



SHAPE JOURNAL

THE ORIGIN

THE ORIGIN OF LIFE ON EARTH / LESSONS FROM JAMES TOUR & MODERN MARXISTS / METAMORPHOSES
TRULY NATURAL SELECTION: THE LIFE FACTORY / GREAT EVOLUTIONARY TRANSITIONS / DIALECTICAL EMERGENCE



Volcano in the North by Keith Grant (Metamorphosis, 2016)

The Origin

Special Issue 66 / November 2019

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Introduction

Origins

by

Jim Schofield



Welcome to Special Issue 66 of SHAPE Journal. This edition collects my key paper addressing the Origin of Life and introduces my theory of *Truly Natural Selection* - the idea that matter itself undergoes a kind of evolution, and that this process eventually lead to life emerging on our planet.

This is part of an ongoing examination, by this author, of Emergences - those crucial events whereby all truly new entities originate.

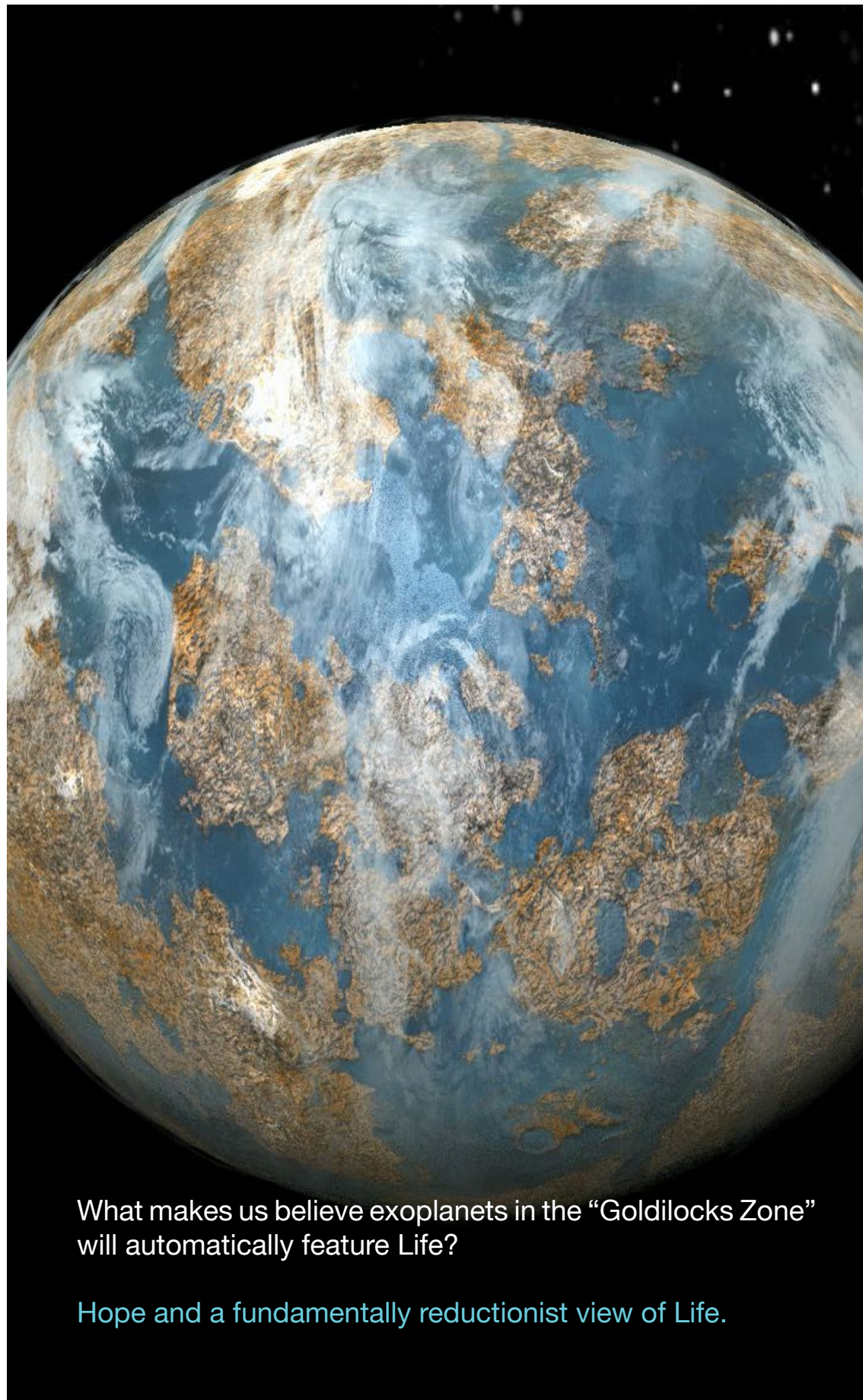
Several sets of papers, upon this topic, have been published by this theorist before in the journal, but it can't be, and certainly isn't, a totally completed project. Indeed, the most important part of such a task, is always to divide yourself off from the Millennia-old, and very well established amalgam of different stances unified by both a belief in the Principle of Plurality on the one hand, and the age-old validator of "If it works, it is right!" on the other. And, truth-be-told, you only detach yourself from that well-entrenched position, in a series of stages, as you realise yet another weakness in the Old, made clear by an emerging appreciation of the strength of the New.

Now, I also feel that I cannot expect my readers to follow the same devious path as I have been forced to take, so there are times when a full re-statement of certain arguments, including a great deal of what has already been published before seems completely unavoidable. And this is just such a situation!

And, it is also very important, for the additions and extensions are via the Holist and Dialectical approach to science and understanding, as against the usual Pluralist and Formal Logical approach. This major transfer turns out to be both profoundly difficult and easily self-torpedoed, by unconscious and habitual returns to the old methods.

Now, as these methods have been used to both demolish the Copenhagen Interpretation of Quantum Theory in Sub Atomic Physics, and the revelation of the world of Mathematics as actually being in Ideality, rather than Reality, and finally a wholly original stance upon the Origin of Life on Earth, it is clearly important to get as clear a description of the methods involved as possible.





What makes us believe exoplanets in the “Goldilocks Zone” will automatically feature Life?

Hope and a fundamentally reductionist view of Life.

How Life Begins

A Muse upon The Origins of Life

The current narratives we see on the Origin of Life from scientists seem to indicate that we already have a general idea of how Life originally occurred... we don't.

We are merely extrapolating backwards from present knowledge (via reductionism), both that which has been known for long periods of time, and that from new discoveries, usually made available by developments in technological means of investigating ever deeper into phenomena (such as genetics).

But, all of these suffer the same unavoidably damning fault of being entirely speculative - nothing can be wholly confirmed by experiment. For though the supposed necessary conditions for the Origin of Life can be informedly suggested, they cannot be tested by the need for them to “do it again” under our eyes in the present. The reasons are, of course, obvious; we have absolutely no idea of what the actual processes were which ultimately brought about this amazingly revolutionary event - for it was to transform the whole World!

This sleight of hand in “explaining” the Origin almost infers that merely “appropriate conditions” will always, and even inevitably, produce such a miracle, are clearly just not good enough, and convey the wrong messages to both non experts, and to the rich holders-and-providers of funding essential for many of the usually “way out” means of conforming such speculations - to what degree is research funding determining our view of our own beginnings?

For example, NASA's tale that Life's Origin may be found by further Space Exploration, is to say the very least, extremely far-fetched indeed. No, that criticism is much too weak! In fact, it just isn't true.

The actual Origin of Life would, indeed, require very special conditions. It could never occur, for example, upon a barren rocky asteroid or waterless planet. For, it is, at base, the most complicated, integrated system of many sequences of chemical reactions, requiring some form of an ever-present fluid medium to allow the movement and the interactions of its many necessary processes directly. There could be NO plan: and hence contingency simply must be continually delivering different components and possibilities.

It would therefore require water in the liquid-medium state, to maximise the possibilities. It would also be impossible, at tremendously low temperatures, with little available energy.

We currently have, and I think correctly in this instance, defined a “Goldilocks Zone” (sometimes referred to as the circumstellar habitable zone - CHZ) in which a planet would have to exist, nearby to a star which is emitting a constant stream of energy, and delivering an ambient temperature in which water was mostly in a liquid state. Such seems to be an absolutely vital prerequisite.

The available energy is necessary to fuel the chemical reactions of the endothermic type, and water provides a medium in which many molecules would be able to float about and be carried by driven flows, and hence come into contact with one another in many different ways.

Once such conducive features were in place, yet constantly varying, things could begin to happen, but as to whether Life would then be *inevitable*, I doubt that very much.

Of course, the promoters of “inevitable Life” are quick to add that developments would also depend upon the solid substances of the planet also benefiting from these ideal

circumstances. NOTE: For example, early forms of stars were based almost exclusively upon Hydrogen, would be surrounded by the same very-limited free molecules, so early planets, if they existed at all, would clearly be too limited in composition to even produce chemical reactions.

It has been shown to take a series of cataclysmic collapses and nuclear re-generations of stars to produce elements like Carbon and Oxygen, and indeed even a gigantic Supernova explosion to make the other heavier elements and to distribute them over an area of the Cosmos, to ultimately seed new stars and the necessary complex planets (like Earth) for Life to have any chance at all.

Now, some substances could indeed dissolve into available liquid water, which would then allow various different kinds of dissolved substances to come into contact in a very special way. Only then would we have a wholly new stage for interactions. As long as the molecules are close to the surface of the water, they could absorb radiant energy from the local star, to enable certain reactions to occur.

Of course, absolutely NO driving-purposes would be involved in such processes, only those, as yet, without further developments, and still with no propensities to in future do so. Various reactions would indeed occur, producing yet more (and different) molecules of multi-element substances. And, with the energy of the star, the optimum condition for liquid water, and the consequent continuing influx of radiant energy, they would begin to populate that water with more and more available chemical substances, as dissolved and moving molecules.

And, we know that a substance like Common Salt – NaCl (Sodium Chloride) will, be very easily, dissolved in water, split into mobile Na⁺ and Cl⁻ charged ions, and such charged fragments will form new compounds with other different ions, due to the attractions of opposite charges.

So, the water not only allows both movement and mixing, but also ionisation and a much more active fusing into new substances. The water, in such circumstances, becomes a rich population of different molecules, which can move about freely within such a medium. And, of course, other reactions will occur, in which the products cannot dissolve into the water, and they would be precipitated to coat the solid ground beneath the

water covering. With vast amounts of time such deposits will become particular layers of rock, and, via tectonic processes of the planet (as on Earth) will end up above water as solid ground.

We must not simply curtail the continuing trajectory in such a sea over vast amounts of time, for all sorts of seemingly irrelevant side processes can later become significant in various new ways, as conditions change.

Indeed, local contexts, within the water, will be changing qualitatively and presenting wholly new possibilities via its added new products. And this will NOT be an infinite process, for dissociations will also be precipitated, and ultimately arrive at a kind of “Balanced Stability”, wherein the opposite processes effectively balance-out, and further new changes are terminated. This will turn out to be crucial in extended trajectories, for such Stabilities can only be overturned by major and dramatic changes which dissociate the Balanced Stabilities, and initiate wholly new phases in the situation -as in the Origin and Evolution of Life.

For example, our “goldilocks planet” would also have an atmosphere, and possible gasses involved could be Hydrogen and Nitrogen, and even compounds like Carbon Dioxide. And, the last of these, if it is available in relative abundance, could dissolve into the open stretches of water, and make it somewhat acidic. And clearly, such a development would also enable a whole range of new compounds as results of different chemical processes, which were much less likely in a neutral body of liquid water.

The main conception in this muse is to address the fact that results become causes in a rolling, on-going development. As soon as any chemical processes are driven by external energy, the very *context* is changed, enabling other new things to happen too. And also, we must avoid our usual trick of simplifying and idealising such processes, for, in so doing; we will be making it impossible to address that ever changing context and its constantly changing potentialities - which are contingent.

Miller’s heroic experiment was very important in initiating our thinking about the very early beginnings of chemical processes that could, ultimately lead to Life, but he couldn’t deliver the trajectory that I am trying to establish in this narrative.

His necessarily isolated apparatus (so that no-one could say that what occurred there came in from the outside the experiment), also limited what could happen within it. Indeed, this researcher has suggested a major redesign of Miller’s Experiment, involving internal, inactive channelling; to allow various distinct environments to occur in channelled sequences of both water and air flows, through differing conditions. And, in addition, modern developments would now allow multiple internal sensors to give a regular supply of time-based information throughout Miller’s sequences, which ended up producing amino acids.

In this short paper the details of a developing set of methods with this new set up cannot be described in detail here. But, it is evident that the channelling delivering different conditions on the various routes for both gas and liquid flows would allow for the first time, a time-based narrative of changes, and the sequences in one place providing possibilities in another.

Now, even with such a sophisticated set up, the results would only provide the first few in a million steps of development, finally resulting in Life. No matter how good such a set up was, it could *never* actually produce Life! So, even with such valuable evidence, we should never gloss over the miracle that the emergence of Life actually was. It certainly wasn’t a merely, long-winded, incremental and inevitable continuous process without calamity, catastrophe and Emergence.

Indeed, the *Theory of Emergences* (2010) by this author, as a suggested explanation of significant qualitative changes in all on-going developments, indicates that it would be precisely such seemingly terminating setbacks that could re-start developments upon new previously impossible paths, as older dominating systems of processes met their demise via terminating final crises. It was this complex evolving context and its various crises which ultimately lead to life.

We will never create Life in an experiment.

But, with the correct approach we will be able to get closer to understanding something of how it occurred.

Postscript:

In a review of current materials upon this subject (April 2018), the above can be greatly improved by the various contributions upon Metamorphoses and Dormant States, and particularly with the latter of these, when extended into pre-Life chemical reactions. For, the requirements for articulations, within a given environment, with (what turned out later to be) the essential next phase in development, will often be totally impossible! So, in consequence, any single, always ongoing trajectory will absolutely-never have happened.

