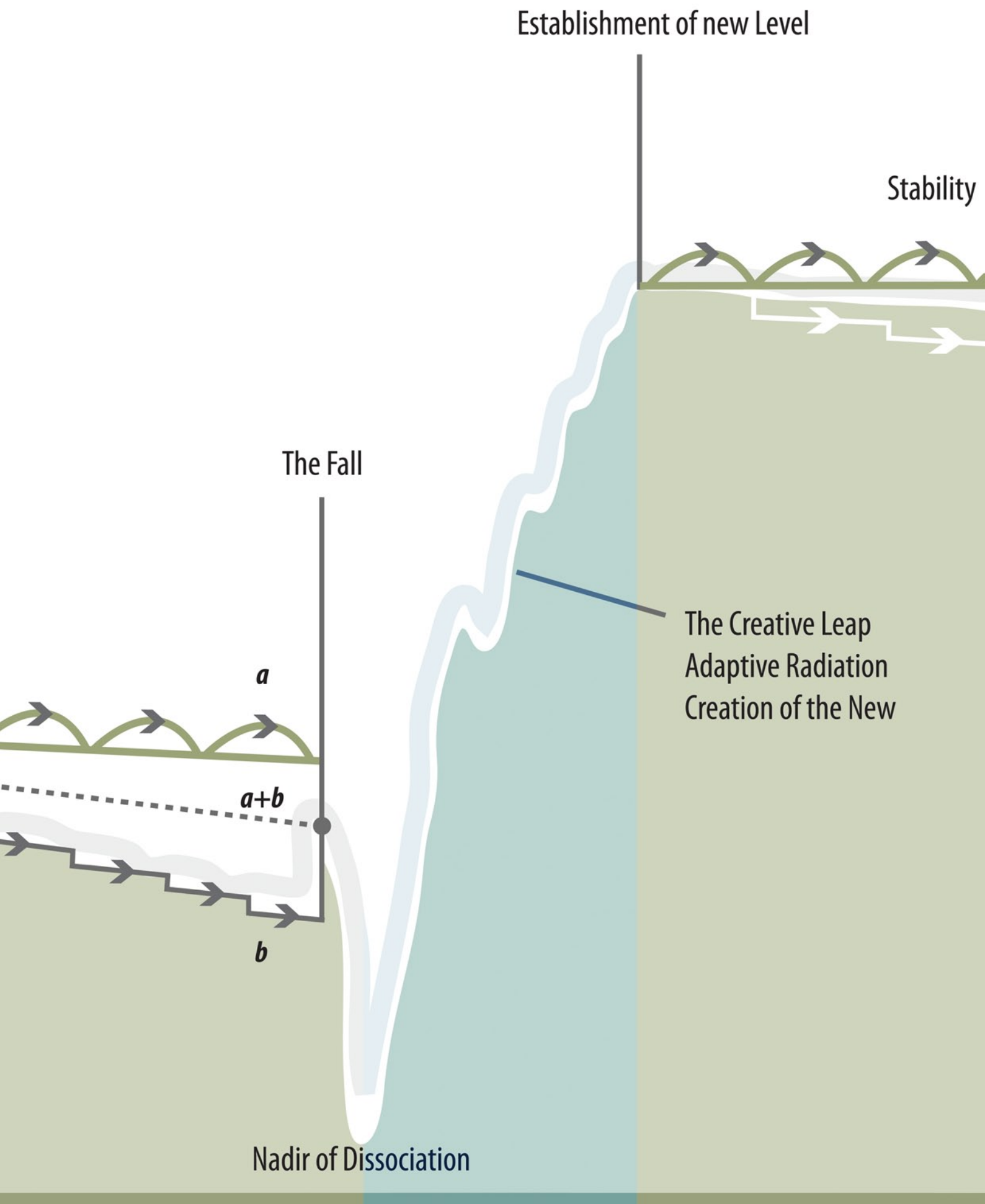
Such waves of hominid migration (even of different species) are well evidenced in Europe, with the well established Neanderthals arriving long before the first Homo sapiens wave appeared. [And the Neanderthals became extinct, with no possibility of a comeback].

So, we must temper our dash to permanent Progress with a very real dose of major calamities, which certainly paused and often halted the march of creation and progress in the evolution of Reality.

Of course, the present almost total pessimism of “Twenty ways to Kill a Planet”, and “Our Certain Demise!” are also nonsense in the opposite sense.







**CREATION**

## The Third Law

In *Inner Truths* I brought in this diagram showing the *Trajectory of an Emergence*, and as this paper is an immediate follow up to that, I have included it here from the outset.

