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**THE  
SYSTEMS  
THEORY  
OF EVERYTHING**

**PART 3**

**JIM SCHOFIELD**



## The Systems Theory of Everything III Special Issue 77 / July 2022

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### Art Director's note

The illustration in this series of issues on Jim Schofield's new Systems Theory, draws heavily on the genre of fine art known as action painting, of which Jackson Pollock was the most renowned exponent.

The reasons for this choice are more than aesthetic.

Action painting marked a sea-change in approach during the 1950s, in which process and method became more important considerations for the artist, than the final image created. The movement also saw a renewed acknowledgment of the painting's own materiality and objectness, not as an illusory depiction of some scene or person, but as a trace record of real matter, motion and time.

The approach of abstract expressionism may have been intuitive, with the artist responding to the changing canvas, but it was also often the result of a repeating schema or cyclical systematic approach to mark-making. This can be seen as an interesting analog for natural systems and their emergences, where simple repeating processes and feedback loops result in systems capable of responding to changing conditions, and can lead to seemingly impenetrable complexity - even the creation of entirely new forms of matter. These are universal phenomena that reductionist science has never been able to fully understand and explain. The Systems approach to reality attempts to address these shortcomings...

To further illustrate these parallels, action paintings are juxtaposed here with images from science - such as the Wellcome Trust's annual photography awards.

Introducing Jim Schofield's

## Systems Theory

Mick Schofield

This series of issues attempts to set out the first definitive account of Jim Schofield's new Systems Approach to Science. The various papers collected here, and over the next few editions of this journal, explore the proposed theory and explain why it is such a radical departure from the current universally applied scientific method.

While working on the recent YouTube video ["Taking Shape: Denis Noble and the Systems Level Approach" \(2022\)](#), it arose in discussion between myself and Jim, whether or not "system" was even the right word to use for these ideas. Schofield's revised view of natural systems is certainly not the usual one. They are not "systematic", mechanistic or carefully structured in any way. They don't follow universal laws and rules. They are dynamic, contingent and emergent, containing contention and contradiction. They can be hidden, vastly complex, and sometimes seemingly chaotic from our human vantage point. Many are stable and extremely long-lasting, and are routinely misinterpreted by scientists as eternal and fundamental laws of nature. Schofield's view of systems is Holist and Materialist, arguing that the holistic understanding of how natural systems evolve and maintain themselves, is vital if we are to really appreciate how things come to be, and why they are the way they are.

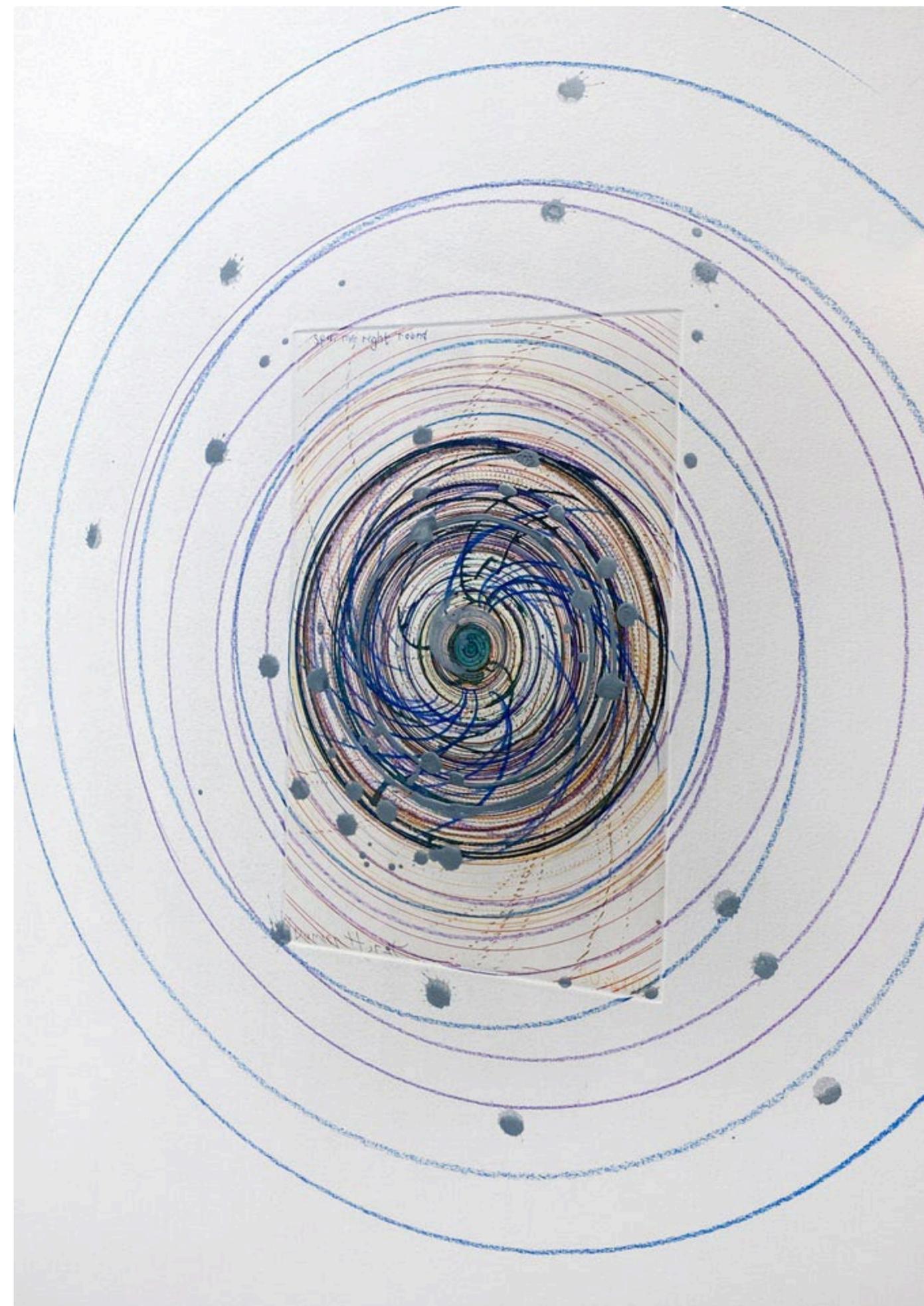
There have been systems theories before. However, the scientific study of systems has historically been hamstrung by pervasive reductionism and the formalisation of entities, laws and causality. In Sociology, for example, Systems Theory was actually a conservative approach to the subject that saw society as basically functional and explicable via person-to-person interactions.