Indeed, the ONLY chance of bridging between what turn out to be conducive and sequential situations, would be when one sequence ended up with a self-maintaining, static state - an inert Balanced Stability - which could survive as such through any number of encountered, non-conductive situations, until a situation was reached, which could finally actually terminate that stability, and in so doing also make all its involved components available for further developments in an environment that is also conducive to those components.

Let us be clear: the new situation, unlike those which could in no way affect our dormant stability, would be in some way “strong” enough to actively terminate that stability - to dissociate it completely, just like a typical pre-Emergent terminal crisis. So, thereafter, via its total dissociation, producing the conditions for a new set of associations allowing a new stage to be achieved.

The sequence went to sleep for a while in a kind of stasis, but picks up again, when that stability is dissociated within a new, finally conducive environment.

Clearly, the old classical explanation - Pure Random Chance - could never ever get there! But, the enforced terminations and dormant stabilities, would effectively bridge between conducive contexts, in a remarkable way - by both demolishing the Old and facilitating the New - all of which is only available, theoretically, via the holist stance and the *Theory of Emergences*.

A Draft Theory

The Origin of Life on Earth

Exactly in what conditions did Life first occur on Earth, is still a contentious issue.

However, many of the proposed alternatives seem to be promoted by those with vested interests, rather than being established by consistent reasoning based upon what established evidence that there is.

For example, the idea that Life first came to Earth from elsewhere in Space (Panspermia), as pushed by NASA and its vast flock of employees and devotees, is clearly a ploy to get the truly vast resources required for further Space Exploration.

While the alternative suggestion of that miracle happening, instead, at the Black Smokers at the bottom of the oceans, are pushed by those who explore those regions (or wish to explore the oceans of Europa perhaps!) – again at considerable expense, and hence also requiring substantial research funding.

But, clearly, much more conducive situations are, and have surely in the past, been available here on Earth, and quite easily involving access to literally constant sunlight, as well as an ideal medium, water, for both the movement and coming together of the necessary chemicals required, and also, all this happening at the surface of such water, with access to the gases of the atmosphere, in order to both access resources and dispose of wastes. It seems reasonable that Darwin's idea of some shallow, warm pools, with maximum access to land, sea and air, would provide the best possible conditions.

But, having said that, such a remarkable event could not merely be a case of establishing the most conducive conditions, for if that were true it would have happened many times, and in many separate places. And, there is absolutely no evidence for that being the case at all.

So, it wasn't merely the case of appropriate conditions, where some spot was ready-made-for-Life. Neither would the provision of such a place automatically guarantee the consequently certain Emergence of Life merely by sufficient Time and Random Chance.

No, indeed, you also need many truly major and cataclysmic events too!

Indeed, the *Theory of Emergences* makes it clear that you also need a series of calamities substantial enough to change the game, and set things upon a series of wholly new trajectories of development. For, the normal state of any persisting situation has to be one, which we term a Stability – a self-maintaining system, which, once established, tends to persist for extremely extended periods of time – a system of processes that support one another, and even often actively prevent the emergence of any other new processes that do not conform.

Indeed, such stable conditions frequently appear to be permanent arrangements (that will never change), and this lead to Mankind conceiving of a World determined entirely by *eternal* Natural Laws. Yet, absolutely nothing has that assumed nature!

All systems will at some point, finally crumble and fall, but, when they do, it appears like “the End of the World”. All such Stabilities will in time dissociate, and in a short tumultuous episode, be removed and then ultimately, after a very different-and-creative period of re-building, be wholly replaced by an entirely new Stability. We term such episodes, Emergent Events, and the Emergence of Life on Earth was certainly one of those.

The pattern seems to be that from a seemingly-permanent-Stability, a deepening crisis suddenly appears, which though it may be opposed for a while, increases



Volcano in the North by Keith Grant (Metamorphosis, 2016)

in depth and power of changes, to then lead, ultimately, to a total dissociation of the prior stable situation, and ultimately, via an Unavoidable Nadir of Dissociation, leading, thereafter, and surprisingly to the construction and establishment of a wholly new Stability.

Now, this is a very general description of what often occurs: it was originally revealed in the processes of Human Thinking (Hegel), and then applied to the History of Human Societies (Marx), but only recently (2010) was it generalised to absolutely ALL development in *The Theory of Emergences* (Schofield).

Now, this approach is NOT the usual one adopted by Mankind. It has had individuals merely glimpsing it in various areas of study, but even these brilliant contributions have not changed our usual stance and involved the necessary dynamic approaches of Dialectics.

The perfect example of “where we are”, upon such questions, is typified by the work of Stanley Miller. He constructed a sealed apparatus containing what he thought would be the available chemicals on Earth prior to Life. It only allowed the constant input of heat and lightning (electricity), which drove various cycles of processes, ending up, after only one week, with a red-brown liquid containing amino acids. It was somewhat different from the usual experiments, because he “let nature take its own course”, within his apparatus, but, crucially, he had no conception of Emergence as such. He merely expected a continuous series of changes that would, in the end, arrive at Life.

But, what happened is that, after a short time, the system settled into a Stability – and it stayed there!

It was, of course, the exact opposite of our normal experimental methods, which drastically simplify conditions, and then keeps them that way, in order to reveal “underlying” relationships that we suppose are happening along with many others simultaneously in Reality-as-is.

Now, without some idea of the dynamics of Stability and Emergence, the complex trajectory of real Development can never be understood, and what we get from our experiments are the “Truths of Specific Domains”, and not the Truths of Developing Reality-as-is.

So, though their methods do deliver aspects or parts of the Truth, they are never Truth itself, but only models that contain a measure of Objective Content.

So, starting with Miller’s Experiment, we have to radically alter our stance and approach to gradually reveal the real trajectory involved in this – the most important question in the whole of Science.

Starting with Miller’s apparatus, it seemed necessary, not only to deliver the necessary resources to be involved in a developing trajectory of reactions and productions, but also to provide inactive-physical-structures that would facilitate certain steps to occur and continue to occur in certain situations protected from others happening elsewhere in the overall system. This researcher took on the task of re-designing an update to Stanley Miller’s Experiment, but one which was physically structured to encourage particular cyclic flows around differing conditions to enable the very special steps to continue to survive as such, at least for a time.

Also, in other researches into development in general, and at diverse levels, it became clear that such processes took place in particular circumstances, and were never constantly happening. The idea of oscillating situations, of long periods of comparative Stability - interspersed with short periods of significant and transforming change - was obviously the rule throughout.

These crucial terminating Emergent Interludes became known as Emergences, or even Revolutions, and to ever be able to address questions such as the Origin of Life on Earth, it was crystal clear that a serious study of natural Emergences was absolutely vital! For, if the usual, long-lasting forms were indeed Stabilities, then, such a thing as the Origin of Life could never occur within a stable state. The interludes of transforming changes were clearly where such an amazingly revolutionary event would have to finally happen in ultimately-achieved ideal circumstances.

But, what causes an Emergent Interlude? It would have initially to be incipient processes within a Balanced Stability. But, they could NEVER be towards revolutionary developments, but, on the contrary, only dissociative contributions towards a major crisis and even a total collapse.

NOTE: Science has long established such dissociative processes, encapsulated under the overall Second Law of Thermodynamics, but as to the actual natures of the processes involved, we know literally nothing.

To exit from a long-lasting Stability, required the appearance and growth of dissociative processes, which ultimately began to overwhelm the forces maintaining that stability.

Now, of course, this posed a series of important questions.

First, what was it that made Stability so long-lasting?

Why could there never be any, new, transforming processes occurring within a Stability?

It had to be that Stability was no mere sum of naturally occurring processes, but instead both a competing and co-operating System of processes that also prohibited the continuance and growth of any possible competition to its aegis.

What had to be involved was a two-stage development of processes of systemic organisation.

The first stage would be constructive, with all sorts of conducive processes proliferating, at the expense of non-conductive alternative processes, and this would develop into a competition between alternative processes (or even proto-systems) for the same resources, until a single system would eventually finally dominate.

But, why, on achieving this Stability, would this state last so long before any sort of changes could occur again?

The only way that this could occur would be by the presence of coercive processes also becoming present.

The dominant stability, as well as its competing, along with its integrated and mutually conducive constructive processes, would also have to include destructive/dissociative processes aimed at any non-present-system competitor. The continuing Stability was then due to constraints and inhibitions built into the overall system, which maintained its continuing dominance by dissociating any competing systems - quite life-like, if you think about it, but this can happen in non-living chemical systems.

All we see is the dominant Stability – but nothing of how it came to be, NOR how it would meet its demise. And, of course both of these could only happen in an Emergent Interlude.

Towards the end of a Stability, things must have arisen to undermine it. Indeed, they would, in time, be inevitable, but normally restricted or defeated by the in-built “policeman processes” of the Stability.

But, eventually, a crisis could occur (still within the Stability), which seemed unstoppable and the first phase of an Emergence would thereafter be one of total dissociation. The overall Stability would begin to collapse, and in spite of various rebuilding resurgences, these would ultimately fail and the situation would decline seemingly into total chaos.

Remarkably, the success of this dissociation, also removed the constraining “policeman processes”, and produced a free-association phase of all the primary processes (unchanged by the collapse, which was a system phenomenon) and these conditions began to construct new proto-systems and expand.

Phase Two was a kind of mirror image of the oscillations of dissociation, but now as an oscillating sequence of associating proto-systems. New dominances came and went as others took over until finally a particular new and persisting system had sufficient policeman processes included to effectively inhibit or even stop ALL the competitor systems, and a NEW Stability would have been established.

NOTE: But it is vital that even in an environment of pure chemistry, the establishment and continuing maintenance of a particular system of processes over a long period (even occasionally overcoming temporary crises via an adjustment to the balance of forces within it) would, when it finally “ran-out of the resources” to recover, finally and permanently collapse. However, it would NOT leave the situation exactly as it was before that Stability was established. For, during its long period of dominance, it would most definitely have transformed large amounts of resources into consequent products at a greater rate than any still surviving alternatives, so the final content of the situation, after its demise, and, hence that immediately following situation would differ in two major ways.

The Pluralist Origin of Life

Or, How not to Approach the Question!

First, the policemen processes tailored to the now dead Stability, would have perished with it, and second, the contents left behind, for the surviving primary processes to act upon would be very different, and would lead to new constructive alliances and competing sub systems.

Now, the above philosophical ideas were the work of the writer of this paper, when in 2010 he produced *The Theory of Emergences*. It was unusual because it was a Meta Theory, for it was applicable across a vast range of developments in a multitude of Levels.

It was a conception of overall systems, and it applied at every possible level from chemical processes all the way to Life, Societies and even Human Thinking.

It was not established by measurement. How could it be?

It was a generalist, holistic conclusion from studying the actual processes of Development at many different levels of Reality.

But, once in our hands, it transformed all areas of study that included qualitative Change and Development. Now, as they say, “the proof of the pudding is in the eating”, and it was necessary to apply this principle to real developing situations in Reality, to confirm its validity or not! And, long before it was formulated in that general form in *The Theory of Emergence*, it was recognised from History by Karl Marx, and then applied in actual Social Revolutions as they occurred most dramatically in Russia in the first two decades of the 20th century.

The crucial phase was achieved by Marx from his training as a philosopher by the great German philosopher Hegel, and thereafter by the brilliant historical analyses of the French Revolution by Michelet, who had literally spent his life on the happenings in France between 1789 and 1815.

And Marx was able to extend what Michelet had revealed to the whole range of Revolutions throughout Mankind’s History (at least to some extent).

Indeed, Marx himself was never in such a Revolution, but the best of his followers in Russia actually were, and via the revolutions of 1905 and two more in 1917, were able to use the tools that Marx had provided to intervene successfully and establish the first ever Socialist State.

But, of course, this was all in areas where Man could, indeed, intervene, for such events happened within the lifetimes of human beings. They could be tried and tested. And this meant that real verified gains in understanding were possible.

The Theory of Emergences suggested that such things happened, not only in Social Development – such Revolutions occurred in ALL developments of whatever kind!

And clearly, the most profound Revolution of all was Origin of Life on Earth.

In a recent philosophical paper entitled *Basics*, I have started to crucially and separately address the necessary Underlying Premises that would be absolutely essential in tackling such key questions as that of The Origin of Life on Earth.

And, from a lifetime’s research into such fundamental questions, primarily in Chemistry and Sub Atomic Physics, but evidently also true across the whole range of possible related intellectual areas, it was clearly established that where Mankind has currently got to, in this undertaking, is, as yet, still wholly inadequate for achieving any meaningful success, and that the difficulties occur at the most basic levels too.

For, what Mankind has usually arrived at in attempting to understand such things, though useful in a much more limited range of areas of study, simply cannot adequately explain any Qualitatively New Developments at all, and particularly those that are completely unavoidable in questions such as The Origin of Life.

We, currently, at best, usually only attempt to describe them, but we need also to *explain* them too!

But, ever since the Greek Intellectual Revolution, some 2,500 years ago, Western Thought has been wholly committed to the Principle of Plurality which assumes that all the elements involved in any systems, and in the Relations-between-them, are necessarily permanently FIXED! In fact, physicists always purposely seek only eternal Natural Laws, and pursue them only in special, maximally-controlled experimental situations - that are extensively restricted and rigidly maintained as such, precisely to ensure that such a Principle always completely holds in those circumstances. And also, with the assumption that simultaneous Laws cannot ever change one another qualitatively.

So, what they then believe that they have actually achieved by such means, is, in every case, always a generally-applicable Universal Law! And that, most certainly, is not the case.

And, to further compound the felony, they subsequently depend exclusively upon Mathematics - a genuinely Pluralist Discipline, to encapsulate their pluralist Laws, and solely in terms of versions of Formal Equations, derived wholly within Mathematics, and then “fitted-up” to data from their pluralistically-organised experiments, to extend the distortions involved to also being Idealist as well as Pluralist.