In considering what is actually happening during an Emergence, we arrived at a counter-law to the Second Law of Thermodynamics.

In contrast to its drive to disorder, the new opposing Law seemed to embody a drive to order. Now these are clearly total opposites, and initially it is hard to see how they could both arise from the same ground. How could they ever be true simultaneously?

Now, these are quite reasonable complaints, but we must see that they are viewed from the basis of certain assumptions that we have about the nature of Reality. Elsewhere (and even here when relevant) I have contrasted Holism with the currently consensus position in Science – which is Plurality. And now from that standpoint, such contradictory Laws would certainly run entirely counter to its “banker” Reductionism.

But even if we abandon that position and assume that all of us are committed to seeing the World as a definitely holist situation, we can still be unclear as to what that means, and two opposite Laws from the same situation still seem totally untenable.

There are many ways of constructing Holism, and apart from the simplest, which merely sees everything affecting everything else, there are a whole group of possibly important riders!

One assumption sees all processes as of equal weights so that the obvious result is either that they cancel each other out, or alternatively that they lead to a kind of permanent total randomness.

Now, Holism as it certainly exists in Reality at large is not so easily encapsulated. Yet Understanding is still possible in a holistic World, and that is because all contributing factors are NOT of equal weight: they don't either entirely cancel out or result in evenly-directed, random motions and effects. On the contrary, in all carefully studied real-world cases, dominances do emerge, and all other contributions make decidedly minor contributions. They have been knocked into the long grass by strongly growing major processes., and though still present and indeed active, they are NOT evident or seemingly insignificant.

Such Holism, at first glance, looks exactly how we would expect a pluralist World to look.

Put a wall round a piece of it, and we can, and do, treat it as entirely pluralistic. But that is not its true nature.

Instead of some multi-process, all-directions, all-effects, and simultaneously-acting system, we have to see it as a self-moving, self-maintaining and self-developing system. And that is very different! It is not re-mix but creation that characterises this Nature. Reality seen this way is produced by itself and is also its own ground!

In changing itself, it changes the conditions for what comes next, and though the idea of everything affecting everything else is basically true, it is never a mere summation of equal contributions. Certain features always become relatively dominant, and give a given phase its current character, but even then the under-layer of less dominant processes is still chugging away and can, and in time always will, become challenging to the overall, and currently dominant, status quo.

Now, when such a temporarily stable system is first established, it is nothing like a process totally governed by a single Law or equation. Each and every stabilising victory is mutually determined by the full mix of contributions, and the controlling possibilities of the various dominant strands. All these characterise the solution – for now!

And, even within a currently “stable” system, there are constantly opposing processes still happening, and what occurs is some sort of new mix of the dominant and the minor opposing forces, so simple laws DO NOT precisely predict, as in a pluralist system. The opposing forces qualify and change the new stability, even if the same dominances continue to rule the roost. (We use summations and averages to reveal the dominant relations)

And, as you will already have guessed, no particular stability is anything but temporary, and in time the stable state will be first undermined, and then certainly completely overturned. There are NO permanent equilibriums, because Change is incessant!

To get a handle on such a holistic system, we have to think in terms of both these Phases - Stability, (when the Level persists) and then Emergence (when the Level is overthrown).

Holism within a single permanent Level is NOT what happens in Reality.

Multiple factors all affecting and even opposing one another are present, but they are not of equal weight. This makes Reality (even within a given Level) a continually moving target, changing all the time as it moves. And as



such a system, it will contain bottom up causalities, but also top down causalities. It is NOT a set of uniformly-distributed, purely random features at all.

Indeed, it is also very uneven from place to place and thus develops what can only be called partially self-produced localities. The nature of their dependence on the overall system is vital for what then ensues, and if such localities begin to increasingly undermine the overall stability and dominances, a revolution can be precipitated!

So, such a system has localities and dominances, which can and do both grow and decline.

But, in a holistic system, ideas like sequential Reductionism don't fit at all well. Indeed, perhaps the most difficult part of Reality's holism is that nothing is eternal, or even constant.

It re-makes itself continually, sometimes in minor increments, and occasionally in cataclysms. And what in one period and one locality can be clearly dominant and providing the ground for everything else there, it will in time only decline to be much less dominant, and will actually finally cease to exist!

Now, there is a widely favoured version of holism, which has everything always present, and merely changing in the significance (magnitude) of their diverse contributions. With this version, nothing actually dies! Everything always survives but can be so vestigial as to be totally invisible. But, it is still around, and is always available to play a very different role in a later Phase. And this idea is clearly conceptually very easy!