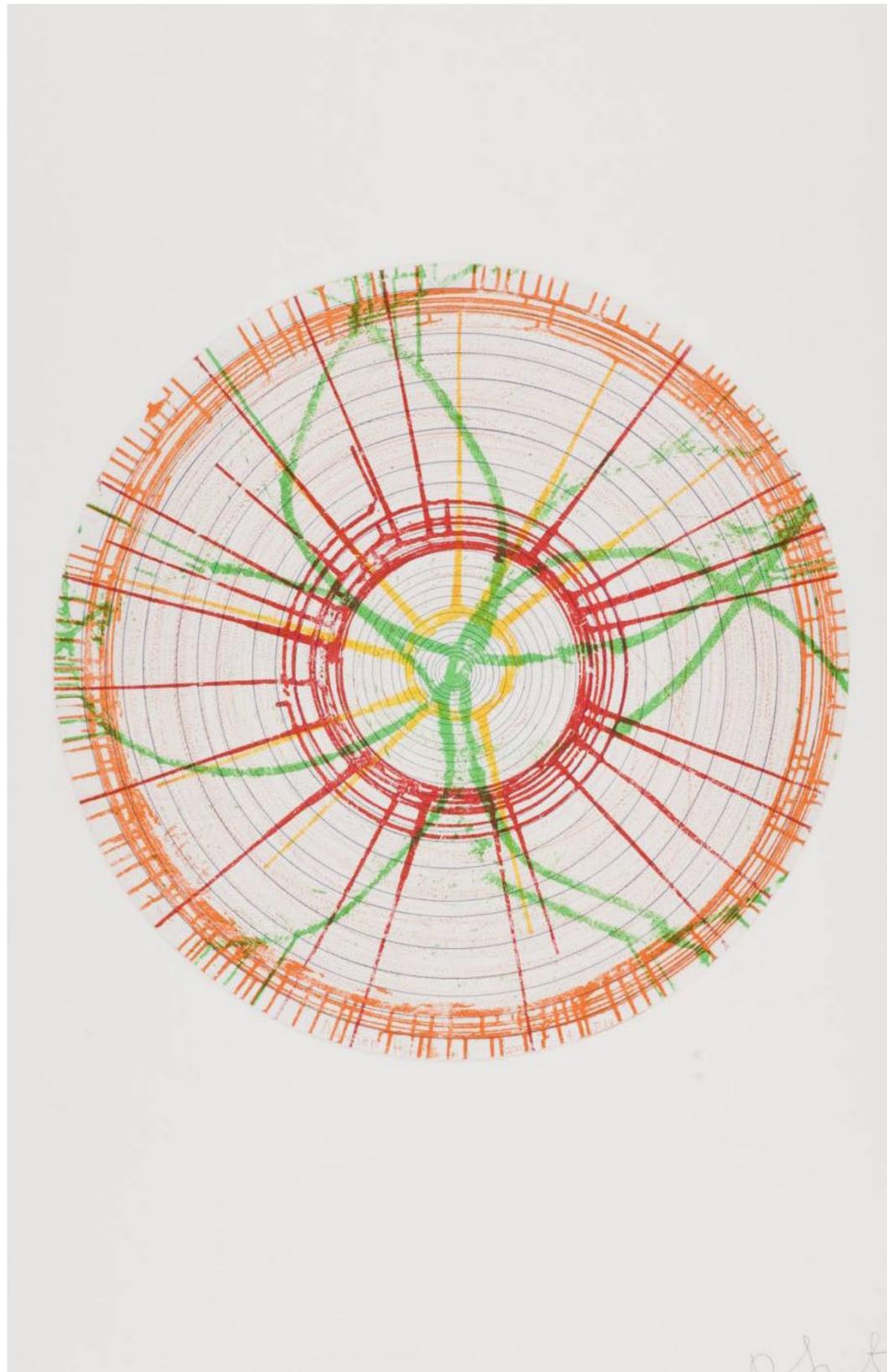
This approach was dogged by a rigid and ordered way of seeing things and was largely rejected by Marxist sociologists in the 1970s, which favoured examining conflict, change and contradiction, as the key driving forces underpinning social conditions. Similarly in systems engineering, machine logic, computer modelling and mathematics, systems are widely used but still conceived of as the complex but predictable interactions of fundamentally reducible elements and rules. This demonstrates the importance of epistemology, politics and a critique of the scientific method, in moving the study of systems forward - beyond the usual approaches, and towards one that embraces the vital roles played by interconnection, contention and hidden top-down effects.

Missing from many approaches to systems is the role that different Levels of Reality play in its composition and evolution, with causality often happening at a much higher systems level than the ones scientists currently seek data in for clues.

The Philosophy of Science must look to other disciplines for ways of dealing with such phenomena, from art to politics, from Buddhist Holism to Dialectical Materialism, the basic ingredients for a new Systems Approach already exist. But first we must look at how the usual scientific methods fail to appreciate the role dynamic natural systems play in everything that we try to study and understand.

The series continues by examining how Systems evolve over multiple Levels, and how this fact effects the reductionist discipline of Physics.





## Top-down and Bottom-up Development within Evolution and Physics

Jim Schofield

The recent major developments in The Systems Approach to Science, though they originated in this Journal, in the Physics questions pursued by this Theorist - and separately in the Biology of Oxford Don, Denis Noble - it was also bound to revolutionise History, Philosophy and Evolution, as an obvious extension of Karl Marx's Dialectical Materialism.

For Systems Theory challenges, in profound ways, the seemingly immovable reliance upon a strictly Bottom-Up explanation for absolutely Everything.

While multiple Levels of Organisation are increasingly being addressed, literally everywhere, and in all attempts at explanation: they are mainly seen as occurring at mere differences of *Scale*, though, nevertheless, are still steadfastly "explained" in terms of *underlying* causes.

There are, of course, many gaps and anomalies, still present in such attempts, but they were always subsumed within the usual detailed measurements, which were always available by imposing extensive restrictions and rigid controls upon all investigated situations, which appeared to reveal particular causal factors clearly and certainly worked every time. And, these investigations were seen as the sound and reliable methods of revealing individual Natural Laws - that were, in the complexities of Reality-as-is, effectively-hidden away within combinations of many different, yet simultaneous, Laws which gave the masking combined effects only.

Now, apart from the belief that limited-and-rigidly-controlled experiments delivered all of the contributing Laws correctly, some of the still hidden effects' actual results, were indeed available quantitatively, if not

explained qualitatively. So, the numerical results appeared to be available without the need for Explanation! And data was used to fill explanatory gaps.

It was a permanent anomaly, imposing an unsatisfactory Duality upon the universally accepted methods, within what had emerged as "The Sciences". It most certainly did NOT gell very well with the Philosophers, but NO evident solution was then known.

And then, early in the 20th century, the physicists Henri Poincare and Ernst Mach, suggested a solution! They were Positivists, who considered that these Laws, derived directly from measured data, should validly be given Equal Status as other Scientific Laws, along with those that could also *explain* why they were legitimately applied: and they called their "correction" Empirio Criticism, assuming that, with such an acceptance Theory could then develop apace, and missing explanations would ultimately follow, based upon those enabled developments.

To begin with, their suggestion was rejected, but in one way their assertion that future Developments would be possible, that would enable a by-passing of the difficulties, actually appeared to be the case - BUT not legitimately! For, the allowing of results-without-explanations did, indeed, finally open the door to premises that thus far had been rejected as Pure Invention. It delivered The Revolutionary changes, based wholly upon the Empirio Criticists Approach, which were Einstein's Relativity and Quantum Theory.

Now, the reasons that this significant change took place, were situated two and a half millennia earlier within the Greek Intellectual Revolution: for, the most important achievement, which even then had allowed the general defeat of the Holist alternative, and the Worldwide victory of the Pluralist Stance, first developed within that Revolution, delivering the very first Coherent, Concise and Comprehensive Rationality, thereby enabling the powerful establishment of mathematical reasoning to be successfully applied to purposely restricted situations, which as long as the defining limitations were maintained, allowed a very substantial range of numeric reasoning to be achieved.

Nothing similar has been available to the Holist followers of The Buddha, ever since, and in spite of the fact that it is far more comprehensive in range, its lack of an applicable Rationality undermined it unavoidably within that stage in the Development of Mankind.

However, the increasingly evident nexus of such long-persisting errors, both of analysis, and of attempted corrections, only mean that Mankind is mistakenly merely developing The Consequent Overall System's own built-in and limited understanding of our actually total needs, and doing it not only by particularly addressing them badly, but actually-and-irretrievably - by addressing the real-but-as-yet-unknown-to-us actual determinators of the many other developments, largely because such means and their full set of effects were, and still are, the real unknown causes in our all-enclosing and interacting World.

For, real understanding of the real nexus of causes, has long been wrongly replaced by those involving a whole series of wholly seperated alternatives, that, though they can deliver some objectives immediately, at the very same time, also encourage multiple other forces, that are often totally uncondusive to the needs of Mankind, and which generally accumulate, initially unseen, to ultimately impose what most must be considered as entirely supporting of a multiplicity of strongly downwards-spiralling active factors, which, as a whole, make our desired and helpful situations less-and-less likely, until they amalgamate into a mutually encouraging, yet wholly negative overall resulting avalanche of (for us) severely damaging complexity!

It increasingly appears, that whatever we do, will only make things worse... In fact, the vitally important, and

generally ignored, containing Systems Network, instead of its required role, is merely becoming embedded within a complexity of wholly bad, and still Pluralist outcomes, so that efforts to terminate any particular one, continues to undermine literally all our most desired requirements!

Let us therefore attempt to find NO such marginal solutions: and start by seperately addressing the necessary additional features and possible factors within possible attempts at a solution, before finally attempting an integration of them all!