Now, the above criticisms are not confined to the views of ordinary citizens: they are indeed developed and delivered by the experts in their appropriate fields, and widely shared among intellectuals in literally all the other fields too.

A current exemplar is Professor Paul Davies, a leading physicist, and every word of his Lecture on The Origin of Life was in conformity with the above description: and could only ever deliver Complexity and Probabilities, to supposedly explain his approach.

But, Life most certainly emerged at some point, directly from Non-Living Things - a truly Major Qualitative Transformation, and has thereafter qualitatively evolved ever since: he would have to explain all such changes, but of course, he cannot.

To address such developments, you just have to be a Holist! For absolutely all processes of Qualitative Change occur, in fact, only within Emergences, or even in Revolutions. Can Davies’s Lego-like complications of unchanging elements ever encompass that? Of course not!

Indeed, the reason it took so long after the Greek Innovations, to address such important questions, is because the intrinsic mechanism of Real Qualitative Change always-and-only arises out of Contradiction: which is always rejected as invalid via the usual Pluralist version of Reasoning via Formal Logic.

Indeed, in a wholesale and significant Emergence, a previous, seemingly permanent Stability, is first undermined, via a series of increasingly powerful Crises, until it finally totally collapses, and, ONLY by so doing, actually enables the subsequent construction of a wholly New Balanced Stability, built out of many contending factors, from the bottom up. Hence, because of that mechanism, it is always totally impossible to simply predict what follows such an Event, purely from what preceded it. For, it is always a complex, self-transforming, multi-phase and dynamical Process, and NOT a simple Causal Act.

So, all the assumed-to-be-permanent Stabilities - the actual Bases of Plurality, turn out to actually be the very different Temporary Balanced Stabilities, composed entirely out of multiple simultaneously-acting, and contending laws, and which are wholly dissociate-able, and thereafter replaceable within an Emergence.

This alternative, entirely Holistic approach is based in Dialectics, Hegelian philosophy extended to become applicable to all of Developing Reality itself, by Karl Marx, as Dialectical Materialism - and hence appropriate in all the Sciences and Reasoning too.

To re-orientate our Thinking and Approach, to more generally address all of Reality-as-is, we have first to consider what happens within Non-Living Reality: what processes naturally occur, that might, in suitable circumstances, change from wholly unchanging and independant processes, into generally mutually-affecting and modifying systems.

The key idea was encapsulated in The Buddha's holist stance where Everything in nature affects Everything Else.

Now, this is clearly the exact opposite of the Pluralist idea that entities, concepts and laws are naturally fixed, and independant of one another.

Mankind, as a newly-emerging Thinking-Organism, just had to simplify, in order to have any chance of coping with such a complex and contradictory World, and the initial simplification was to banish the evident intrinsic contradiction, by choosing one or the other of these two options as a Basic General Belief, and then actually arranging for it to be so, if it were apparently slipping away.

Of course, neither of these alternatives is true absolutely! Reality contains both, and it is the experienced circumstances that usually determine which of these is currently dominant - but as a Dichotomous Pair of Contradictory Concepts, they, as with all such Pairs, could each be a suitable simplification in appropriate and different conditions, especially those deliberately chosen, or even constructed, in order to be so.

But, what turns out to be crucial: is that they are certainly also not "Equal and Opposite" at all! Plurality is a feature of long-lasting "Stabilities", whereas Holism is a feature of periods of Qualitative Change - which are usually much shorter in duration. Looking back they can sometimes seem almost instantaneous.

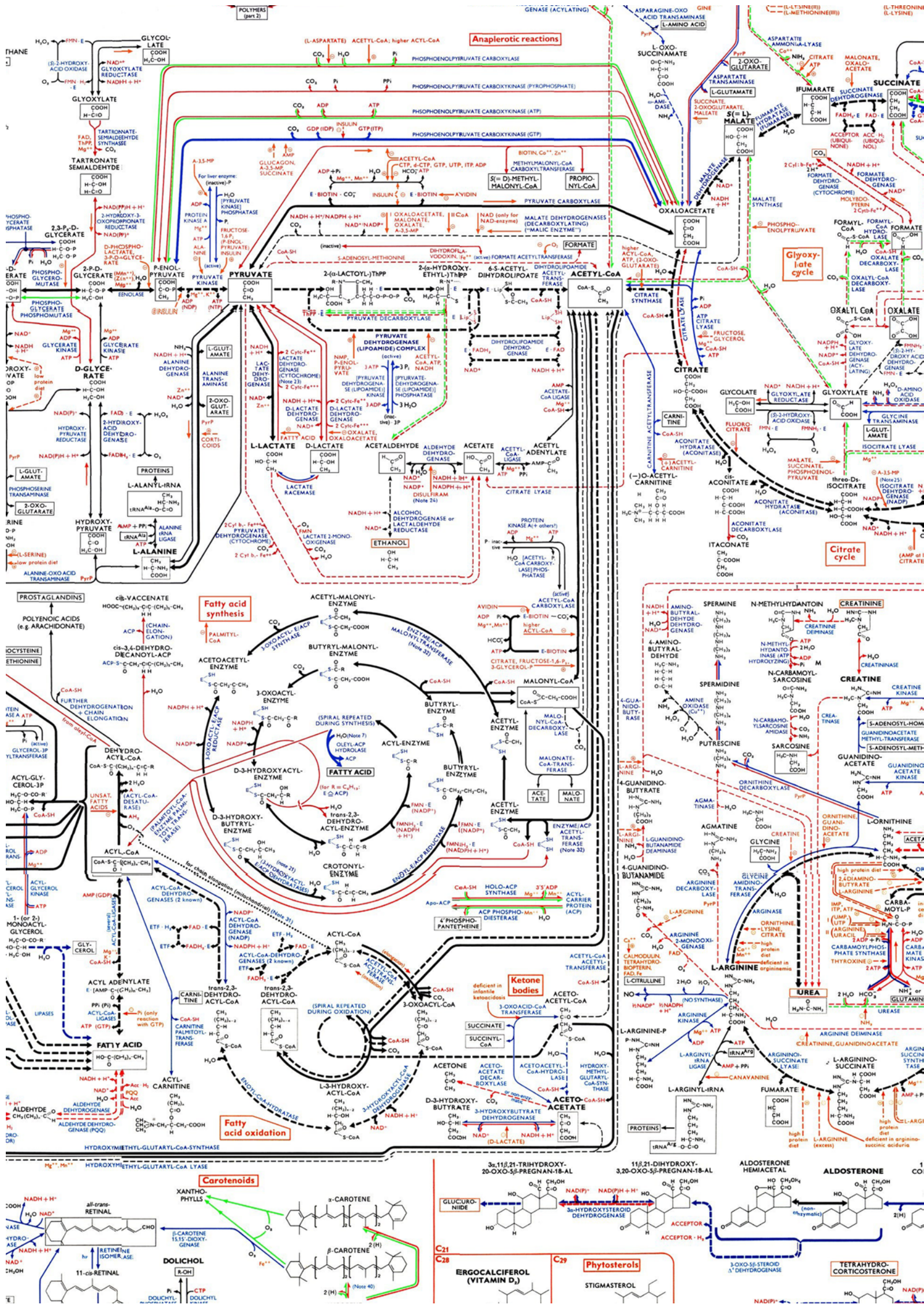
Yet, over long periods of time, it is the Interludes of Change that cumulatively determine the Nature-of-Things thereafter, even though they do not seem to dominate historically.

Now, the Greek Intellectual Revolution was originally based upon their invention of a wholly new kind of Abstraction, which they could apply very successfully to the study of Forms, Shapes and Patterns, and which for the very first time could NOT exist independently, as they were only Simplifying Relating Abstractions, and enabled the relating of features of such Forms, to allow ever more complex constructions to be rationally and soundly produced.

Now, what were being related, in these Forms, were, indeed, in such a Discipline, forever fixed in quality - that is what made the resultant Euclidian Geometry a valid rationally produced result. The resultant Mathematics was both a naturally and validly Pluralist Discipline, but it could only deal with quantitative changes.

Despite this, the Greeks were so enamoured at its rational Power and Useability, that they exported its Plurality to both Formal Logic and Science too, where it is was most





certainly illegitimate in many allowable circumstances!

But, returning to Davies's lecture, he has a dilettant's approach when the unavoidable references to other relevant disciplines are essential, so that absolutely zero explanations are ever considered necessary from such areas to ever be included. So, his emphasis upon Information Technology is the most blatant case, as he switches to a Program determined scenario, as it occurs with DNA and genes, as if it is like a program in I.T., and one written by a human being with already decided objectives, whereas, of course, no conscious being has developed the "Instructions" in genetic codes.

God did not write the program for life.

Indeed, the prodigious gap between individual Chemical Processes as known from the exhaustive chart of all known Metabolic Pathways discovered over an extensive period of time, across the whole range of Living Things, and straight forward chemical reactions, is simply put down to Genetic code "programs" in this lecture!

Surely, in a lecture with such a title as he has given this one, at least a meaningful trajectory of the many important stages, between these two extremes should minimally have been attempted! Merely transferring ideas from two totally unconnected and separately developed disciplines is always both untenable and illegitimate. Unless, that is, the "explainer" actually believes that the obviously-related formal, mathematical relations, are also the actual drivers of everything in Reality, and hence validly common to "explaining" all natural phenomena.

For, between such a totally separate and coded program and natural chemical processes, there has to be naturally-linked sequences of processes, joined by their resources and products, and selected-for by overall abundances and cyclic situation changes. Without all of this absolutely crucial trajectory of selection systems and many other major developments, Davies's myths have no real value whatsoever.

In embarking upon the same sort of venture myself, I spent a considerable amount of time investigating multiple simultaneous processes, within given circumstances, with particular natural abundances, and cyclic ranges of conditions, and the way they alone could select-for particular sets of processes - relying upon a certain necessary resources, along with the on-going

natural competitions, that invariably selected-out caused-dominances, and their also invariably present direct opposite processes too, as well as diminishing the less-well-endowed others with rarer resource requirements.

I finally ended up with what I termed "Truly Natural Selection" in non-living, chemical processes, which strongly pointed the way to the establishment of related sets and sequences of such processes in particular circumstances.

Davies's amazing choice of putting coded programs directing such Metabolic Processes so early, has to be incorrect, and just how Systems of Processes with specifically crucial timings converted from always naturally arrived-at, every time, to instead being precisely programmed throughout is much too important to be merely omitted.

My investigations also showed that even at the most developed stages, there are still Chemical Messengers, being sent and received to co-ordinate precise timings.

Clearly, the only conclusions that can be drawn from Paul Davies' intervention into this question are entirely negative.

On all the questions that have arisen over the last century in his primary specialism, Sub Atomic Physics, and those now well-established face-savers concerning the inter-relationships between the multiplicity of "Subjects" within Science in general, have not been addressed, but actually just subscribed-to instead! For such a poor philosopher to have achieved such a status within academia, also tells us how far short of what is now necessary, the leading occupants of Higher Education must have now fallen.

James Tour and the Origin of Life

I have now watched two recent video lectures by James Tour, in which he emphatically denounces the consensus way that academic researchers are investigating The Origin of Life on Earth.

He doesn't say precisely how it should be done instead, and I feel we would disagree on this anyway, as Tour is sceptical of Darwinism and is a Messianic Jew (and assumedly a theist) - but he clearly and correctly reveals not only how the current approach is bound to fail, but also how the perpetrators invariably claim to be already well established upon the right path, that they will undoubtedly get there in the end, while in fact, making NO real progress at all. For, the proposed objective is totally impossible to achieve via the means they are all using.

NOTE: For, with the current entirely pluralist stance now generally established throughout the Sciences, and which insists that Reality behaves only according to eternal Natural Laws, it is, therefore, impossible to explain the actually Holistic-qualitatively-defeloping World, by such means! So in this, James Tour is undoubtedly correct.

Now, the reader may justifiably well ask how he knows these things, but also, and just as importantly, what is it in the whole academic-set-up, which encourages such a wrong-headed approach, and how the workers in this field manage to win the funding that they require to carry on with their studies.

Tour is a superlative worker in the overall field termed - Pre-Biotic Organic Chemistry, and quite probably the very best there is, so he knows just how far away from what must have happened in Nature these investigators have positioned themselves. He knows exactly what they are doing, because he has personally been doing it himself for years: but now he knows, for sure, that it is

entirely inappropriate, in investigations into The Origin of Life on Earth! Yet, he also knows that ALL academic Funding is supplied by the super rich, who will certainly know absolutely nothing about the Science involved, but would dearly like to be, individually, the one who funded the Artificial Replication of the Origin of Life.

So what happens? Any discovery in the field, which can be optimistically hyper-promoted as highly significant, and likely to lead to success, will be targeted at an ambitious, ignorant and rich potential Major Donor, AND, of course, also a bevy of Science writers who would also like to be among those supporting such a venture! Confident papers are published, and interviews with writers for Science magazines arranged, followed by excited pieces in the Populat Press, the Internet and, if possible, TV too!

And, even if the hype is successful - that will still not be the end! The Research Team will require enlargement, and extensive re-equipping, so the tempo must be increased further, and new apparently "relevant-complementary-strands" also necessarily included.

Other institutions (afraid of missing the boat) join the fray and add to the momentum of the whole undertaking. And, the more different-yet-related are the strands, which are shown to be happening, the more credence the whole area gets!

But, Mankind has reached the stage, in many different discipline areas, in which the consensus Pluralist Stance, is no longer viable,

It is a pragmatic, technological approach, and has increasingly abandoned any Explanatory Objectives, preipitating multiple and unavoidable Impasses, and even Crises, only resolveable by a return to a Holistic

Explanatory Approach, but significantly and necessarily taken well beyond its prior role as merely a supporting narrative!