The evident constantly rolling change can at certain times merely promote once unknown processes into prominence. They may seem to come magically from nowhere. But, with this view they were always present, and merely come to the fore at the expense of others, which themselves decline and even seem to vanish, but have merely slipped into vestigial invisibility. You can see the advantages of such a conception!

Indeed, in one form or another, it is always being promoted, mainly because it torpedoes you ever having to explain the creation of the entirely new. For everything has always been present!

*NOTE: I am reminded of Lenin's jibing of what he called the "Worm's Eye View" of Wundt, who definitely subscribed to this position, even when considering Consciousness. For all you have to justify with such a standpoint is promotion and demotion. But it is indeed a get-out, and untenable for those attempting to actually understand anything.*

So, with this preamble out of the way, let us tackle our two contradictory Laws!

For they then, in our version of Holism, become products of different conditions at different times and/or in different places!

The Second Law is active in relatively stable circumstances. It is the effect of counter-posing processes that are initially completely swamped by those that together constitute the stability of the current Level. These dominant factors tend to suppress all change, whether destructive or progressive. They are conservative, but, as well as maintaining a coherent system, they are still continually changing. The dominant system does not wholly suppress all opposing processes, and these can build up until they can pass a crucial tipping point, and thereafter precipitate a complete collapse of the system of stability. If only the Second Law was present with nothing to oppose it, then the result could be nothing but destruction and totally random chaos.

But we must remember that the Level dominances not only actually enabled the current Level at its birth, and policed its maintenance against dissolution, but also opposed all kinds of change. And this latter feature meant that any NEW possible laws were also stopped from growing in contribution. With the demise of the system, however, any constructive, organising, or progressive possibilities are also no longer suppressed, and in various localities conducive pairs, or even sets, of processes can begin to proliferate at the expense of mutually contending alternatives. This development is surely one towards increasing order, but can only happen when the dominant, anti-change constraints are no longer in charge.

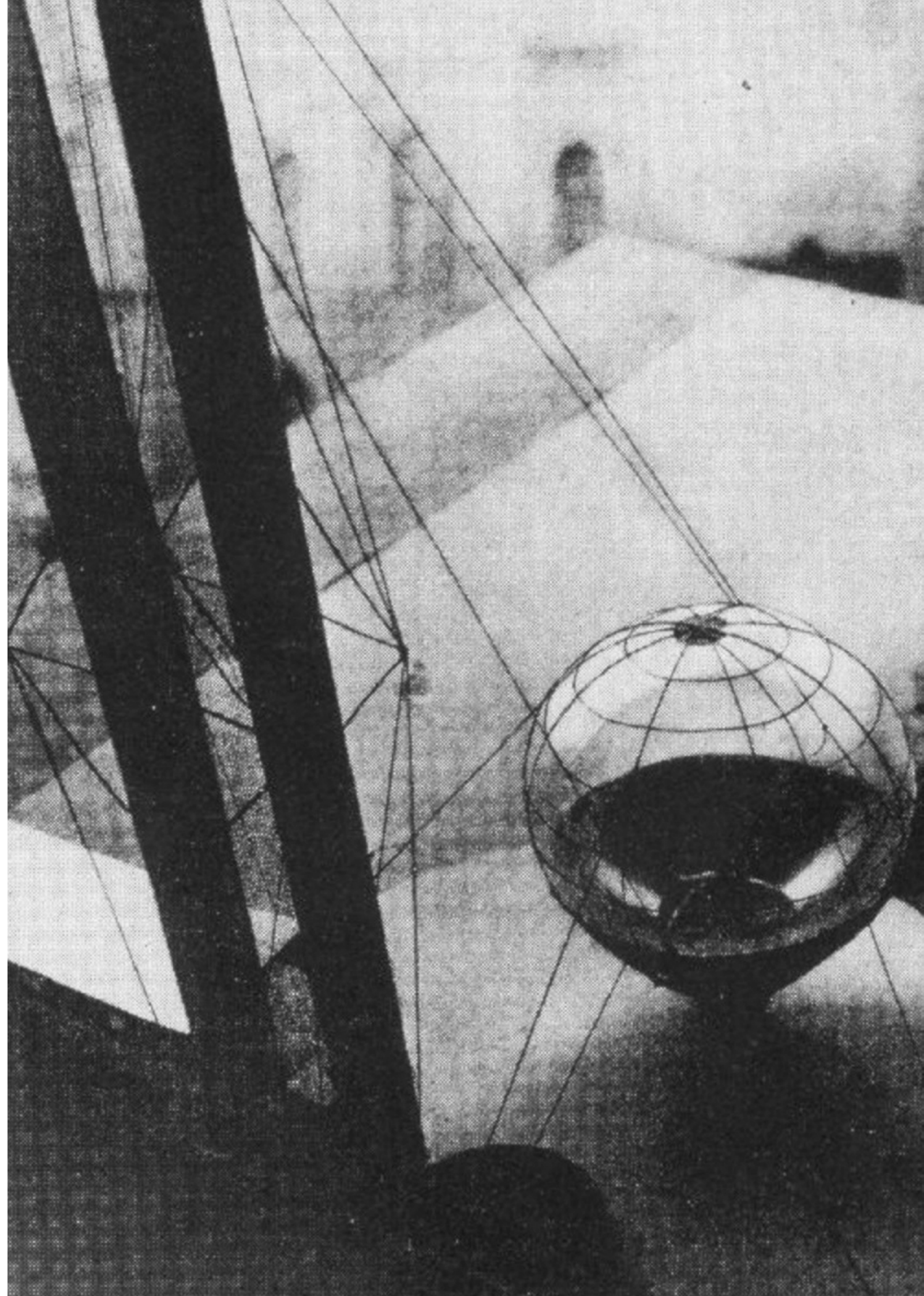
So, the Second Law had changed the situation to one in which a drive to order becomes possible. It had produced the ground for its opposite!