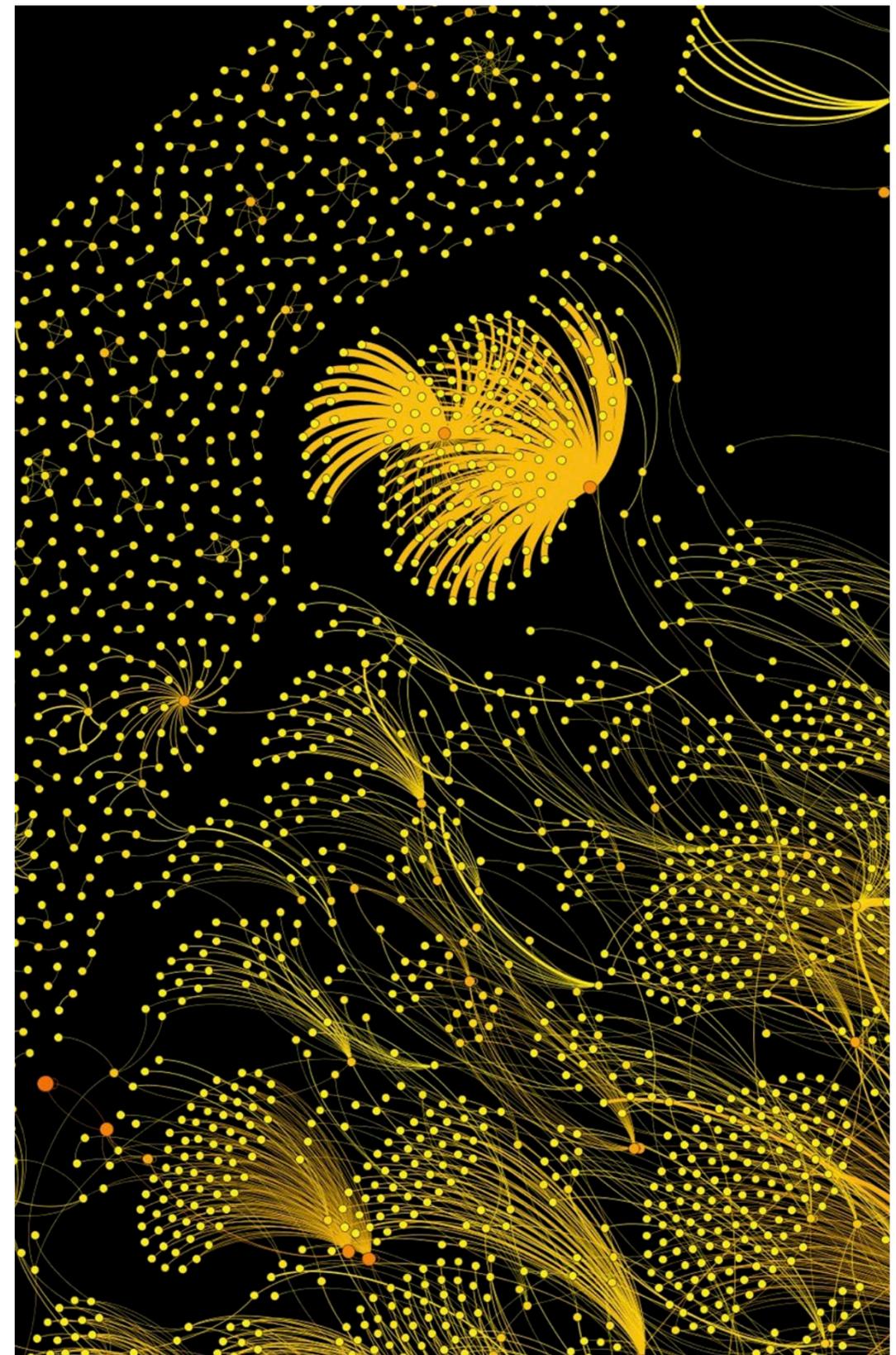
The initial place to start is typified by the standard "If / Then Clause" in Computer Programming. This is a good analogy taken from Computer Systems, and as I was a Programmer for 36 years, producing tailor-made Software and Computer Simulation, to aid Researchers across the whole range of Disciplines - it is easy for me to see the vital role this plays. For such Programming, not only includes the usual Qualitative Laws relating properties, but also the entirely empirically-derived quantitative relations extracted from experiments, without any Causal Explanations being available.

Now the reasons for these very different inclusions is that their explanations are unavailable within the context investigated: they could only be explained elsewhere - in an as yet uninvestigated Level! The *results* are available at the Level being studied or modelled, but NOT the causes!

Clearly these constitute one of the required explanations that are currently not available to us as Scientists! So, we begin to see at least one source as crucial, yet hidden from us! More will appear, and demonstrate just how inadequate are our sources, and hence at least some other consequences, as yet unknown! And, of course this reveals one of the damaging inadequacies of the Universally applied Pluralist Method.

Now, slowly other influences are becoming revealed by The Systems Approach - particularly due NOT to the interactions of the properties of substances, BUT the effects of the *Contexts* in which they ALSO unavoidably act! Elsewhere this and other researchers are increasingly revealing whole catalogues of Causal Factors NOT delivered by the usual properties!

Now, this increasingly desperate situation has been guaranteed by our own mistaken approach to, and



restricted addressing of, the World as it really is, by concluding that all the World's defining processes are wholly separable from their actual Real-and-Contributing Intrinsic Contexts, and thereby, made clearly both available and useable, each within its own separated-out, and definitely man-made, and maintainable Context!

Our method of analysis (which we can trace back to the Ancient Greeks) is certainly Pluralistic, whereas that applied about the same time in India, by The Buddha - considering all factors in their natural fullest possible settings, is termed Holistic (yet, even in the forms he was able to recognise, adding anything more would have made things become totally unmanageable to cope with!) But, there was, however, a more easily "manageable alternative", though completely unknown comprehensively until the present time!

With Mankind's then-applied restrictions, the Pluralist Approach, with maintained Contexts, was both highly useable and successful pragmatically! The demand to also understand why things behaved as they did, was at that time not possible nor considered essential!

For Mankind had separated themselves from all other animals by beginning to consider and then change things within their environment, to their advantage! That was certainly the number one priority for most of Human history.

Rather than attempting to first understand, and then, where possible, change things for the better, Mankind set their sight to more achievable objectives, considering those more profound changes to be "in the hands of The Gods"!

Yet it was remarkable just how many things were nevertheless within their achieveability. Long before any of it could be *Explained*, Mankind had learned to control much of their World. Pragmatic and experiment certainly lead to many ways forwards, without any revolution in Thinking and Understanding.

But by 2,500 years ago things were changing, and the two different approaches of the Greeks and the Buddhists in Asia, began to consider alternative approaches to Understanding Reality. The Greek approach was to "hold things still", which they had learned from the artisans: while the Buddhist based their approach upon a concentration upon the Mind and Living Things,

and their remarkable developments! Clearly since that Ancient time the Greek Approach triumphed, but only because Mankind was not yet equipped to profoundly develop the Holistic Approach.

In retrospect, the remarkable lack of development in the ideas of the Greeks seems perplexing: BUT, it was unavoidable following the remarkable development of what later became known as Mathematical Rationality, as a basis for all developments - initially in Mathematics, but soon thereafter as a universal Basis for all Reasoning - usually termed Logic! It was a remarkable achievement, only made possible by the conception I term Formal Relational Abstractions, which for the first time enabled relations to be made solely between Processes: and thereby made Systems of relations of that kind to be developed into the very first Concise, Complete and Comprehensive Logic of Mathematical relations to deliver a limited yet powerful System to be provided.

It was Revolutionary (if limited) and was quickly extended illegitimately, to be used in all other Reasoning. The remarkable features were that it enabled possibilities to be worked in Thinking alone: a wholly new means of solving problems had been invented! For before such reasoning, all outcomes had to be experienced in the Real World: but here was a cerebral Short-Cut!

Thinking gradually replaced physical investigations, but based solely upon a Rationality that should legitimately be limited to Mathematics alone.

But, when coupled with the now universally established technique of severely restricted and strongly maintained situations of Production and investigative Experiments, it seemed to provide a rock solid approach to understanding our entire World! And though it certainly didn't do that, it did provide workable methodological means, along with a reliable System of Reasoning that would dominate Human achievements for well over two millennia.