The century-long Crisis in Physics, exemplified by the idealist Copenhagen Interpretation of Quantum Theory, has increasingly ground to a halt, and currently fills the many generated gaps by illegitimate Speculations, and ever deeper incursions into Ideality - the Mathematical World of Pure Forms alone.

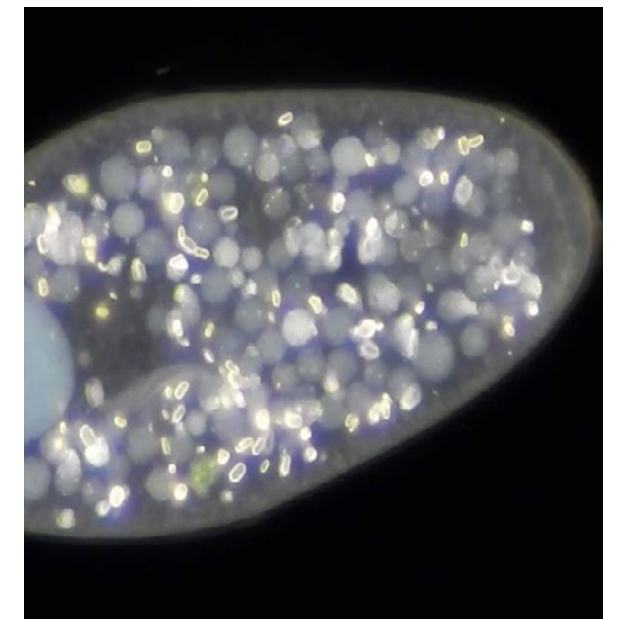
But, that area has now been comprehensively addressed by this theorist, as has also been the further development of Dialectical Materialism, as the only philosophical basis for a developable materialist Science.

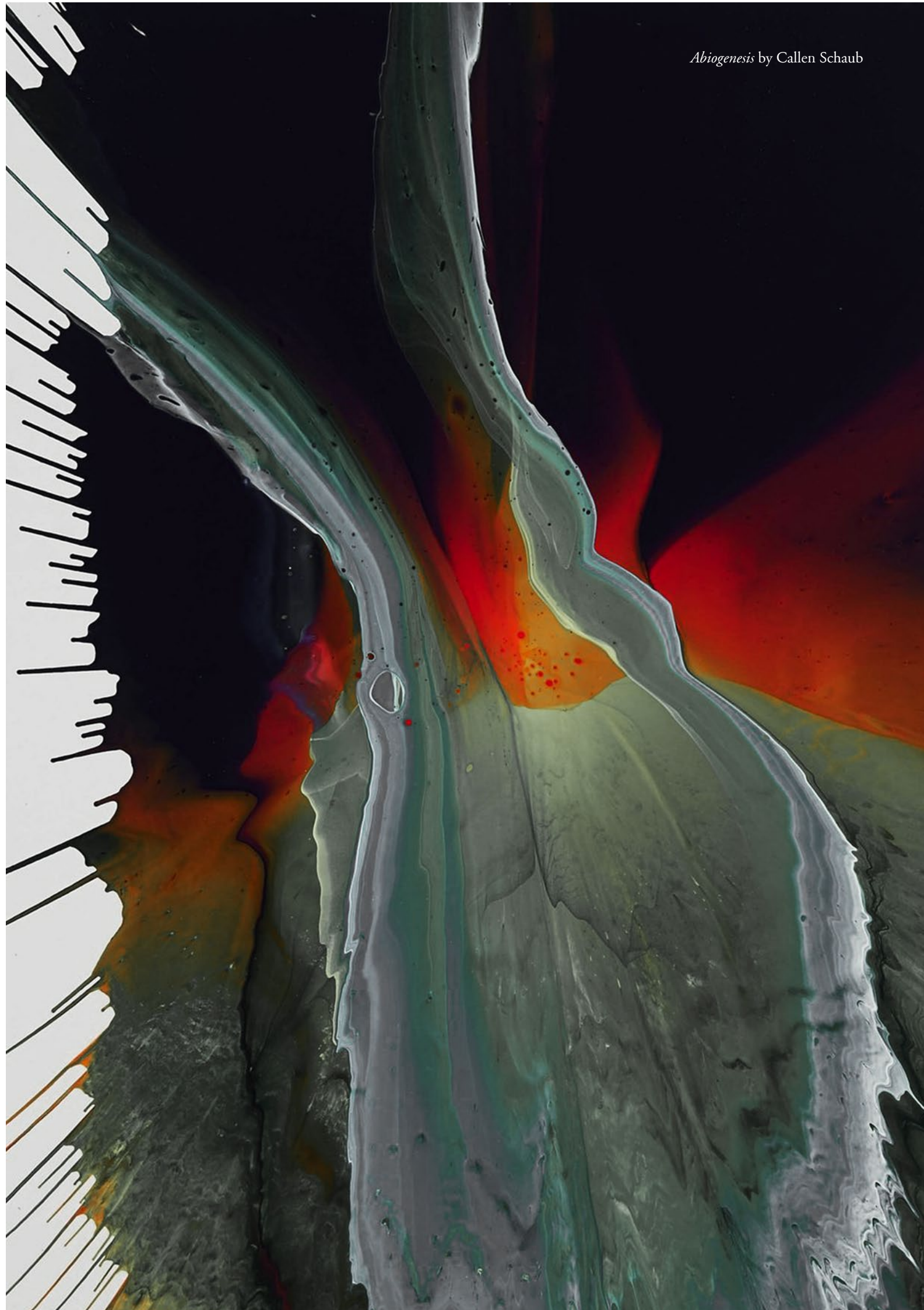
And, in addition, there has also been an initial venture into the problems of the Origin of Life on Earth, wherein only the Dialectical concept of simultaneous, multiple, and mutually-affecting processes, along with the dynamics of Qualitatively New Emergegences occurring in crucial short Interludes of Major Qualitative Transformation, occurring within a generality of apparently permanent, but actually only temporary Stabilities.

Finally, it must be emphsized just how vitally important the current contributions upon the Origin of Life by James Tour are.

For, nowhere else have I seen such a knowledgeable and powerful description of the necessary and complicatedly-interrelated processes within that tremendous Revolution in the Development of Reality.

But no James, not because God did it.





Lessons from James Tour and Modern Marxists

upon Pre-Life Organic Chemistry & more Generally Applicable Areas

In his criticism of current Origin of Life research, James Tour pours justified scorn upon the current evidence from that area, and, his main criticism is that the processes employed by these researchers could never have encapsulated what actually happened, in that wholly natural development within Reality.

Tour is, himself, a researcher within that same Pre-Life Organic Chemistry area, BUT NOT to *produce* Life! He is attempting to reveal something of what is possible in that area, but both classically and pluralistically well within what scientists do these days, in revealing processes that could be profitably used to make buyable products - "the production-led imperatives", which if successful, deliver such things effectively. But, it is still the usual distorted view of Science subordinated solely to successful Technology.

In this pluralistic world of fixed forms no qualitative Changes can be included or studied, and hence only a severely truncated subset of Reality is ever considered, so, consequently, instead of studying real development, these disciplines were congenitally restricted to domains with only fixed elements and Laws - like a Game, with necessarily Fixed Rules only!

Now, of course, in areas of Reality where things didn't change-qualitatively, or alternatively, if such Domains could be arranged-for and steadfastly maintained, then a truncated set of disciplines, each of which was wholly limited to their given fixed set of elements and Rules, could ever be achieved.

And, this is the kind of Science, that Tour himself, AND those that he correctly criticises, all conform to: I call it Pluralist Science.

But, some 200 years ago, the German Idealist Philosopher, Hegel, researching the Dichotomous Pairs of contradictory concepts that had been clearly revealed some 2,300 years earlier by Zeno of Elea, devised an extension to Formal Reasoning to include Qualitative Change, which he termed Dialectics: though, as an idealist, it was limited to Human Thought alone. And, it was the historian/philosopher follower of Hegel, Karl Marx, who determined that the same approach be transferred wholesale to Materialism, to also address Development in Concrete Reality too.

Dialectical Materialism effectively torpedoed the current consensus stance in literally all the disciplines then established, including all the Sciences, when it came to actual creative development. The old pluralist Sciences could only address either naturally or artificially qualitatively-FIXED situations: and this was what was blatantly evident to James Tour, not being on the same side of this distortion as those he criticised, the solutions appeared to him to be totally impossible: he could not but criticise those in his area of expertise blindly chasing the impossible!

However, as he willingly admitted, he too had no answers to the Origin of Life, so he would not waste his time trying! But clearly any Sciences, which went beyond qualitatively Fixed Laws, and began instead to address Qualitative Change could consequently also tackle the Dynamic Trajectories of such transformations, and real progress could then be made.

BUT, and this is crucial - the whole prior universal approach had also to be dumped too, for if the means and forms used-in, and the assumptions maintained-by pluralist Science were kept in place, the solutions would still be impossible.

The Key changes necessary to effectively develop Holistic, Dialectical Science, would first-and-foremost have to profoundly address the clearly evident alternate trajectories of both Stability, and Emergent Change, which alone would enable those extensions to Law to be developed!

Now as James Tour demanded loud and clear:

“How do we investigate a Reality, in which though, Change of literally everything, occurs constantly?”

For then, how can we characterise both Forms, to expose the future of each one implicitly within the nature of the other - its direct OPPOSITE?”

The most crucial research was initiated right at the beginning of Marx's definition of what he termed Dialectical Materialism, via his detailed studies of the only interludes in the development of Reality, when the tempo of Changes was such as to allow an excellent chance of a meaningful analysis by Man.

For that, he more generally established that situation to be the tumultuous changes proliferating throughout a Social Revolution. For, once revealed in such circumstances, the trajectories, though generally at vastly different tempos, could nevertheless be investigated in detail within Revolutions, to guide analysis across the whole range of possible Emergences, as all these interludes of creative qualitative changes came to be called.

Now, of course, if the assumption of fundamental qualitative changes were always at play, and everything affected everything else *constantly*, then any consequently changing analysis would be impossible to deal with...

But helpfully, that is NOT the case!

As mentioned and established elsewhere, *cycles* were often involved, so that situations were often repeated (particularly within an Emergence Event), and this allowed fairly complex situations to settle into a series of *predictable* Phases.

And, in his *Theory of Emergences* (2010), this theorist was able to both detect and extract an oscillation between short tumultuous Interludes of Dialectical Changes, and much longer periods of what he termed Balanced Stabilities.

And, such “commas” and “colons” did supply temporary anchors, around which the changes could be inserted as local “causes”.

Hegel's Interpenetration of Opposites was simply not enough in the emergence of the wholly New historically.

And, in this, Marx was also helped considerably, by his own researches into the Greek Intellectual Revolution in the 5th century BC, and also by the brilliant work of the French historian Michelet, via his exceptionally detailed studies of the whole 25 years of the recently completed French Revolution.

But, even Marx could NOT commence further studies with an already-established overall method: he was the first to even attempt such a task.

So, in taking on a comprehensive study of Capitalist Economics, he couldn't simply apply a ready-made method: he had to define it as he attempted to apply it, and the difficulty was, of course, that everything including his definitions and the methods he employed were no longer Fixed: instead they varied, and even the extracted “truths”, depended upon in one part of the analysis, were clearly changed qualitatively in another part.

So, to get any kind of analysis, he had initially to assume certain conditions and their Laws of Change were *fixed*.

He knew very well that they weren't, but he had to establish a Generality, as a base-line for subsequent changes in Particular and different circumstances. So then, only when he revealed concretely how and in what way they changed, did he adjust his analysis.

And he was certainly helped by the dynamics of change occurring within repeated-cycles, for this enabled the sought for laws to be revealed, as what was common across many such cycles!

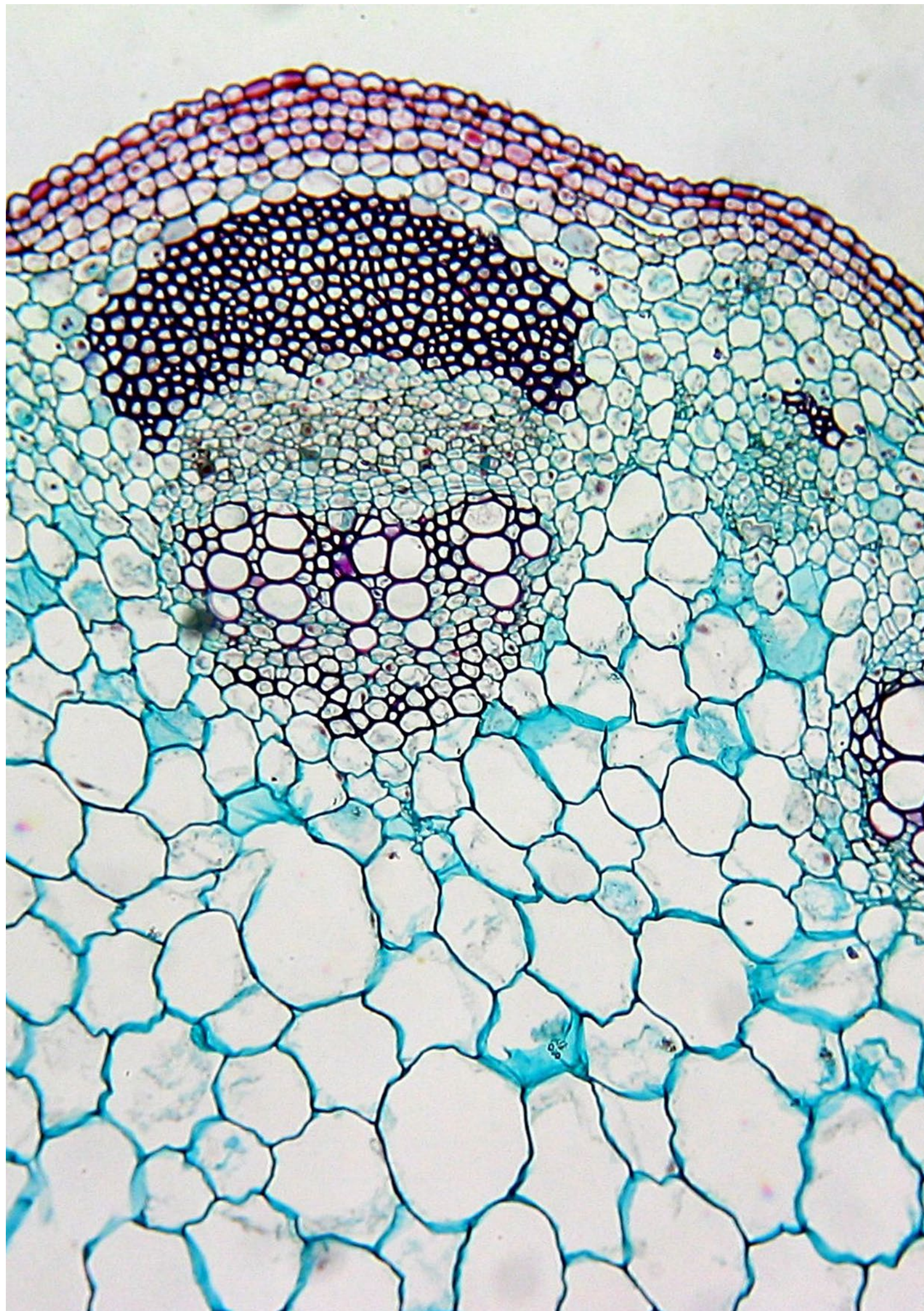
NOTE: Elsewhere, in other very different studies, by the writer of this paper, such cycles also allowed him to solve extremely difficult problems in the analysis of complex, creative Dance Movements by means of an entirely new form of studies in various kinds of recorded footage of footages shot simultaneously of the same movement.