Now, we could treat such situations in a very pragmatic way! We could, once more, merely (and crudely) switch modes and change the laws we apply (indeed, exactly as they do in computer simulations), but that would merely be a pragmatic frig. We know when to switch (when a threshold is passed). We know what to switch to, and even how to apply the new law, but we do not know *why*!

What initially enabled the Second Law was precisely the crystallisation of a self-maintaining, new Level with its own dominances.

The ball keeps rolling, and any newly emerging embryo systems of such stability will be counter-posed by a re-energising of the Second Law, until it once again subsides, having done its job, and a new creative drive again commences. The system thus oscillates under the alternate actions of the two laws.

But, it doesn't do so for ever! Indeed, the ladder upwards of successive new sub-systems of relative stability are merely possibilities, and most will not be up to the job of





establishing and maintaining a New Level. They will be defeated by an immediately resurgent Second Law.

But, after each oscillation, the recurring effect of the Second Law becomes less able to undo all that had been constructed, and the next upward drive quickly reasserts itself and takes things further. The effects of these two opposing Laws finally begin to cancel each other out and the amplitude of the oscillations gets smaller until they cease altogether leaving a new and persisting Level of significant, though relative, stability.

So, let us attempt to address this decreasing (let us say damped) oscillation of the two alternating and opposing laws, and explain why it doesn't just oscillate with equal amplitudes for ever.

There must be a THIRD LAW involved!

Without it the quite evident sequence of higher and higher Levels could not happen.

In effect, this law allows the creationist side to win for a longer period in each oscillation, and thus establish a new and definitely higher Level than from where this Emergence started. Some ideas as to what is occurring have been outlined above.

What do you think?

*NOTE: Douglas Hofstadter, and many others, are always talking about meta-this or meta-that, and what they are referring to is quite legitimate. Languages used to describe languages in general, would be termed meta-languages, while Hegel's "Thinking about Thinking" might well be termed meta-thinking (if he didn't define Philosophy that way).*

*What they had realised was that these were more than merely categories, and do, in fact reflect a layering in Reality, as well as our way of dealing with it.*

*The discussions in this paper, though still very elementary, also recognise hierarchies of laws, which only become possible by the emergence of higher Levels. And, crucially, many of these laws are top-down! The rigidly pluralist position can only see bottom-up causality, which explains why its adherents are constantly driven downwards to more and more basic entities and laws, until they must hit the bottommost rung. They have to have fundamental entities and immutable, basic laws on which EVERYTHING is based.*

*A holist perspective brings in what was, and is, impossible via Plurality. It realises that the whole Process is inter-related in all directions, and it rejects straight-through Reductionism as an invention when applied to everything and all Levels.*

*Only Holism sees the Emergence of the entirely New, and also sees how the new higher Levels can affect those which are lower down.*

*There can be NO Control in a totally pluralist World – only a determinist and complicating explanation for anything. Control implies top-down, and it allows stabilities to establish themselves.*

*With Plurality Stability is a principle! With Holism it is a consequence!*





# The Descending Oscillations of Dissolution

Though the nature of the general dissolution of Stability has been variously described to some extent, by many different observers and the more evident factors involved have been identified, the actual comprehension of the transformation from a seemingly totally resilient Stability, into that often precipitous decline, is by no means complete, and certainly requires a great deal of further investigation.