But, there resides in this development, a great deal more than those revolutionary gains. For, it also showed how useful errors would thereafter further Development for vast periods of time.

A hint of the next important step, was also hidden within this change! There were clues, within the new Theories, which signalled not all was well: for it was indicated within the ever-present series of outright anomalies,

as well as other elements, also playing essential roles, without any possible associated Explanations. Something was clearly amiss!

But while some features could be addressed: others most certainly could not! Indeed, way-back in History, the Greek Philosopher, Zeno of Elea, had already demonstrated important flaws with the universally accepted Logic associated with Movement: but they were ignored, and quickly forgotten! Indeed, it was well over two thousand years later, before Hegel took on the crucial errors, connected with Opposites, within the usually-accepted methods, and termed his corrections, Dialectics! But, of course, being an Idealist Philosopher, such consequent corrections could never relate his criticisms to flaws when dealing with Reality-as-is, as the only suggestions that he could make were exclusively about Formal Conceptions, and hence corrections to purely cerebral ideas.

So, it was left to Hegel's follower, Karl Marx, to alone attempt to address real consequences of Mankind in changing Societies - BUT necessarily at very different Levels to those considered by the Greeks and handed-down, later, to the increasing following categories of Scientists!

But, descriptive histories were available ever since writing had been developed, as well as concrete left-over evidence from the distant past of much older Means of Life.

Marx attempted to sequence-and-describe these clearly differing Interludes. AND, remarkably, the sudden changeover periods in History, which he called Revolutions! Now, the easiest of these to discern were the most recent, but nevertheless even these were difficult to explain!

It was, however clear that they were NOT radical ways forward, emanating from out of the ideas of Man. NO, they were initially totally out of the reach of Man to resolve!

They were Threatening Calamities, initially totally outside of Man's ability to respond, and at first called into question Mankind's continuing survival!

And, at first, the overall population of Man rapidly shrank, and promised extinction. Much later researchers revealed the Ancient Climate Change that led to the

colossal shrinking of the widespread jungles forcing our tree-living ancestors to have to attempt to survive on the vastly expanding plains: it was, of course, an existential threat, and NOT an obvious conscious step forwards!

Indeed early man with climbing hands upon both arms and legs, equipped by moving about the branches of the forest, was hopelessly ill-equipped for the plains, and could see NO solution. Indeed, there was NONE he could devise: and in the end Natural Selection over truly vast periods of time produced a Bipedal, swift-moving version, variously equipped with fire and crude weapons to survive both defensively and for hunting.

Marx had recognised Revolutions happening to Mankind much later, but had still seen them as involving initially a threatening Calamity, so though he wasn't able to describe the Trajectory of such an event in detail, he already knew its real nature and did not see it as merely a positive opportunity!

And frankly the actual dynamics of such Events were not discernable then, though they are now!!

But Marx made an excellent job of dealing with Revolutions in the Modern era, and was the first to identify Crises precipitated within Societies, and his analyses on the basis of Economic Classes was the best we have, once he applied himself not only historically but also currently, as various Political Crises emerged!

Now Revolutions are possible generally within present Societies, because threatening Crises are always emerging, but usually and always temporarily overcome via adjustments to the System, which only precipitate other Crises elsewhere.

Indeed absolutely NONE of them are capable of delivering a permanent solution. So the best that they can do is to delay a resolution while building an ever more threatening final resolution, via a dismantling Catastrophe!

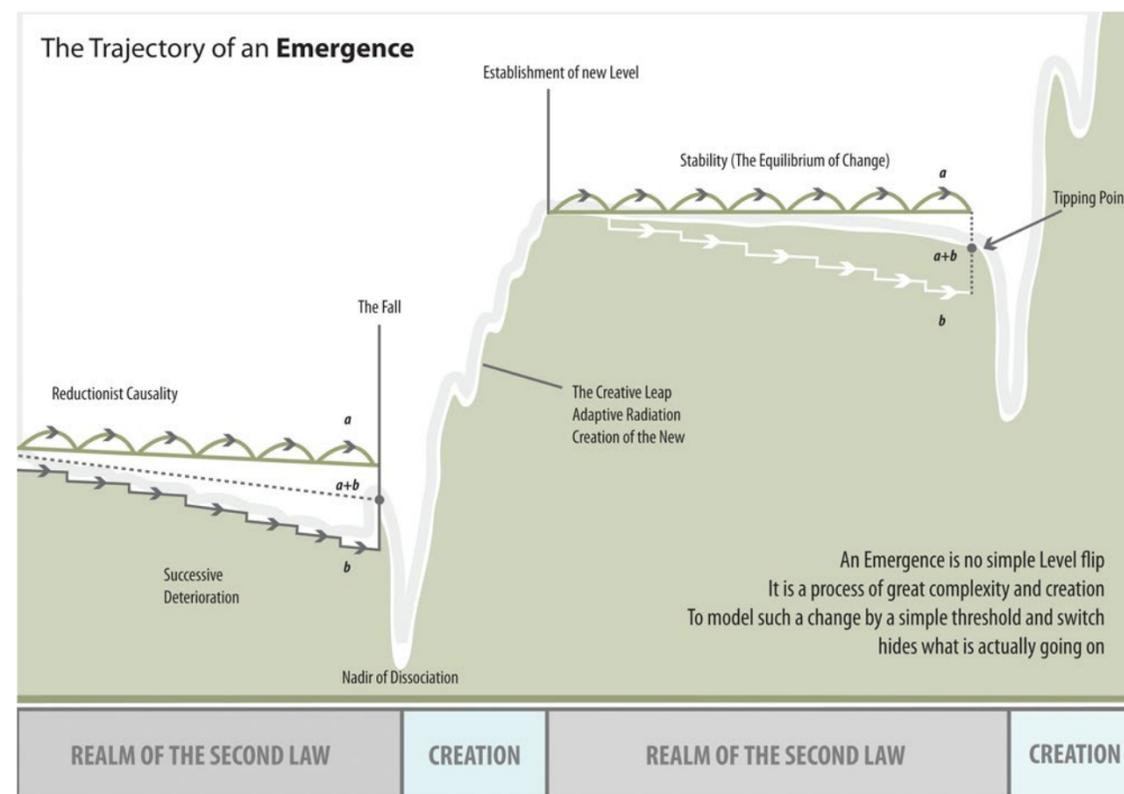
And it is to avoid such a termination that motivates the so-called Revolutionaries to precipitate what they consider to be an ultimately productive series of re-transformations, directed towards a much better resolution for the people!

But such an objective CAN NEVER be conceived of in advance!

And this is because the Emergence of The Wholly New, is congenitally impossible to predict.

So to equip participants to nevertheless find an ultimate solution, it will have to be by adequately dealing with the consequent series of unavoidable crises - which will only be possible by an understanding of exactly how these are resolved naturally, by Reality itself, to produce the way out.

So, surely, understanding that has to be the necessary objective of all so-called Revolutionaries?



So, has suggested in Part I of this essay, extended here, the crucial major task now required has to be the establishment of a real understanding of Reality's own arrived-at method of effectively dealing with an ongoing, Cataclysmic Dissociation of a clearly long-standing, apparently-permanent Stability, and its remarkable seemingly-mechanistic way of finding a wholly new-yet-natural Overall Balance of directly-opposed Contentions: yet, to actually achieve it with imposed requirements to serve the current needs of Mankind.

It seems likely that the completed process undertaken by Reality-as-is, would always be different, in different contexts, and only very slowly finally arrive at an "Everything-taken-into-Account result": but, Mankind, always changing things to the benefit of a developing Mankind, would also seek something better than Reality's own clearly undirected mechanisms, as well as at a considerably faster pace!

Now, Reality's technique will not have a Plan: it will, most certainly rest solely upon a Relationship of Contending Processes within a Natural System, which without any kind of conscious decision-making, would stay with purely natural balances - as effective inhibitors of change, so that overall results would, at any stage, depend upon what was available!

Relations of Change would never deliver any kind of Stability: but Contending Pairs could wholly naturally produce a lasting balance.