The general problems were, of course, in the comprehensive application of such means to the Sciences. And, most importantly, to the most basic of the necessarily, reductionist of the Sciences - Physics, which had been producing anomalies at an ever increasing rate for over a century of mounting Crises, and had consequentially but damagingly abandoned Explanatory Theory for both Speculation and a total dependence upon Idealist equations, with the ill-famed Copenhagen Interpretation of Quantum Theory in the Sub Atomic Realm.

It has taken a great deal of time, but with *Substrate Theory* (2019), this has finally been completed!

But, of course, that was only the necessary first step.

As with Marx's developments during the writing of *Das Kapital*, which took him over 40 years, the establishment of a Holist Dialectical Method in each of the Sciences, must now be delivered - of which this paper is a early contribution.



Addressing the Origin of Life - Compartmentally?

In watching a Lecture by Szostak upon the Origin of Life - addressed via a mainly experimental, "chemical approach", it soon became ever more clear that every supposed gain in their investigations, very soon encountered a totally unavoidable impasse, and a consequent retrenchment, as some other promising revelation was switched-to, only to rather quickly hit yet another halt!

Within minutes, in his lecture, he was attempting to juggle multiple, short, truncated lines of research in-the-hope of finding ways of weaving them together to achieve something akin to a primitive, though obviously fabricated, form of Cell.

But, that was not what he was actually doing at all!

It was like attempting to complete a jigsaw-puzzle with pieces that couldn't-fit-together, it was just as if they were from very similar, but different puzzles!

Indeed, this approach turns out to be very similar in literally all Disciplines, and has been so for many centuries.

So, clever formalists having encapsulated two such sequences into their separate "Laws", and found some threshold value of a "key parameter" that could be used to indicate exactly when a switch should be made, they would use this to "link together" their two fragments: they call such a construction a Simulation!

What is assumed is that, "Such a switch is indeed valid, though we don't know why, as yet!"

But, something very similar actually happens many times, within a rich Hierarchy of Levels - via Specialisms to Subjects and even Disciplines. So-called solutions are,

in fact, a patchwork of purely pragmatic workarounds, rather than a system of Functional Explanations.

But, in doing it that way, they are badly mistaken!

They are not even revealing the actual steps, which Reality took in its Evolution, but substituting, instead, simplified and inessential sequences, totally lacking any understanding of the really occurring Transformations, rather than their assumed mere transitions, and, which, alone, can deliver something wholly new, and hence enable things that are always completely unavailable to a logic of unchanging components and Laws.

For, those real occurrences must, in addition, actually *change-the-game* - indeed the real causing environment must itself be changed into something different too, as part of the same process.

In other words, the approach is always Pluralist rather than Holist, and, therefore, takes all things as permanently fixed, separable and the Laws that affect them as unchanging! And, it consequently delivers a Reasoning based upon formal Mathematics rather than on developing Science as founded on observing Reality! And also, unavoidably, a consequent pragmatic approach that we term Technology - the achievement of desired-outcomes, rather than that of Science involving increased-Understanding.

Now, as a physicist, attempting to address the same problems in current Sub Atomic Physics, I spent many decades totally unaware of the above difficulties - for, after all, they had been built into the foundations of all intellectual disciplines from their very origins, millennia ago, in Ancient Greece. And, crucially, at that time, those ideas constituted a veritable Revolution in how Mankind thought!

Nevertheless, in spite of evident gains, they were never what actually happened, but, instead, a somewhat-matching form to the observed Natural Results, though never the actual trajectory by which they were produced!

Clearly such methods could be used pragmatically to achieve desired results, but they did nothing to increase Man's real Understanding, and consequently his Thinking about such things. We merely collected means, without knowing "Why?"

So, how did this direct Szostak's method of addressing the Origin of Life?

Without any awareness of real dynamic and systemic change, and with a strictly pluralist approach, it could only be via a series of attempts to juxtapose situations with known eternal Natural Laws to achieve "steps" in a supposed process.

The problem became somehow limiting situations to the most likely to be conducive ones - like fabricating the pieces for the sought-for Jigsaw Puzzle that constituted the actual Origin!

But, of course, that could never deliver what was sought, but only a series of different-but-similar "steps", with unknown, and in fact, impossible, transitions between them.

For, the real Origin was, most certainly, a natural Emergence, and crucially, each step would inexorably also change its context as well as delivering the wherewithal for the next step.

And, applying what has been discovered about such Revolutions, they are never merely constructive: their enablement is only made possible by the total dissolution of a prior, seemingly-permanent Stability (which previously actively-prevented the sought-for step), and thereafter the creation of a new stability, in which the required "next step" was possible.

Such a transformation had to be an interlude of dynamic change, inevitably creating a new set of possibilities for the very first time!

Now, for scientists hoping to understand how life may have emerged the problem is, "How do you create an Experiment to do that?"

Now, one man managed to get close to that objective. His name was Stanley Miller.

He replicated what was then known about the atmosphere and conditions of the early, pre-Life Earth, and sealed them all in an apparatus, which he kicked into circulation with the addition of heat, and Electrical discharges (as Lightning). Within a week, he had produced an Amino Acid, a crucial building block of all Life, but he had no idea what had occurred within his sealed system.

And no developments followed!

Much later Yves Couder, attempting to study Substrates, removed every single interloper from his experimental set up except a carefully chosen Substrate, a particular Silicone oil. All he added to his apparatus were various inputs of energy, and he created, entirely out of his Substrate, individual "Walkers", which moved about the surface of his Substrate consisting of a continuously bouncing drop of the very same Sunstrate, surrounded by a series of Standing Waves.

Why do I mention these experiments?

It is because he successfully replicated Quantized orbits of his Walkers, along with a series of equally effective emulations of the famed Double Slit experiments! He was creating *analogues* of what the Copenhagenists could only address with their idealist Mathematical Equations!

Both of these scientists were venturing into Holistic Science, yet neither contribution could deliver any General Approach: they were instead exploratory forays into Holist Science, revealing its power, but not, as yet, delivering what is really needed - a generalised Holistic Experimental Method, AND, of course, a way of delivering Holistic Explanatory Theories.

That is clearly what still remains to be done!

The problem is that the crucial areas of Qualitative Changes in Reality are not only hard to address, but also usually unavailable to even tackle scientifically, as they appear only in Transformative Interludes, which are very rare, so that literally all Science is limited to the ever-available, and long periods of persisting Stability: an area of study where it also closely approaches a pluralistic set of relations.

And, that is the case, not only in Space, but also in Time, for Emergent Interludes are both brief and rare: in fact the majority of the necessary measurements have had to be taken from interludes which are of a size and rate to be effectively studied - namely solely in Social Revolutions! Indeed, it has been derivations from such events that have informed Qualitative Changes in other less available areas.

But, Science was never comprehensively addressed by Marxists, and, hence, never challenged in its pluralist approach. So, for both that reason and the dominance of Stability in literally all accessible areas of study, so it necessarily wrung the very maximum out of the pluralist approach, and established the Pluralist Experimental Method as the pre-requisite for *all* scientific investigations, as well as enabling a truly vast technological methodology to become universally entrenched.

The Origin of Life as an Emergence

On listening to several detailed biochemical lectures upon the crucial processes possible at deep ocean vents, and the likely role they played in the actual Origin of Life on Earth, I was struck by the contingency of it all.

For, it was all about marrying the given conditions at appropriate deep sea vents with possible contributory processes to the final system culminating in Life at its crucial initial origin.

But, any actual overall, natural-and-explained trajectory was nowhere to be seen, and you would be forgiven for putting the required “direction” down to pure random chance.

However, we do know something, much more general, about significant-qualitative-changes establishing themselves within an environment, which would be necessarily fiercely defending of a current Stability (as a persisting, indeed self-maintaining, Stable System of Processes), while also actively prohibiting any challenges to that hegemony.

It is the conception of a well-established, self-maintenance of a long-persisting Stability, available only within the Dialectical Tradition, that was initially established by Hegel, and later developed by Marx - initially produced in response to the unavoidable impasses necessarily endemic in the old tradition of Pluralist Reasoning, and instead delivering the whole alternative mechanism, of an actual Emergence-Event, ultimately and effectively involved in dismantling one Stability, and only then energetically constructing a wholly new, and both unplanned-unknown and even unpredictable-until-it-happens replacement!

Indeed, in spite of its evident expertise, seriousness and actual worthwhile discoveries, the methods employed

in this research-and-exposition were strictly pluralist, and hence involved NO conception of exactly how significant-and-totally-unpredictable qualitative-changes ever come-to-be!

It was only ever a discussion of possibilities rather than of occurring actualities.

It was like a detailed discussion of all the possible colours in a masterful painting, without any account whatsoever of how it was produced!

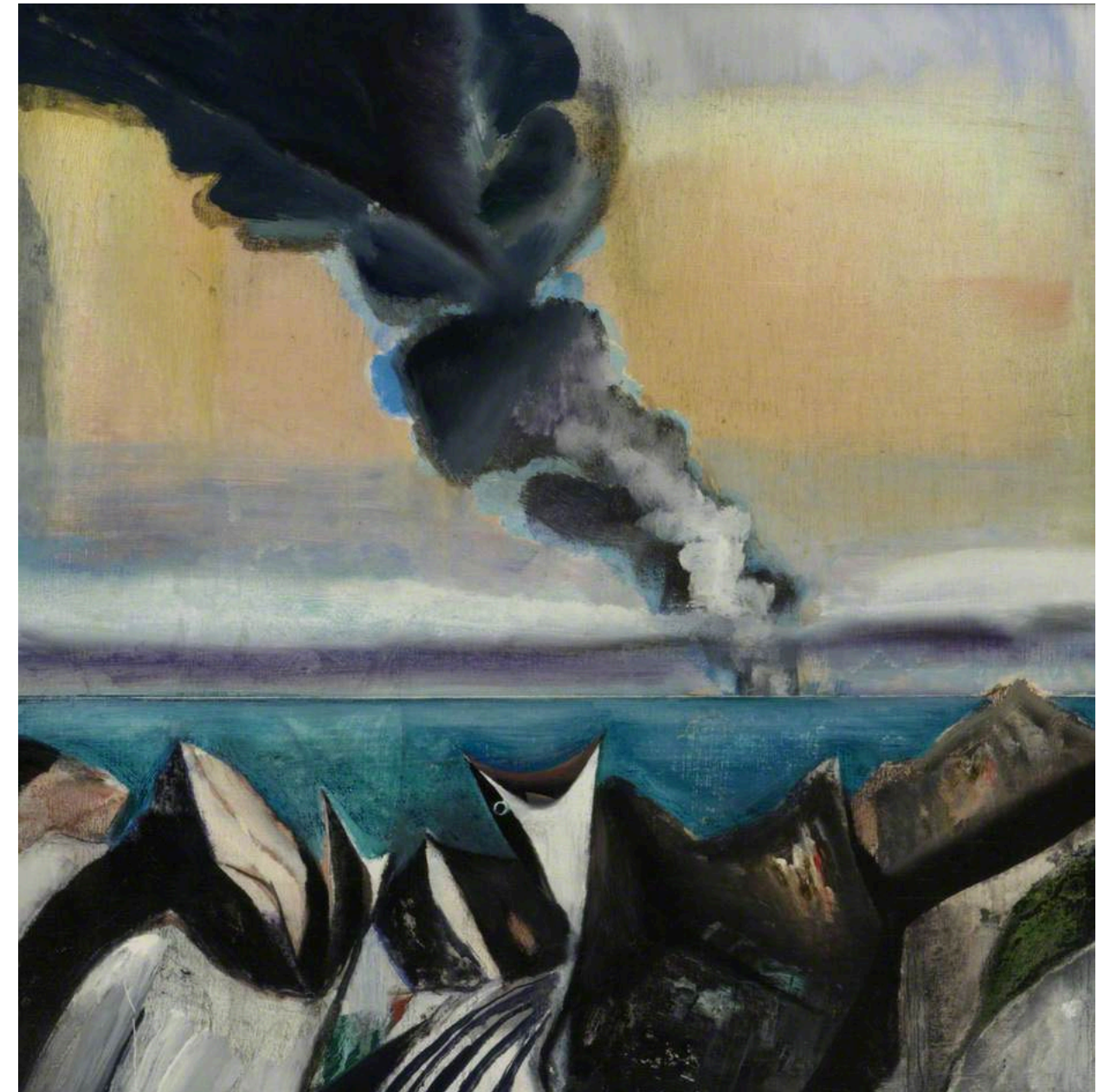
The dialectical account of an Emergence Event, turns out to be absolutely crucial, because such Dynamical Revolutions have to involve a comprehensive dissociative set of processes, in dismantling the old system, to even make the construction of anything truly new at all possible!