NOTE: Indeed, very recently a paper amending one of this author's theories has proved necessary under the title of *Amendment to The Theory of Emergences* (see next chapter).

Clearly, the onset of such a swoop to dissolution shows itself as the commencement and increasing amplitude of an oscillation between diametrically opposite, yet temporarily-dominant, sets of processes, and the crucial question demanded by any full explanations must be why this doesn't happen all the time.

Why, for example, is Stability, itself, entirely lacking these oscillations, yet when it is critically threatened, they invariably jump from nowhere into devastating prominence?

In even the simplest conceptions of Stability, we obviously commence with an unavoidable diversity of processes, many of them quite evidently opposing one another, and the simplest conception is that these are ultimately completely balanced (or maybe in some way transcended as an irreconcilable contradiction). But the actual nature of such a "resolution" cannot be simply put down to any mere "cancelling out"!

It must involve many different processes – some contending, while others are actually supportive of one another, some are actually coercive and controlling of other processes, And all these together, as some kind of totally interconnected System, manage via sequences, cycles and proportional responses to produce an "overall" multi-stranded system that is both all-embracing, yet self-correcting and majorly resilient as a n interacting Set.

Such Stability is actually very common indeed!  
It is the seemingly ever-present norm!

The only real model that can be pointed at to give some overall conception of what is happening, is surely the set that we term Metabolic Pathways, which delivers an amazingly universal set of biochemical processes that occur at the heart of all living things.

Now, a detailed study of those kinds of processes may well enable researchers to generalise what occurs there, in order to apply them to many much wider situations So,

we might be in a position to explain-by-analogy all sort of very different cases of Stability much more accurately.

But, even then, it will only be a first attempt, for it will still not explain the trajectories of the actual transitions involved, both into Stability when it is established, and into Instability when that in its appropriate time also emerges. For in the latter cases the evident wild oscillations that always occur as instability begins to persistently threaten. For, such oscillations not only prove the obvious presence of opposing sub systems, but, very importantly, the alternating failure and success of the processes elicited to act against a certain strong development, so that alternating successes could only lead to an ongoing series of major oscillations.

It is very clear that some forms of Negative Feedback must always be involved in these behaviours, wherein the increasing effects of dissolution always elicit a countering via necessarily strengthened restorative processes, and for a time, at least, they undoubtedly start to win, and move significantly back towards a restoration of the prior Stability.

Now, these are certainly not exactly the same situation as was everywhere solidly entrenched within that prior Stability: it is certainly different in at least two important ways.

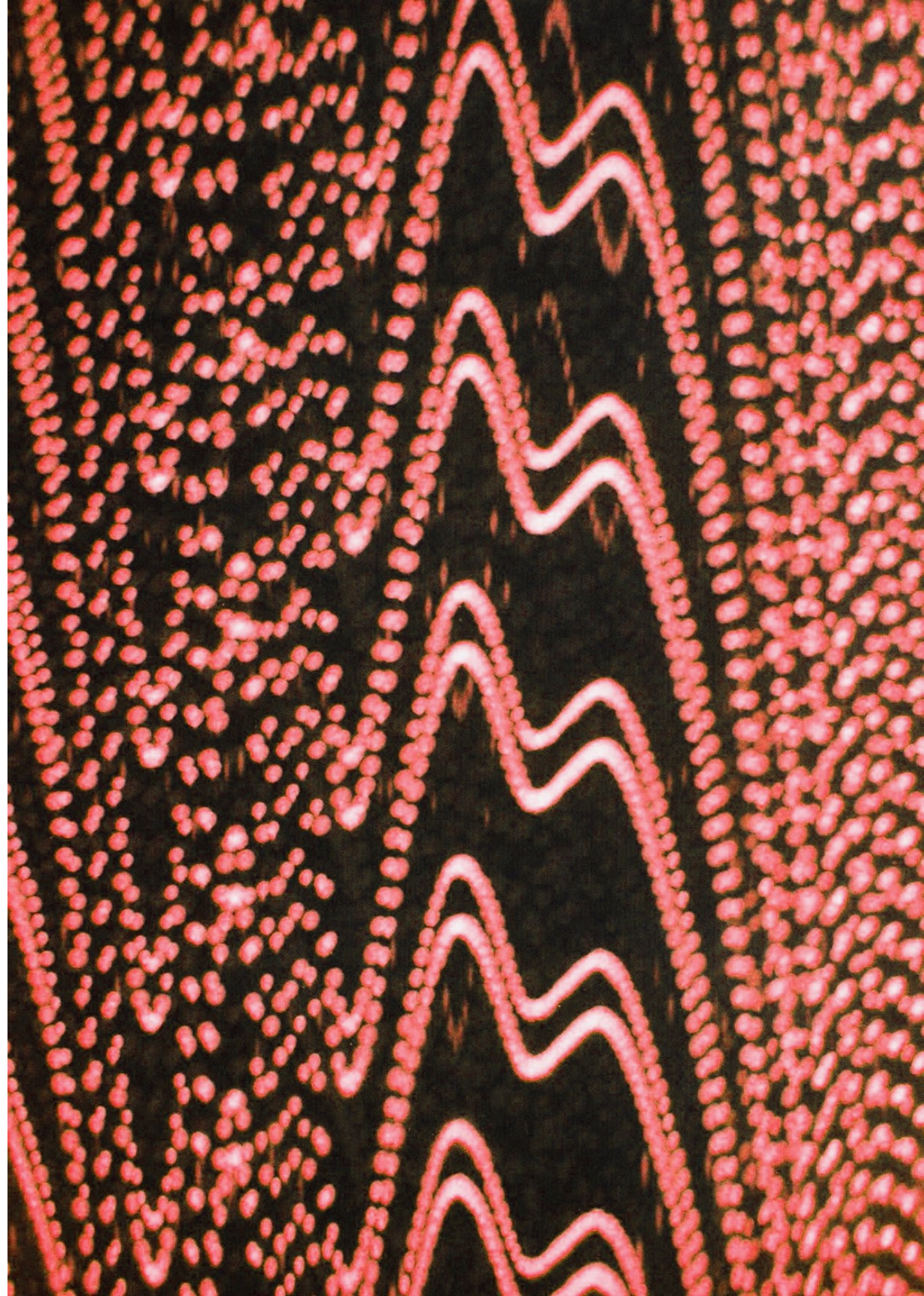
First, something different must have grown within its contributions to actually cumulatively undermine the overall stability, and thus precipitate avalanches of dissolution.