The diagram on the left, was developed by the author of this essay (a long time ago), when considering the Trajectory of a Social Revolution (after Marx). It does arrive at an accurate description of the long-persisting interludes of Stability, occurring between Emergent Events, via a mechanism he terms an Actively Maintained Stability, based upon an ever-changing collections of Multiple Balancing Contentions, which though they temporarily are composed of Individual Pairs, diverted from an exact Balance, were, nevertheless, always brought-back into line by changes elsewhere in the conflux, that overall incessantly returned the System to Overall Balance!

The actual ultimate Total Collapse of the System is caused by the very same kind of divergences - BUT now, many-at-the-same-time causing an wholesale avalanche of imbalances, finally resulting in a complete dissolution of the Overall Balance!

But that decline is once again NOT direct and immediate! Indeed, as series of dissociations each precipitated by the previous one, are, as usual, opposed by adjustments elsewhere, that terminate that particular Crisis! But others, which successively bigger follow, until the final Overall Collapse is achieved in what I call The Nadir of Dissociation!

Thereafter, a surprisingly contrasting Sequence is initiated, which probably replicates the very same stages as occurred in the original achievement of the prior Established-and-Maintained Balanced Stability! But, instead, displaying a complete Inverse of that Set of Dissolution Crises, with its series of ever larger, yet failed sets of stabilised processes, ending in a totalled terminating Dissolution: BUT this time with a similar but reversed set of diminishing Crises, BUT, this time resulting in the Establishment of a Wholly New Balanced Overall Stability!

And this new Stable System will once again become an Actively Maintained Balance - which though constandy undergoing a succession of Crises, they always succeed in overcoming each of them in turn, in the usual indirect way!

However, I must temporarily address things again from the beginning, in order to very carefully avoid the usual pitfalls, which have misdirected Mankind in this precise areas for over two millennia! For without such an essential re-direction, I found myself wandering into making the same sorts of mistakes, and consequently once again failing to address the problems in the absolutely necessary New Way!

For the old well-trodden paths all still redirect us into misleading subsets within Reality-as-is, where the Logic is easy and consistent, BUT ultimately wrong! You can see why it was so difficult to break from the Old Ways!

Indeed, that is why The Sciences developed as they did - always within their own Restricted Subsets that deliver a curtailed, but consistent-and-dependable area, as long as its strict Limits are not overstepped! But, these restrictions, though perfectly useable in successful Production, could only deliver different limited Subsets in each specialist area: they gave Separate, Pluralist Sciences, whereas for a Unity across-them-all, and Consequent Valid Explanations of the Way Things Are, the Completely Holist Approach will be absolutely essential!

Now, for well-over two millennia, Mankind was seduced into taking the Pluralist path due to the Logical consistency implicit in such a restricted approach. But, it did NOT stop the unavoidable appearances of anomalies clearly inconsistent with the assumed nature delivered by that approach. And, these were added back-in due to incontestible evidence that they worked - YET they were NEVER explicable as were the Laws based upon Formulae relating the Properties of Atoms and Molecules. They were quite different Empirical Laws ONLY. And NO Explanations were possible!

So, it was this Anomaly that categorised the complete inadequacy of such an approach. It just wasn't the Full Truth! And, what was missing would never be found within those Pluralist Formulae - based solely upon the Properties of Atoms or Molecules! For, if these new elements are caused: it must be by other features of Reality-as-is, termed The Systems Effects!

And such, so-far-unrecognised Effects, not only occur in the simplest cases covered by their additions to Causality: BUT also frequently, though at a multiplicity of Different Levels, also stretch well upwards, beyond planet Earth, and also downwards below the scale of Properties of Atoms and Molecules!

Now, it is evident that many of the usual Laws revealed as existing around all reachable Levels by Humankind, will also involve many that are currently well-beyond the scope of Mankind to actually detect, or alternatively are simply beyond the usually experienced ranges, wherein Man can effectively control situations in order to investigate them.

This, coupled with the properties instituted within Complete Pluralist Subsets, gives the appearance of being a complete, and hence sufficient account - and has, as established earlier in this account, led to millennia of incorrect conceptions of Causality, and has required wholly empirical, and hence unexplained "Laws" to bridge all the unacknowledged Gaps!

Let us therefore begin to investigate these anomalies, by doing Two Important Transformations to our current ethos!

First, we must cease attributing the properties of the involved individual Atoms and Molecules, as solely determining the overall properties of the extended

amounts of the substances involved! This reductionism blinds us to any potential Systems Effects.

And Second, being aware of that fact, we simply must consider multiple identical processes, all happening simultaneously, but at *unsynchronised* times - and also involving *prior* processes that led to their presence, as well as others that could also require the products produced.

Indeed, rather than the artificial concentration upon the single process we see in Pluralist Science, we should position them within a CHAIN, or even a CYCLE, composed of a whole series of individual-and-different processes, ALSO suffering the same simultaneous situations, yet NOT synchronised with one another - and hence the universally imposed severely limited Contexts and severely restricted range of variations used on both studies and experiments is nowhere near Reality-as-is, and consequently does NOT behave as Reality-as-is!

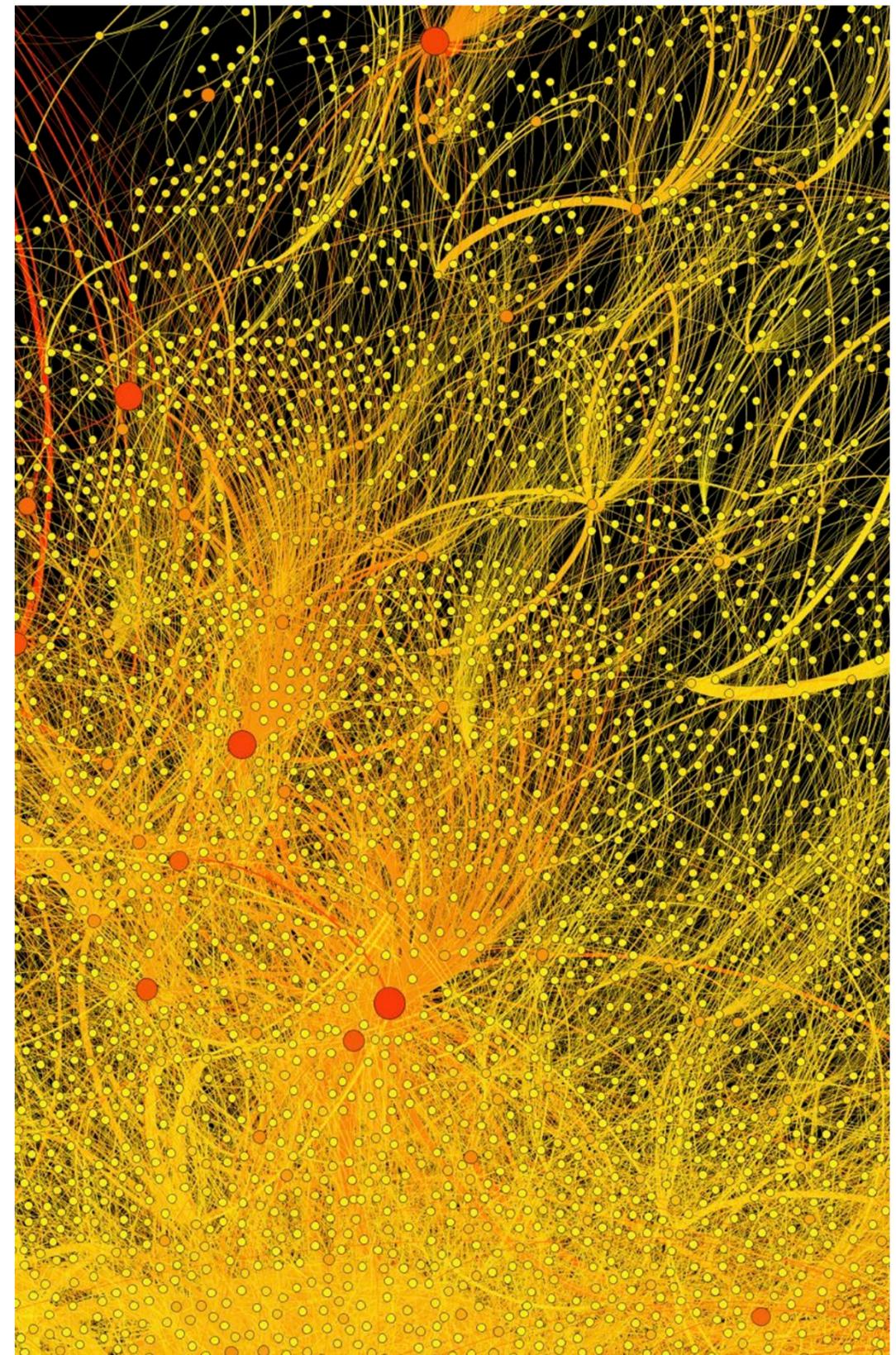
It is instead a purposely restricted artificial environment, purposely excluding any actual possibilities of Reality-as-is acting - AND, instead, delivers a tightly controlled situation with a single predictable Function.