Indeed, discussion only of “possibilities”, and their sequencing into a wholly new order, will never deliver what actually must happen - for the ultimate achievement of the new order simply must also involve defensive inhibitory processes to prohibit challenging alternatives, as well as the productive elements of the new order.

Real Qualitative Development, by its very nature, must involve the active interpenetration of opposites, for the achieved Stabilities are NEVER static situations, but *active*, self-maintaining Balances of both conducive and conflicting components!

So, without a width of profound experiences of such Emergent Interludes, no worthwhile explanation of events like The Origin of Life will ever be possible.

Also, Emergent Events are not mere cumulative incremental summations to deliver Static Stabilities,



Volcano in the North by Keith Grant (Metamorphosis, 2016)



Volcano in the North by Keith Grant (Metamorphosis, 2016)

but, on the contrary, fast revolutionary transformations. They are never precarious occurrences, likely to be easily undermined, but, on the contrary, vigorous self-maintaining, achieved-establishments, that will not only trounce most contingent competitive occurrences, but also actually changes its own causing environment as a key factor in its continuance! Emergences are ultimately headlong rushes to new self-maintaining balances, wherein the component processes interpenetrate to deliver something that will persist, via its multi-factor, and hence maximally-flexible, balance!

Indeed, in spite of its general denouncement for being a dead end, Stanley Miller's brilliant Experiment, which ultimately delivered Amino acids, was, indeed, a proper holistic experiment, but too early to take advantage of later technologies, which today could transform it into a constantly developable Holistic series of experiments to reveal ALL the conducive and contrary processes essential to achieve the various balanced stabilities involved. in many of the stages. that would ultimately lead to Life! NOTE: whereas the usual pluralist explanations of Development depends upon Random Chance ultimately delivering a causally determined stable outcome: the holist/dialectical explanation is not via a long interminable process, but, on the contrary, a very brief, tumultuous terminal dissociation of an old temporary, but long-lasting Stability, removing all its essential Systems, but not its individual processes, and following this by a wholly new balance of contending processes into contributing systems delivering a New Balanced Stability - NOT predictable from the prior Stability at all, but nevertheless determined by its set of processes organised in a very different way and delivering a revolutionary set of changes.

Great Evolutionary Transitions

But how do we interpret the Geological Record?

In a recent major lecture by Neil Shubin, at Berkley, California, Shubin examined the key transitions in Devonian Period rock depositions, giving a clear, if overall trajectory, for the evolutionary line - which ultimately leading to Land animals from lobe-finned fishes.

But, though a remarkable piece of work, based mainly upon found fossils, it was also supported by examples of currently-living animals in similar transitional states. BUT, it could never reflect either the causal impulses, or the actual varying tempos involved.

Indeed, as with all fossil-based scenarios, they can only mark-out individual snapshots from those overall, past trajectories of change. And, consequently, the actual dynamics of Evolution, with their necessary alternating interludes of holistic balanced Stabilities and crisis-precipitated Revolutions of dramatic changes, can never be clearly exposed!

For, of course, there still had to be all the usual disadvantages of such evidence, which is reflected in most Science, concerned with Development, carried out thus far, which is due to the fact that such evidence is always limited to only "a series of stills", almost like photographs, mere snapshots of what in actuality was a dynamic and tumultuous series of changes, none of which could possibly be reflected in that kind of fragmentary evidence.

The crucial causes for the such changes are never evident, and the easiest interpretations are always both distortingly simplifying and erroneous.

What else could it possibly be, when unavoidably-interpreted by the actual trajectory of the always inadequate historical development of the Understanding by Mankind over several millennia?

And, that consequential approach was determined by the unavoidable, natural inadequacies in the Philosophy of Mankind, which was never a given of their own evolution. Man has had to slowly develop that Philosophy, via a series of more or less inadequate stages, as his wider and deeper experiences gradually delivered the wherewithal to achieve a series of improvements within it.

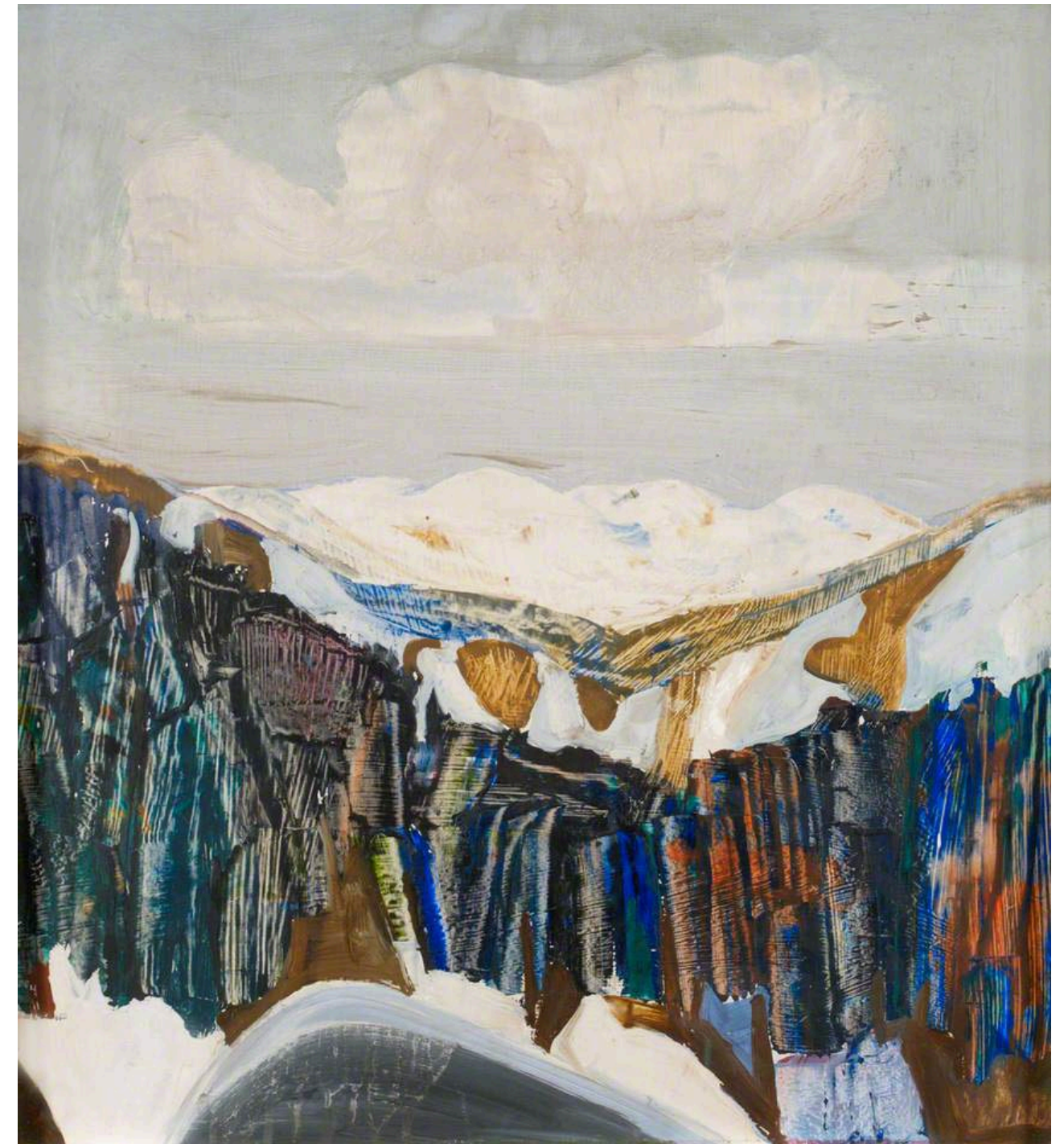
Now, of course, Science has been a primary contributor to that development, but it can still, at best, only reflect the limitations of its revealed content!

And, most significant of all, the most hidden, yet vital, episodes in all development occur at such tempos that they are too slow to be physically experienced, yet too fast to be available in the fossil evidence, reflecting truly vast intervals of time via quite meagre depositions, while always being a very tiny proportion of what actually existed then, and which, by chance, is still available now.

There is always a parallel consideration to be made, along with the gathered evidence, which is the current state of Human Understanding generally - indeed the philosophical level of development of the human interpreters. And, ever since the first significant intellectual stirrings, with the Ancient Greeks, the major omissions have always been to do with the Dynamics of Qualitative Change.

The universally-applied Principle of Plurality, derived from early Mathematics, was also wrongly-applied to both Formal Reasoning, and then later to Science. But, Plurality sees Reality as only changing *incrementally* - that is quantitatively, and sees this as being due to eternal and Unchanging Laws.

It wasn't until Hegel, only a mere 200 years ago, that Qualitative Change was considered to occur in Human



Norwegian Fjord by Keith Grant (Metamorphosis, 2016)



Thinking, and led to his important developments within Reasoning, which he termed Dialectics. And, though Karl Marx realised that Hegel's discoveries were relevant in concrete Reality too, and saw their application to the Sciences as absolutely vital, *it did not happen*, and has only begun to be applied in the last decade, by as yet only a meagre few investigators.

And Shubin is not yet among them!

But, such a long delay was, indeed, unavoidable, as the pluralist inadequacies, of the then current thinking, turned those studies, first, into "different Subjects", and, thereafter, into discrete "Specialisms". So, the wherewithal to address those difficulties were generally unavailable to allow such necessary developments to take place.

Interestingly, this professional physicist, looking for a way out of the current Crisis in Physics, was getting nowhere, until he was involved in research to wed Multimedia video to the teaching of Dance Performance and Choreography.

For there, he found that Digital video recording delivered only a series of progressive Stills, while Analogue video footage could indeed deliver the necessary dynamism, but with every single point in each delivered frame, at a different time within the current time interval represented, and hence no precise timings-with-positions could be extracted. Both technical solutions - embodying the contradiction of continuity versus discreteness - were therefore inadequate in delivering the Access-and-Control required by the Dance Teacher to aid students.

Believe it or not, in solving this problem, I had to deviate, for some time, into an absolutely crucial detour into Philosophy (which, fortuitively, solved my impasse in Physics too!)

The same will certainly be true, for the very able Palaeontologists involved in the Evolutionary Transition studies referred to above.

For, what was finally revealed in all major Qualitative Changes, by the studies in creative Dance Movements, was a remarkably dramatic and tumultuous series of stages, always commencing with Crises within what had been a persisting Stability, which increased in intensity, until that Stability totally collapsed, and was followed by

a new wholly constructive interlude, via many temporary crises, until, finally, a new Stability was established.

Creative, expressive movement delivers the epitome of such transitions!

And, the necessary context for the dynamism delivered by the video frames, was supplied by the possibility of extracting precise positions from the digital stills! A superimposition of animated overlays of positions on the moving video delivered what was required,

So the problem for our geologists, is to fit their exemplars into such a trajectory, OR, much more likely into a series of such trajectories. While, of course, remembering that all the many failures in such processes are unlikely to have left the slightest trace!

Now, with my essential detour into analysis of Dance movement, before being able to return to the problems in Physics, and Hegel's similar researches in Thinking, to unearth the need to abandon plurality in Formal Reasoning - it similarly involved a major investigation into revolutionary changes in History, for Marx to be in a position to analyse the current Capitalist Economics to envisage revolutionary changes there too.

So, for the Palaeontologists to correctly interpret the fossil record, they too will have to, in addition, study Qualitative Changes elsewhere, which occur at a tempo that will allow general valid conclusions to be drawn!

Metamorphoses

Radically Transforming Interludes

We have many unacknowledged assumptions and indeed hidden metaphysical principles, which we truly believe accurately reflect Reality, and they, therefore, underlie absolutely all our explanations and theories.

But, can they address the really important phases in any actual qualitative changes – in the actual development of Reality - or do they merely deal with purely local and immanent snapshots of that trajectory, or longer exposures of forcibly maintained stable setups, and, therefore, only within one form or another of temporarily unchanging stabilities?

My contention is that they most certainly only do the latter, and deal with any evident qualitative changes by merely switching between possible alternative stabilities, and, by so doing, totally ignore the short but crucial transformative interludes producing one of these from another entirely!

But, of course, if these crucial interludes are always omitted, such a paradigm will never manage to explain why-and-how the measured phenomena come to be in place, both in our carefully-arranged-for Domains, and certainly never as actually occurs in totally unfettered Reality.

For all our knowledge about the world we know very little about how any of it came about, and we resort to all sorts of laboured narratives, spurious origin stories and myths, which have more in common with religion than materialist science.

We may be able to construct both analytic and synthesizing methods, within each stability, but they will only ever encapsulate the-involved-pattern, and allow prediction thereby: but they will be merely formally-descriptive and certainly not explanatory, and that latter

is essential for both true Science and real Philosophy! But, of course, this is, nevertheless, exactly what usually happens, and has done so for centuries.

And what this means is that when unavoidable and major transformations do occur, we are then totally ill-equipped to either understand them or, indeed, cope with them, in every necessary way.

We all are, in such periods, tossed about like corks in a stormy sea, and can do nothing to, in any way, intervene, to ensure the outcome we require.