And secondly, there must also be elicited by, and in proportion to, these dissolutions increasingly strong countering processes, which can begin to turn the situation around again, if only for a time.

These cannot be just put down to the usual processes of Stability, for in that state, the various affecting forces are acting within an already widely balanced situation. Whereas, during the onset of major instability, the necessary counters must be much more vigorous and widely affecting, to rebuild what had already been significantly dismantled.

In Social Revolutions, for example, these forces involve the use of military forces to act internally upon ordinary citizens of the realm – forces that are not part of the control within a balanced stable state, but are generally employed outwards to other competing systems (National States).

So, there is a major transformation of existing forces to act in a very different way – against the citizenry of the State







who are in actual revolt against their rulers. And, of course, such switches over can succeed and put down a revolution – a “kind” of Stability can be restored, but permanently damaged, and constantly requiring the switched-to repressive means of control. This is precisely what occurred in 1905 in Russia. While in other circumstances these forces can simply dissolve away as with Kornilov’s march on Petrograd in 1917.

Clearly, the oscillating decline Phase of a Stability-under-threat is neither obvious nor simple!

Indeed, as always, current revolutionary situations indicate what kind of different processes come to the fore. We must certainly not forget the essential “policeman processes”, which play a major role in the establishment of any new and continuing Stability. For they, in particular, suppress any alternative contending proto-systems, which can rival the main dominating and entrenched System.

All such alternatives are usually effectively suppressed, but when instability begins this control will surely be somewhat weaker, and usually suppressed elements may gain in strength.

In Syria, currently, (*originally written June 2012 - Ed*) the continuing and deepening instability is bringing all shades of opposition “out of the woodwork” from both the left and the right, and the response of the “policemen processes” becomes ever more like armies aimed internally – like a civil war.

And also happening at the present time, are the threats to the Earth’s Climatic System. Increasing evidence of swings in the weather away from what is considered normal, are certainly indicators of an ensuing (if early) instability, and a major changeover may be an increasingly close possibility. One known aspect of this (that has happened before) is that as Global Warming proceeds, the increasing melting of the Greenland Glaciers could inundate the North Atlantic Ocean with totally fresh, unsalted waters, and this could cause the descent & return phase of the Gulf Stream/North Atlantic Drift to actually cease, with global consequences. What would be occurring then is the loss of a crucial part of the prior stability – yet another element in the dissolution process.

Now these last couple of examples in very different systems make it clear that these dissolutive phases are not simple, but on the contrary, highly complex and lead to major changes and to come up with a general explanation of such a phase will require evidence from many very different areas in crisis.