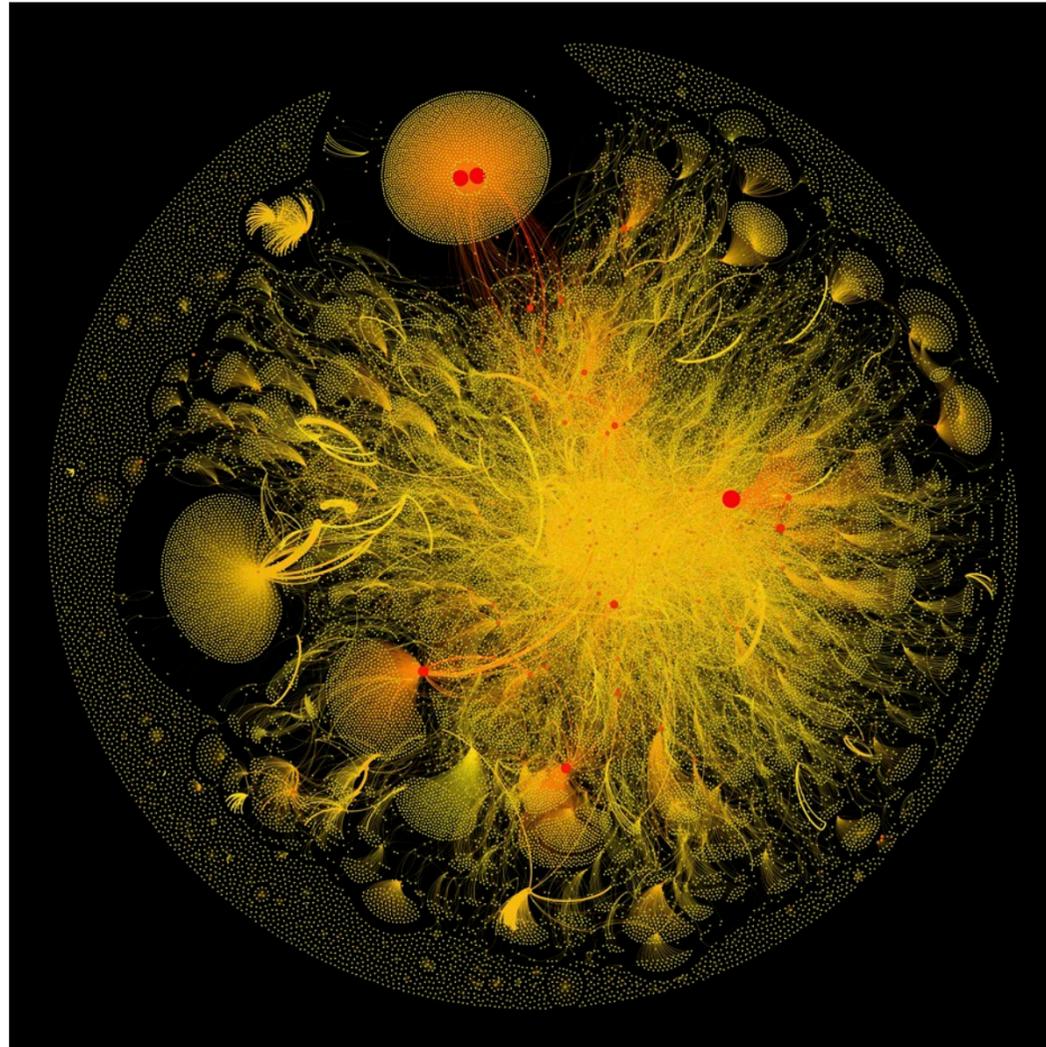
The idea was of course to isolate a single causal process, which could then merely be added together to give us Reality-as-is! But the trouble is that it certainly didn't do that! It effectively imposed a Pluralist Limitation upon all Natural Laws, and thus omitted the various Different Causal Effects. It didn't expose Reality-as-is, but, instead, revealed exactly how a certain limited and assumed-to-be-required process could be carried out away from a Real Context.

It was a method that was ideal for effective Production, BUT useless for revealing the true Causality within Reality-as-is!

It was Useful but it Explained Nothing!

Now, for this to be the case, it certainly requires an explanation in itself! It arose very early in Mankind's intellectual development, when they were just beginning to attempt to *use* what they found to some useful purpose! They didn't, at that stage want to explain anything as such: they only required to use them to "do-a-job" - the imperatives were solely pragmatic! But that doesn't explain why only a subset of Reality-as-is delivers a coherent set of actions, delivering what was





required! And, that was still a long way off at that time! But, with the modern realisations, concerned with The New Systems Approach, it became ever more obvious, that Causality within Reality-as-is actually appeared to Mankind in Seperate Levels, which while still clearly dominant over any others, would indeed each provide a coherent-and-consistent subset of Natural Laws, which, even taken alone, afforded a real if insufficient step towards effective use!

And the reason this was the case, was that the different Causalities of the Levels were due to very different Agents: and the initially discovered Level delivered a Causality based solely upon the Properties of different substances within their characterising Units - such as Atoms and Molecules!

NOTE: Also that the whole situation most certainly Evolved, so the different causalities would emerge at different times with a sequence of Developments!

Along with the Natural Evolution of Reality-as-is, these, after the Advent of Man (a sentient Being) were also to be discerned by them, was they gradually began to understand more-and-more, about the Nature of Reality, but, that also took time, so their earliest explanations - based upon the properties of the most basic units of Reality, seemed wholly mutually consistent, and for a very long period, But, eventually, more-and-more Purely Empirical Evidence accrued from their tightly controlled Experiments which gradually added Wholly New Laws, that could also NEVER be explained, merely by the properties of Atoms and Molecules.

The Systems Approach alone would ultimately be necessary to explain these features: and until that finally became possible, these Laws would remain Completely Unexplained!

Indeed , when they did first appear, there was no possible way of explaining them available. And Poincare and Mach were certain that they should indeed be given Equal Weight to the fully explained contributions, even without any kind of rationale.

The state of Modern Physics is entirely down to this original decision - paving the way for a discipline almost entirely dominated by Mathematics, high-level Abstraction and rampant Idealism.

Still without Causal Explanations, these kind of additional Laws proliferated, but were, and still are, totally Unexplained!

But if there are Causes, Explanations must exist!

And, the Non-Valid Explanations, then served-up by Physicists were NOT causal! And, something like those appearing via the Systems Approach must be where they are!

They MUST originate in *Another Level* - one that is so far completely undiscovered!

NOTE: *Substrate Theory*, by this author, attempts to explain inexplicable Quantum behaviour using such a hidden Level - the System Level above known Quantum particles eliciting various Top-Down Effects.

Having extended things upwards to a New Systems Level, which imports other Causalities, this time totally unrelated to the usually exclusive recourse to the Properties of Atoms and Molecules, it now seems appropriate to consider a downwards extension into current very little-known Sub Atomic Levels!

Now the areas of Relativity and Quantum Theory seem to be ideal candidates for such a downwards extension of Causality - as such switches in Level often invert the Dominances involved: and what were short ranged Electrical and Magnetic Effects might well here become the Dominant directors, especially as Gravitation gets its dominance by the local concentrations of Matter, while tiny and easily moving Charged Particles, could indeed switch that dominance around in so-called Empty Space!