We are consigned to merely suffering these transformations, and dearly hoping for the quick return of our interpretable Stabilities!

Clearly then, our current basic conceptions and methodologies are wholly inadequate to deal with all such interludes of accelerated, qualitative change, of real happening Development, and of the truly cataclysmic changes usually termed Revolutionary! Our actual achievements are always predicated solely upon Stability, and the overall happening-trajectory of any real Development is always currently entirely beyond our reach!

We are pragmatic users of stability, yet mere sufferers of Change!

But, are we congenitally restricted to such a stance? Can we only do what we do now, and no other? The answer has to be a resounding, “No”!

For, to start with, we do not deny these transforming interludes at all. We greet the births of our babies with great delight, and what are such events but interludes of almost miraculous change?” And, we see and recognise



the metamorphoses of worm-like caterpillars into devastatingly beautiful butterflies, without a qualm.

And, as a scientist, I recognise these revolutionary episodes throughout the history, not only of all Life, or the development of the Earth, but even of the Cosmos too, in the Life histories of its stars.

We know that these episodes do indeed occur! So why do we not study them as such? Why do we not address, in generality, as a natural consequence of the necessary Evolution of Reality, and study Emergences “scientifically”?

The trouble was, and still is, the unavoidable occurrence of exactly those system-wide transformations in Society itself – Social Revolutions!

For, these can throw out all those who rule or dominate society. And, as such they will always frighten the

Establishment to death! So, any serious scientific study of these transformations, even in a general way, would also unavoidably have to include Social Revolutions in that very same remit, and that could be devastating.

Good God! It might equip agitators like Lenin to intervene in a Revolution to work to change its outcome! Could the Establishment ever risk such an occurrence? The answer is clearly, “No!” And so revolutions, whether social or natural, are not dealt with properly, if at all.

And, it has always been so, whatever the current Establishment consists of. Instead, such researches and methods of investigation, and its resultant theories must be roundly condemned, and even ridiculed, and such vested interests get away with it (most of the time) because they have the old “pluralist science” safely on-their-side. For, that methodology never addresses such transformations – indeed, they are avoided at all costs - and where stability doesn't naturally exist, it is skillfully

imposed to enable successful experiments to be carried out and appropriate “Eternal” Natural Laws extracted.

And this can quite adequately produce a galaxy of products, without any recourse to any emergent considerations.

For, their kind of investigation is strictly limited to studying and *using* Stability. Given constrained and maintained Domains, they can find laws that can be used to reliably predict, and hence produce within such known circumstances.

The counter to truly explanatory, and, therefore, real Science, is, as always, *technology*.

For, it will work whenever any system of transforming Revolution does not take over!

For, such plurality-determined “science” delivers useful functionalities without ever addressing any emergent possibilities, except perhaps as “midwives”, or maybe “surgeons”, to bring the inevitable catastrophes quickly back to Stability again!

Indeed, this medical-type metaphor is doubly appropriate because more generally, you have to ask - how can a profession, such as Medicine, cope with living people, and all their inevitable health crises, that they are bound to undergo, without a standpoint that addresses just such emergent events? Surely, they must extend their methods to unavoidably include these events? For, if not, what they learn and apply must only be mere recipes.

If your diagnostic methods, name complaints, and indicate systems of treatment for all possible illnesses, are of this nature, then the doctor merely becomes a database for such a body of knowledge, rather than any kind of investigating scientist!

And, in a much wider general field, can we call most of what is usually termed “research” (in our society today), Science?

For, it is entirely dependant upon the discoveries, formulations and explanations of other people – scientists who attempt to find laws in given Domains (artificially maintained stabilities).

These that form the majority of those involved in such “research”, are merely finding the best, quickest, cheapest, most alluring, or most profitable products of already known laws, which most dependably return the unwelcome state of Illness back to Stability.

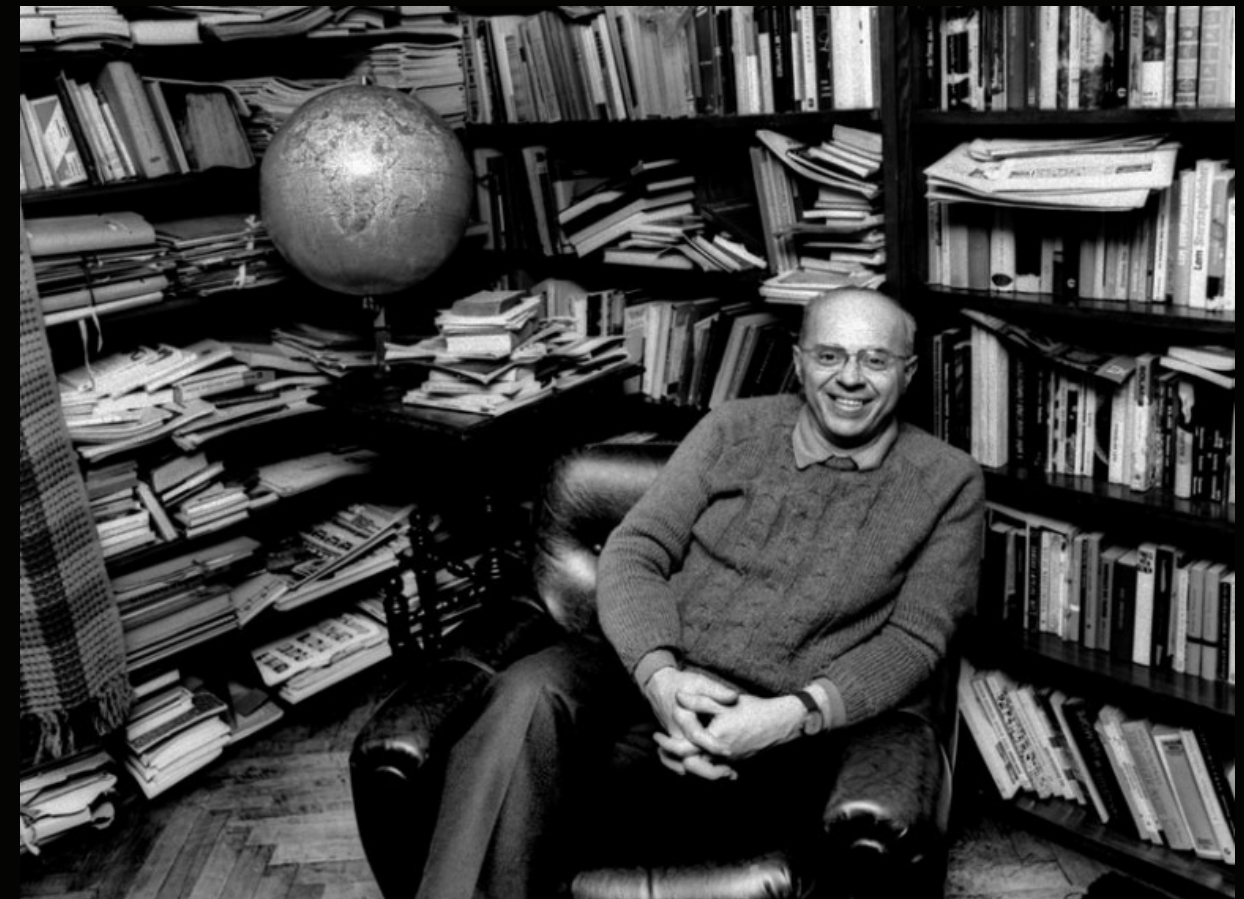
They can keep it up almost indefinitely, but it is not Science, only Technology!

Now, anyone following the current narrative in the media about “Science” will doubtless feel that they have to disagree with this analysis. For, they constantly hear from populists like Professor Brian Cox, Jim Al’Khalili and Marcus du Sautoy of all sorts of phenomena, many of which purport to address qualitative change, but actually do no such thing!

Most of Cox’s qualitative excursions are about things, which cannot be interfered with, far away in the Cosmos, while those from du Sautoy are diversions into mathematical Chaos and Fractals (with a substantial addition of the condiment of Pure Chance) to “explain” various Emergences in Mathematics.

But, his narratives are a fraud, they are never about Reality, but about the mathematical World of Pure Form alone – what I insist should be called Ideality.

In fact this position was put very succinctly by Stanislaw Lem in his analogy about a tailor (see opposite).



“Let us imagine a mad tailor, who makes all sorts of clothes. He does not know anything about people, birds or plants. He is not interested in the World; he does not examine it. He makes clothes but does not know for whom. He does not think about it. The tailor is only concerned about one thing: he wants to be consistent. [...] He takes the finished clothes to a massive warehouse. If we enter it we would discover that some of the clothes fit an octopus, others fit trees, butterflies, or people. We would find clothes for a centaur and for a unicorn, as well as for creatures they have not even been imagined yet. The majority of his clothes would not find any applications.

Mathematics works in the same way. It builds structures but it is not clear of what. These are perfect models (i.e. perfectly accurate), but a mathematician does not know what they are models of. He is not interested. He does what he does because such an action has turned out to be possible.”

Summa Technologiae – Stanislaw Lem

Indeed, no one actually addresses such questions.

Finally, we must come to the science that first did actually address qualitative change and Emergences – namely that by Charles Darwin with his Origin of Species.

With such an epoch-making contribution, surely of all the sciences, Biology must be the one to pursue what Darwin began and go ever deeper into Emergent Events?

But, I'm afraid you will, sadly, be disappointed.

The touchstone was the second brilliant piece of holistic science carried out by Stanley Miller in his famous Experiment, in which in a totally isolated experimental set-up, containing what were then considered to be the substances dominating the atmosphere of the early, pre-Life Earth. He designed and constructed his apparatus to emulate what was likely to have happened in what might reasonably be called the “Weather Cycles” from that period, and set the system into action by the addition of just heat and lightning (via electric sparks). In only a week, the water in his closed system had turned reddish-brown and in later analysis was found to contain amino acids – the crucial building blocks in all known living things on Earth today.

It was as revolutionary as Darwin's contribution, but the majority of scientists were not satisfied, and asked, “Well, what exactly was going on within this set-up. What were the various processes going on and in what order?” And they universally concluded that, “Without knowing these things, the experiment had no consequences. It was a dead end!”

And, in spite of some improvements by Miller, the technology of that time did not allow him to answer their crucial questions, without, in the usual pluralist way, intervening to analyse, and so destroy each and every sub-process of the self-moving, holistic system.

The line of research was dropped.

And that is symptomatic of all modern biological research. They too do not address Emergences!

Now, though these wholesale criticisms are correct, there would naturally still be some scientists, who would indeed address crucial transformational episodes in new and imaginative ways. For example Hunt in studies into

how, why and when the cells of fertilised eggs divided, for he developed a technique, which neither stopped nor interfered with the natural process of cell divisions, but also enabled him to separately analyse the chemicals present during successive phases of the process. He cracked what was initiating cell division (cyclin), and for this brilliant work was awarded the Nobel Prize for Biology.

While in a very different and surprising area, Pagel studying large numbers of fossils, was able to show statistically that Species Origin had to involve a *single event*, and not the usually assumed set of small incremental changes over an extended period.

Species Origination *was* an Emergent Event, and definitely then needed an explanation for what actually happened during this remarkable multi-phase Emergence.

Finally Ryan with his work on viruses and their penetration into other organisms, not only on the well known symbiotic type of relationships, but also in unifying single but unrelated organisms - a virus and a much higher living thing into a single amalgam, the results of which could be crucial in explaining alternative forms of genetic mutation other than the usual “random damage” version.

The title of this paper was chosen as *Metamorphoses* for very good reasons. Can we just study the caterpillar and the butterfly totally separately, and in great detail, and ignore the amazing metamorphosis in between?

The answer has to be a resounding, “No!” What on earth is going on within the chrysalis and why? It is almost as if two species have been merged somehow – one with the idea of eating its way to nirvana via leaves, and the other perfect for the reproduction of the species with the added and miraculous facility for flight.

Think what actually occurs!

A soft bodied, worm-like creature gets fat enough and then retires into a chrysalis, wherein the most radical transformations occur.

It is like a re-invention of the organism. Instead of being soft-bodied, it transforms into a hard exoskeleton-encasing insect, with elaborate wings. Instead of eating

leaves, it now switches to sucking up nectar from flowers, and, instead of being camouflaged, it erupts into a galaxy of colour to signal its presence to potential mates.

It usually only lives long enough to copulate and lay eggs before dying. (The mayfly (another relative) actually emerges in the adult stage without mouthparts, for it doesn't even need to eat during its very short life).

So, what on earth happens inside that chrysalis?

Why was there such a revolutionary transformation?

Where did the imperatives for resorting to such a two-phase life and its absolutely essential transformation event *come from*?

All these questions are valid and definitely need answers, but we don't have them.

In other areas, there are organisms (some incredibly simple – even single celled), which, in very hard times, transform themselves into a dormant and maximally protected state to “see-out” the bad-times (the seed being the simplest example), but it also happens to multi-celled animals too, and they can survive for truly remarkable periods of time in these defensive, totally-inactive states. But even there the process from original organism – to dormant version – to fully-functioning organism again, is never merely “shutting-down”. It is always a major and profound re-organisation into “something else”. Clearly, there must be resonances between those defensive transformations and the much more short-term and functional metamorphosis of the caterpillar/butterfly.

One area that may be revealing can be seen in the study of developing embryos. For, it is evident that to some significant extent, these tend to pass through similar stages to what happened to prior species in the evolution of the present-day organism to arrive at its current state. It seems to indicate that prior phases in evolution are not lost, but are still present within the genetic material of the current organism, and in fact function as before, but only in the embryonic development stage.