For example the birth of a Human Baby must surely be a case of a prior stable system (Pregnancy) with the embryo child within the mother’s womb) being finally compromised, and all sorts of sub systems comprising

that stability begin the break down. Remember in a very short time period the baby has to cease getting sustenance and even Oxygen from its mother’s blood stream directly into its own, to actually breathe air and require “food by mouth”, which then has to be digested for the first time ever in its short life. That is certainly a revolutionary episode (or Emergence) of a kind, but must include the same dissolutive phase in any transformation from one level of stability to another.

Every time we address another of these crucial Events, more kinds of necessary changes become evident and must be seen as expressions of the common Emergence Events of them all.

Finally, the most dramatic evidence at the current time literally worldwide is the daily oscillations of the Stock Market indices. From highly encouraging rises on one day, to dramatic and frightening falls in the next, and a regular short time base oscillation, which can only be evidence of a global crisis in Capitalism. Yet all the experts and commentators insist upon this particular version or that set of contingent events. Confidence goes up and down like a yo-yo, and no one mentions the real reason why.



# Amendment to the Theory of Emergences

Stability is most certainly the self-evident norm in our World and appears to persist indefinitely, but that is certainly not the case. That Stability is constantly under attack from contending processes of many kinds, which are usually subsumed into Mankind's conception of a Second Law of Thermodynamics, which will always intervene in a dissociating way wherever some aspect of the integrated, overall system weakens or approaches failure. This contending force is described best by the saying "Rust never sleeps!"

But, these ever-present attacks do not usually compromise the current Stability. They only cause it to totter before reasserting its hegemony, and this is due to the inclusion in any such system of essential coercive sub processes, which I am inclined to call "Policemen Processes" that both attack any nascent alternative proto-systems (and indeed totally prevent their growth to any state of being able to rival the prevailing Stability), and also act against any Second Law processes by repair, replacement and reproduction cycles, which always outweigh (for the most part) those persistent, destructive inroads, so that they are seemingly relegated to only demolishing decrepit or failed sub-systems, and, in a sense, clean situations up by disposing of its "dead wood".

But, as a system grows old, and effectively runs out of potentiality, as its accompanying minor alternatives develop (if only marginally), it crucially becomes increasingly less able to contend with the (also increasing) members of the Second Law alliance, so that their dissolutions increase in success and the System's precious Stability is increasingly undermined.

Finally, some threshold is surpassed at which veritable avalanches of dissociation temporarily start to dismantle the overall System.

The various policemen processes increase their activities, and indeed "change mode", in response to restore the situation, but they succeed only partially and temporarily. The weakened Stability is thus ever more prone to other similar attacks and consequent avalanches of dissociation in many different areas of the overall structure, and the Second Law forces begin to win in various different localities.

Once again the defensive forces again attempt to stem the dissolution and again only partially succeed in rebuilding the situation. But, in each crisis the rebuilding is never up to the previous level, and so an increasingly frequent succession of avalanches become inevitable, and these, in concert, finally bring about a complete demise of the old Level.

Chaos seems to be the inevitable outcome!

But all this defeat of the "Policemen Processes" also releases the total inhibition of the always-appearing alternative proto systems, from their prior repression, and they all begin to grow apace!

Naturally, the independent parasitic processes of the Second Law Alliance respond to those also, and to an extent stem the various mounting growths, and dismantle them to some extent. But these are NOT the elements of the old System, and the Second Law Processes are not yet attuned to combating these new collections of processes. So, on the whole, the new creative forces begin to increase, though competition between them also has both negative and positive effects too.

And, as you have probably already guessed, some "Second Law poachers" turn into effective policemen, and the new system begins to integrate their own policemen processes into their organisations.

A kind of mirror image of the previous declining oscillation sets in, but here the overall trend is not downwards but upwards – towards a possible wholly new Stability!

Though which proto system will survive and dominate is not clear in this period, it is evident that the forces of the entirely new will, in the end, win out.

The fight between the new proto systems and the forces of the Second Law is gradually being won by the former, as well as a clear dominance of the most organised systems at the expense of the weaker ones.