The Electric Universe Group, are led by "Engineers" like Wal Thornhill, who are never well enough-equipped theoretically, being essentially pragmatists, and too wedded to Mathematical Rationality to ever abandon their Pluralist Equations! But the best of them, particularly those Scandanavians, concerned with the Northern Lights and phenomena such as Birkeland Currents, who have revealed vital Electromagnetic Structures of complexity, with Charge as an alternative Basis, do at least seem to be looking in the right places!

BUT, will be forever prevented from constructing a New Level, while still manacled to their sacred prejudices!

But also, of course after many millennia of Earth-bound research and Methodology, and without Experimental set up (totally without adjusting Scientists), it is difficult to see how real progress will be made!

We seem to be “locked-out” of the necessary Lab, and with Crises and Struggle between opposing forces dominating things on the Planet, NO likely turn to conquering the Cosmos seems to be remotely likely!

#### CONTENTION

Clearly, the implicit Contentions and Co-operations possible within Electromagnetism, with both opposing Charges and Magnetic Effects, certainly echo those also afforded by Gravity and Movement, and the clearly variable Dominances between-these alternatives, delivered by Scale, which seem to make these features come in-and-out of Dominance, at the variously Development-produced Changes, over time: that certainly seems to demand a closer study.

For, there seems nothing occurring below these alternatives, actually causing such Changes, even though it is dichotomous. And, has the surprising Effect of producing a Magnetism, which then has an immediate Effect upon giving the direction of Motion of any interloping Charged Particle - though it itself was actually caused by just such a moving Charge!

So, Higher Level transformations of Dominaoce, as well as Co-operation, could carry through the various Levels, always related to these same effects.

And anomalies like Currents without an evident completing Cycle, or other means of terminations, clearly pose problems demanding solutions - as yet unavailable!

Clearly, Action at a Distance, when considered within Space, will always mislead us: just as they have in all other situations that have been attempted to be addressed without sufficient access to deal with everything significantly involved! This being the case, it seems unavoidable that an extensive research undertaking, at various very different locations in Space, will be necessary to determinedly address the above queations, to reveal what different circumstances could be achieved to enable sound questions to begin to be addressed.

But, of course, both my and your chances of getting such expensive access seems to say the least very unlikely.

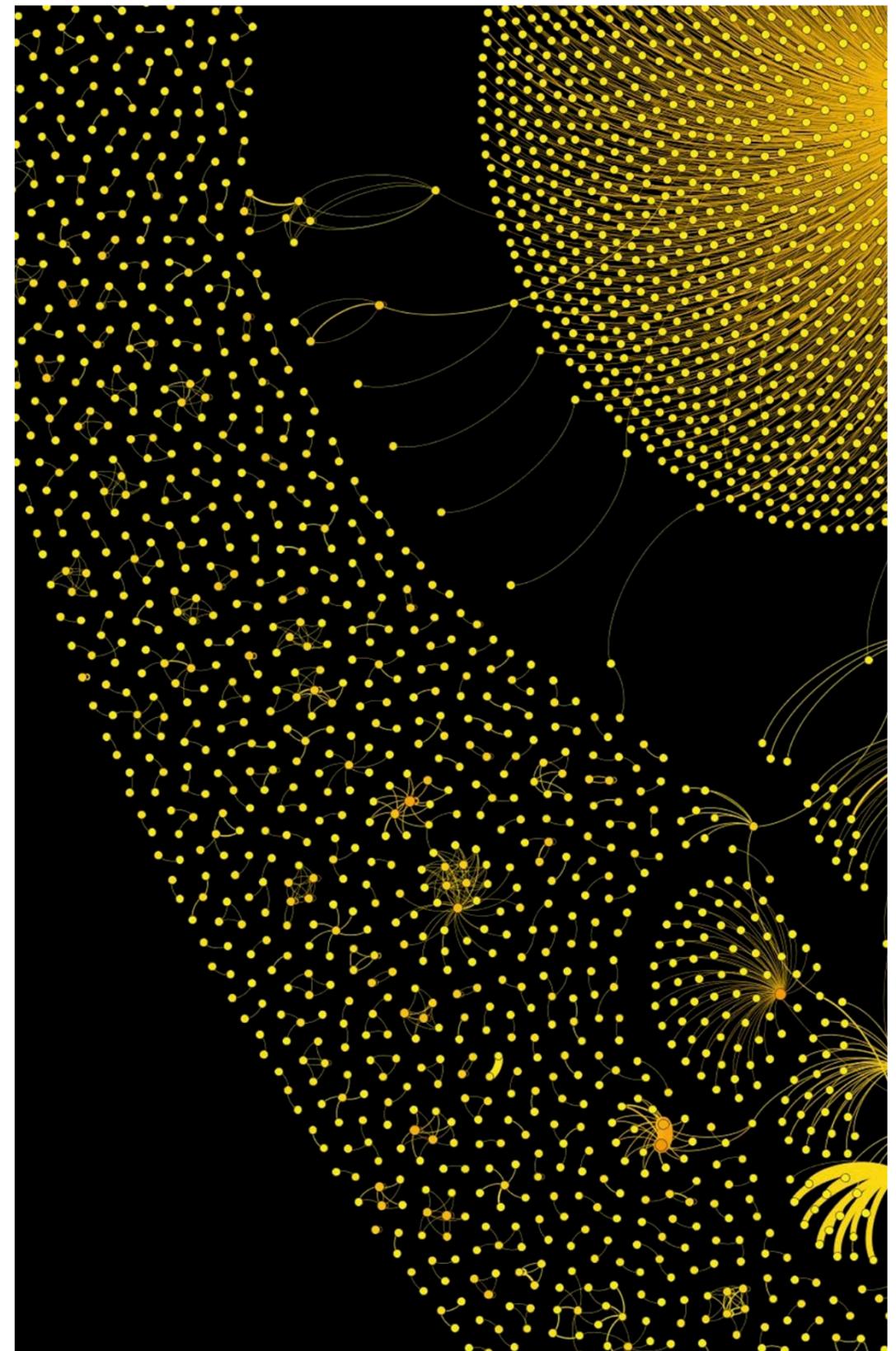
For, the chances of doing research that might rubbish most current privileged access, will certainly NOT be applauded!

This Social Level in Science is seldom acknowledged either.

So, the task must be, to get access via already existing outposts, by current researchers with adequate access, to run carefully designed programs to begin asking the relevant questions, over a timed period in the six mutually perpendicular directions, and over a long enough period to reflect the significant period covered.

But, in addition further studies upon various different Levels must also be addressed, to settle many of the anomalies currently brought into Law without Explanation.

And many of these will indeed be achievable on Earth, after sufficient appropriate research and the maintaining of appropriate conditions!





## Natural Active Stabilities

### The Drivers & Maintainers OF CHANGE

The countless Stabilities, both in our World and in the Cosmos in general, are what makes it all seem pretty settled and predictable: but that is, of course, definitely NOT the whole story! For, there is ample evidence that Natural Development Processes are indeed always possible, and these can, and indeed do, threaten what seem to be reliable conditions and laws.

But, of course, the conditions for an Overall Collapse, involving absolutely *Everything*, even taking into account, any worst-case-scenarios, in ALL the participating constituent Levels, will never occur in any future period conceived by either the writer or the readers of this Discussion! Yet, answering the questions upon a much more local-and-initially-relevant set of Levels, to those involved, IS, indeed, even now, both relevant and possible.

So that is what we must attempt to do!

We will start where Karl Marx finished, in his dialectical studies of Human History on Earth!

For, that is already well-onto that precise path: NOT, I must emphasize a full approach yet, but an original and important denouement: though, certainly, already having investigated several significant Collapses - not, I must emphasize, causing anything like a final Collapse - but certainly involving whole, if limited, cascades of failures, but every time leading inevitably to a New Stability, each time having swept away the Old System, gradually, after a sudden swoop downwards, then embarking upon a Wholly New Climb, to new and better Stabilities.

The name we gave these overturns was always Revolution: and these most certainly give us a beginning model for such mostly single-Level Events.

So, by far the most important question posed by these situations, has to be, "What is the Dynamic of these Developments, and when, and at what Levels do they flip catastrophically into major, indeed General Changes?"