Could it be that reversions under extremely damaging conditions can take place, to put the organism in a more survivable prior state, and that when conditions improve, the organism can re-instate its current development path (within the safety of the chrysalis) until it can emerge as

the final version of the current organism. When we talk of a blueprint in the DNA of an organism, it is usually interpreted as a single trajectory through the various necessary phases of development. But several things would be essential even for such a seemingly “simple” plan. For, the necessary “instructions” are not available in that DNA as a linear, physical sequence – starting at the beginning and going through each successive phase in turn.

It just isn't like that!

The instructions are arranged in no particular physical order: they are dispersed throughout the DNA. So what determines the actual sequence to be followed?

Each phase produces along with its primary functions the necessary chemical trigger for the immediately following phase, by producing a unique “key” that alone can “turn-on” the next phase, wherever it turns out to be. And these can be anywhere in the DNA, for the necessary key, being a chemical molecule, can bathe all parts of the complex molecule, but only act upon its target area(s) that initiate the required next phase. So, the whole sequence is elicited one at a time by the products of each immediately prior phase.

Indeed, the assumption that the overall sequence is the only one coded for, would, therefore, also be inaccurate. In fact there could be alternative sequences that are almost never switched into action, including many redundant vestiges from past incarnations of the organism. And some of these might be triggered by adverse circumstances, which push the organism to the limits of (and maybe beyond) its normal envelope of survivable conditions, which would act as emergency solutions. A fairly common example in plants might be that which produces seeds – still the living organisms, but nothing like the fully-functioning adult plant. And in the same way a whole variety of similar “dormant” defensive forms might be triggered as the only way to maintain the spark of life.

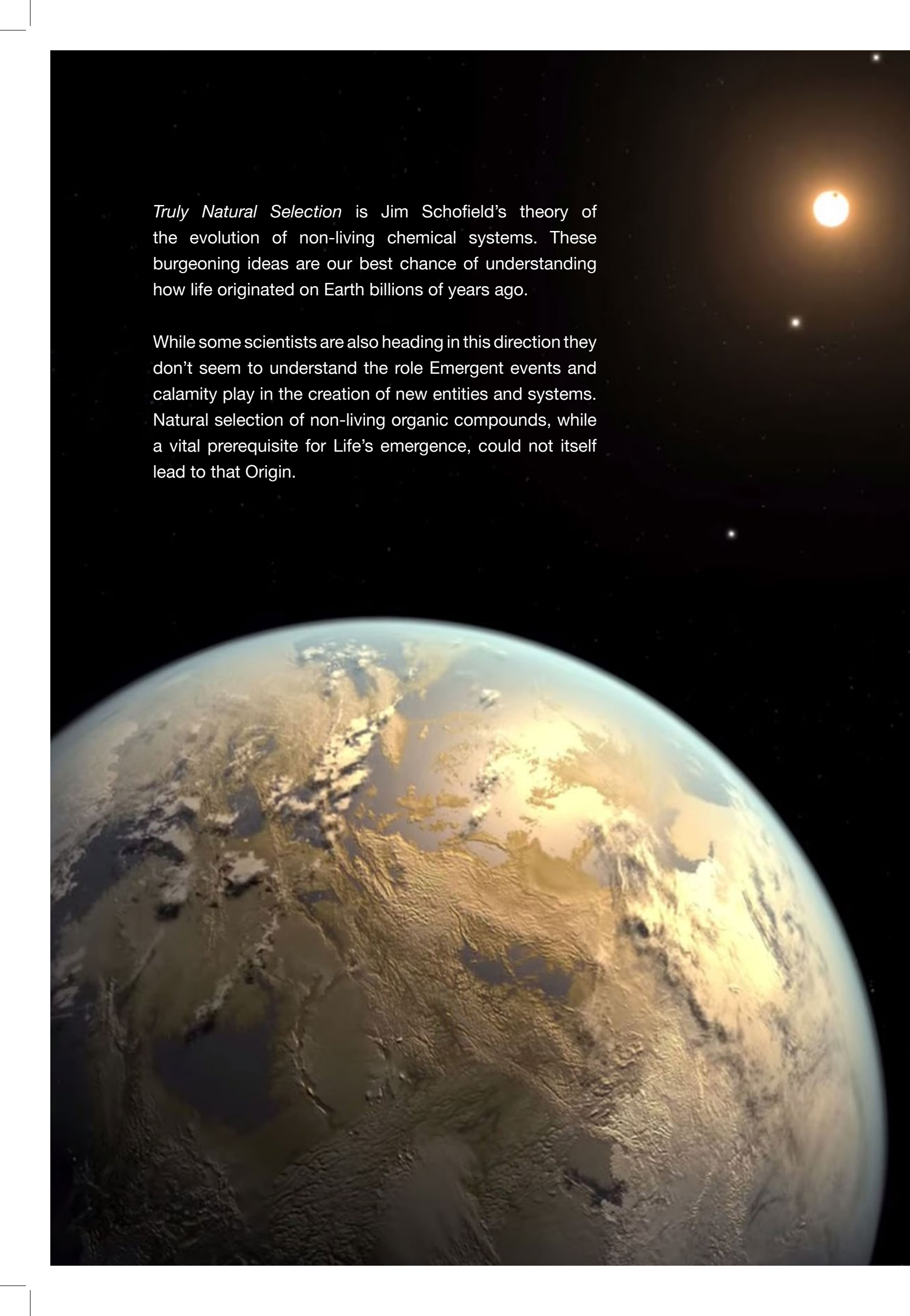
Once such a set of alternative possibilities is considered, we can then consider that old (not usually still used) plans can be triggered, which could help a species in difficulties with impossible conditions to return to such a sequence as a survival alternative. Indeed, they might have been common in the very earliest scraps of life in the most demanding of circumstances of the early Earth.

And once we see that, much of the usually considered to be “junk DNA” is in fact still functional, but never triggered in normal sequences of a given organism, then we can view mutation very differently indeed.

For whatever the cause of the mutation, it will respond initially to this unused storehouse of sequences, which might make the difference between success and failure for that change.

Also, situations such as metamorphosis may be a special case wherein two phases not originally run as a one-after-the-other sequence, might well be not only triggered in hostile circumstances, but regularly, as a superior alternative.





Truly Natural Selection is Jim Schofield's theory of the evolution of non-living chemical systems. These burgeoning ideas are our best chance of understanding how life originated on Earth billions of years ago.

While some scientists are also heading in this direction they don't seem to understand the role Emergent events and calamity play in the creation of new entities and systems. Natural selection of non-living organic compounds, while a vital prerequisite for Life's emergence, could not itself lead to that Origin.

Truly Natural Selection:

The Life Factory

Natural Selection Before Life?

Perhaps surprisingly, scientists have finally returned to Stanley Miller's famous experiment concerning the Origin of Life on Earth, but with the purpose of going beyond the limited achievements of that effort so many years ago (1952).

In an article in *New Scientist* (2797) by Katherine Sanderson, the ideas of Lee Cronin of the University of Glasgow were presented, which put forward a new slant on the Miller-Urey Experiment.

Along with the rest of the NASA-led sheep, he is persuaded that Life did not originate in conducive chemical circumstances on Earth, as was the basis for Miller's experiment, but in much more surprising places, such as the "black smoker" volcanoes at the bottom of the deepest oceans, or even at one of the many other unlikely places (that could crucially be found elsewhere in the Solar System, and even more distantly in the Universe, and hence justify the funding that NASA needs in order to investigate space in search of Life).

Now, Cronin's other new point is that there must have been a whole series of developments in the chemistry involved (in our case organic chemistry, but not necessarily there in other parts of the Universe) prior to Life. And in this he is certainly correct!

Of course, the actual mechanism for selection and development, or even "evolution", in these non-living things, could not be Darwin's definition of Natural Selection, for the processes involved in that are predicated upon Life already being in existence, upon reproduction, and upon competition between living organisms in an ecosystem.

So, some very different form of selection and consequent development must have occurred based upon an entirely different mechanism, to take some "organic broth" to a position in which all the necessary processes, which would later be included into Life itself, were made available, and became stable.

BUT both Cronin, and almost all others investigating this field, assume that Life was the direct result of the presence of such processes, which almost automatically shifted over into this New Form. This is not the only conception of what actually happened. Indeed the main alternative has Life emerging out of a precipitated catastrophe of dissolution of a prior stability.

So taking his conception of pre-Life selection and his idea of a direct precipitation of Life, he believes that he has a way of investigating such pre-Life developments. AND, significantly, that they could happen anywhere, and not just on Earth.

[It begins to sound even more conducive to NASA's imperatives, does it not?]

Cronin et al do indeed recognise an unavoidable pre-Life development period, in which, long before we could call it Life, there were other chemical processes "competing" for the same resources, and thus producing a strong selective effect on a sufficiently initially diverse mix of processes to lead to the dominance of certain sequences of systems of processes.

Indeed, though his method is to establish such processes as generally available, by experiment with his chosen Polyoxometalates, the same basic idea has already been

developed theoretically by this author (J. Schofield) using Organic Chemistry in his work on *Truly Natural Selection* (2009).

But, Cronin's experiment expects what he calls "autonomous developments" to occur right there in his apparatus, and considers that the only extras required to take things to significant levels, will be the external adjustments to various available parameters, and this is, I'm afraid, is doomed to failure.

This is because he assumes a continuous and incremental series of steps, travelling uninterruptedly through to the emergence of Life itself, and that is never how such revolutionary transformations actually develop in Reality. Such New Levels never appear surreptitiously and automatically, but only via what are generally termed Revolutions when studying social development, or more technically as Emergences, when studying radical change more generally.

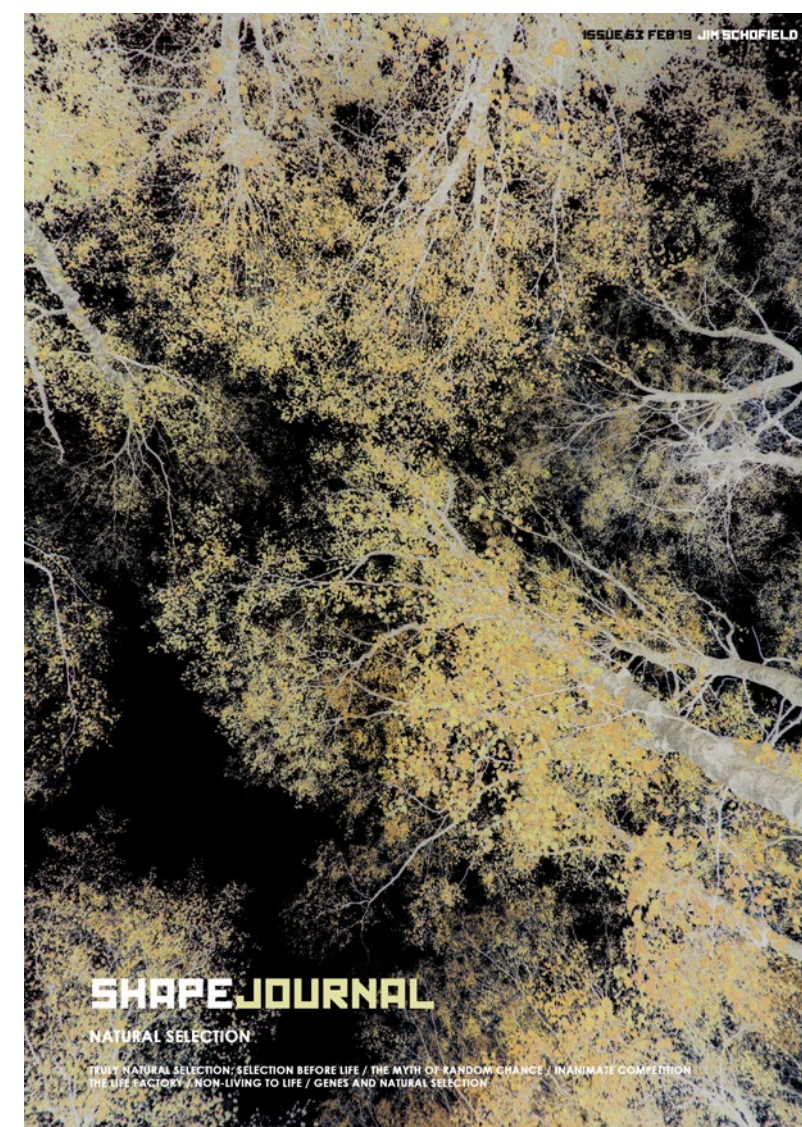
Now, such Events did indeed happen throughout the history of Reality, and they were always the absolute opposite of continuous and incremental changes into the New. On the contrary, they are invariably initiated by a wholesale collapse of the till-then established Stability, as the Second Law of Thermodynamics types of dissociative processes grow at an increasing rate, until they pass a crucial threshold and precipitate a cataclysmic avalanche of dissociations. This catastrophe seems to be sending things careering backwards towards an inevitable total oblivion.

But it doesn't actually do that!

Research into such Events has shown that ONLY via such an almost-total dismantling of the prior stability, can the available processes begin to rapidly form new systems unhindered by the once-strong forces of that prior stability, which actually maintained the prior Level's continuing stability. Only when those conservative processes are finally gone, could the actual possibilities of unhindered active competition finally begin to form systems, which could ultimately be resolved into a single dominant system being finally established as the new Level.

Life was no automatic transformation, but a successful Natural Revolution, made possible by a prior, and almost total, collapse, of a preceding stability. Only when the old Level is dead can new constructive (opposite to the Second Law) developments actually succeed.

Without any idea of the trajectories within an Emergence, NO experiment could ever be conceived of (never mind constructed) to facilitate these necessary Events. Cronin will produce only a confirmation that selection is possible, but the whole dynamic essential for a revolutionary overturn will NOT be present, and as with Miller's magnificent attempt, it will not lead to real gains on the Origin of Life on Earth.



For more information on Jim Schofield's theory of *Truly Natural Selection* please read [Issue 63](#) of this journal, entitled *The Dialectics of Natural Selection*.

The series of papers published therein extend Natural Selection beyond the Living World and into Reality in general.



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