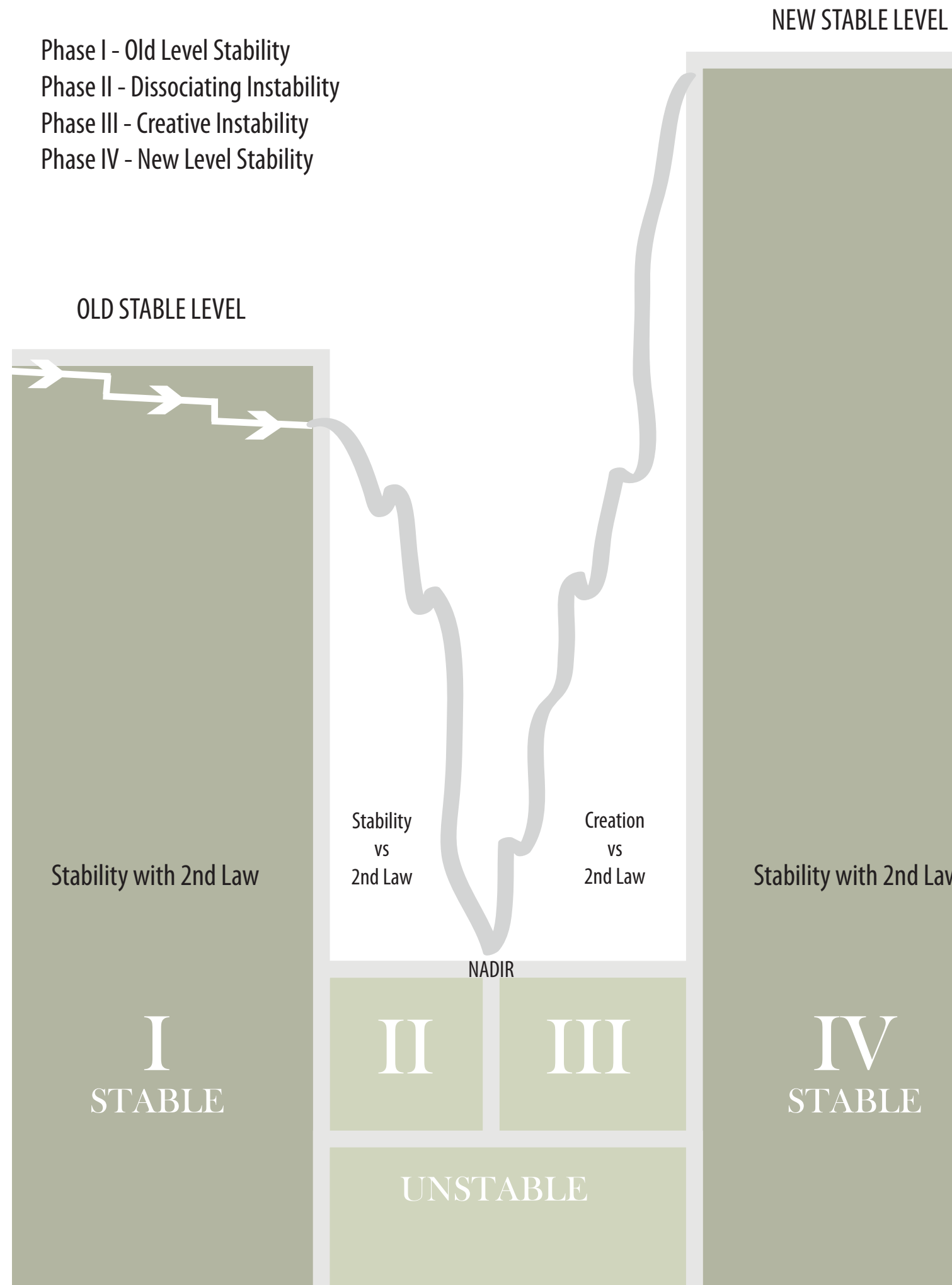
Each upwards swing gets a little higher, and each downwards retrenchment does not drop as far as the last one.

Ultimately the final swing upward is sufficient to reach another threshold which comprehensively defeats the actions of the Second Law forces, and relegates them to a background dismantler of the less effective parts, and a wholly new Stability, with novel entities, properties and processes, not to mention strong policemen forces is established.

Now, these very general considerations will always happen: they are about Stability, Dissolution and Creation and the Phases described here will occur in very special dramatic episodes of Qualitative Change, which we term Emergences, when an old Stability is vanquished in a particular situation, and a wholly Higher Stability is achieved.

# A Revision of the Trajectory of an Emergence

- Phase I - Old Level Stability
- Phase II - Dissociating Instability
- Phase III - Creative Instability
- Phase IV - New Level Stability







It happens in Society as Revolutions, as well as in new ideas happening within Human Thought.

It happened in non-living processes in a World totally devoid of Life, and finally produced the very First Living Things.

And it occurred in the Cosmos when inactive Matter finally erupted into the First Energy Emitting Star.

This is clearly not the type of Science such as usually occurs in Physics and the other *Sciences of Stability*.

It is about Qualitative Changes, which can only occur in these short period episodes of significant creation - Emergences.



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