And, they also pose the most important questions about -

- 1: How Active Stabilities are naturally constructed out of diverse co-operating AND contending Systems of Processes!
- 2: How these are the maintained for extremely long periods of time, in an Active Balance, thereby delivering a kind of Stability
- 3: How these can be temporarily undermined in a linked series of System Failures, BUT be overcome to restore a similar-but-different Balance!
- 4: How such sequences of failures, in a Crisis, turn into a General Collapse, in what appears to take things to a Nadir of many Dissociations, apparently terminating that apparent Stability forever!
- 5: How New Balanced Stabilities accumulate to establish a Wholly Stable Level - sometimes Stable enough to persist for millions of years.

Such a Revolution must hold all the major keys to the achievement of all Apparently Ongoing Stabilities, though composed entirely of sub processes that do seem

to be entirely dissociative! What is it, therefore, that COUNTERS this clear tendency? And if it is that stable, WHY does it, at some point, dramatically FAIL?

The answer surely has to be in the diverse nature of the Contentions involved: they will not ALL be in the same Direction!

AND they will be Multifarious, Random & roughly equal in number!

What will change that situation will certainly be a Qualitative Evolutionary Development!

Yet, all such changes will, initially at least, be undetectable, and for several sound reasons.

First, they will be swamped by their scarcity within the overall preponderancies of the, as yet, undeveloped majority of their sources.

Second, they will be actually increasingly limited by other Directly Contending processes. So, none of them will dominate, until particular ones multiply faster than others.

Third, overall, because they involve so many differing and even contending processes, there will be NO overall resulting direction.

Finally, various individual developments will outstrip the others to deliver an overall bias in the System as a whole. But these will still be contained within a majority still effectively balanced contentions.

NOTE:

We must be clear about all these Systems Balances: they are very rarely caused by perfect cancelling by Direct Opposites, being mostly brought about by many different processing only differing in generally contending directions; so they, overall, result in NO final direction!

Now, it should be coming ever-clearer exactly why the usual Formulae used in the Sciences are so misleading! For it is almost exclusively the reactions between the Properties of Individual Atoms and Molecules that appear in the “supposedly-explaining” Formulae. But, this omits All other potential Causal Factors, restricting Causality to only those occurring at that extremely

limited and low Level! There is NO WAY that such will be sufficient in defining Reality-as-is!

As I have stressed before, this reductive and mechanistic method is only really applicable within the ways that things are manufactured! It absolutely never addresses the dynamic complexity of Reality-as-is, as it purposely omits vast numbers of factors and processes that are needed to really Understand what *Nature* is doing!

But, let us be very clear - this is no simple oversight: the Sciences were always a latent threat to the Hegemony of the Capitalist Class: so, the Real Potential of these ways of correctly revealing the Actual Natural Laws of Reality, should NOT also be allowed to bypass a Science of Society itself - as Marx had certainly started to establish!

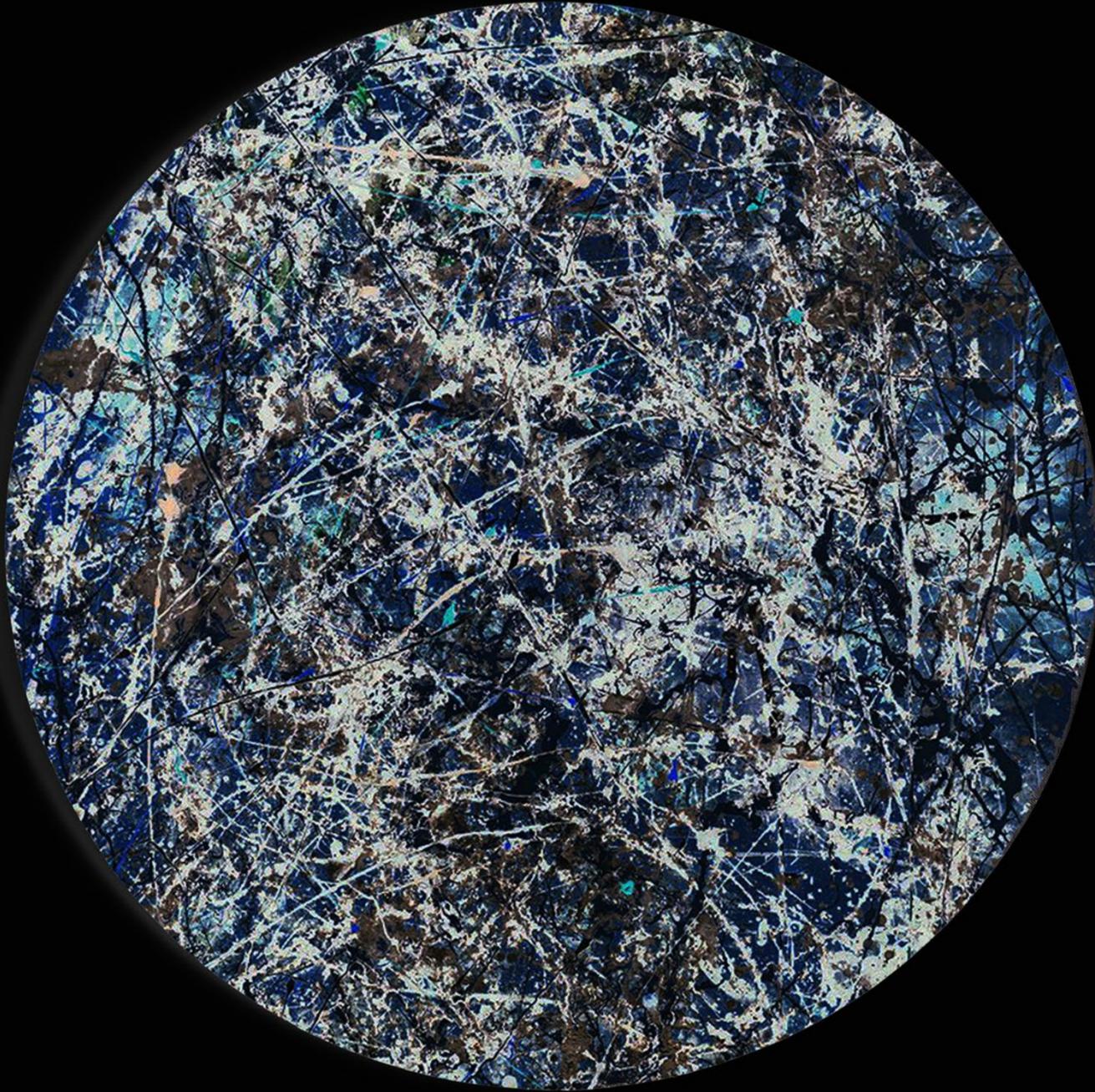
But this radical trajectory certainly couldn't be allowed! The *Social* Stability had to maintain itself too!

Despite having the best Materialist grasp of Change, either Marx, nor any of his followers, ever appropriately addressed The Sciences! Indeed, they have remained encapsulated well within the rigid constraints imposed by the Greek Intellectual Revolution of the 4th Century BC, which instituted a Wholly Pluralist approach to Science, by imposing a strictly Simplifying Mathematical Rationality upon ALL Reasoning, which, though illegitimate, has persisted for well over Two Millennia.

Yet the appropriate direction had been established, by Marx, in his brilliant treatment of the Developments in Societies, via Dialectical Materialism - for if that philosophical approach was extended to all the Sciences, Capitalism would be finished. Tremendous efforts were made to ensure that the necessary continuation of his ideas into the Sciences was prevented.

Interestingly, the then dominant World Power was Britain, with its enormous World-spanning Empire! And, one of its suggestions was the adoption of so called “Chatham House Rules” in Intellectual Public Discussions, where NO attributions as to who said what would be evident in the published contributions, with the “avowed intention” of the various contributions standing or falling “on their own intrinsic merits”, so that observers and readers could come to their own conclusions (it was claimed)!





But, that WAS NOT the usual outcome at all! It depended greatly upon who was invited, and who had the time and resources to attend. And, when this was impossible, the records of the full discussion were never attributed to particular contributors - so who they were, and their prior stances would be unknown.

And, that was not only important to associate opinions with actual actions, both for revealed Enemies AND potential Allies.

It couldn't and never did lead to the appropriate actions! No wonder those Rules emerged within the largest Empire then ever known!

For effective actions to be taken within a Society, you certainly have to know WHO you can trust, and who your Enemies are!

Chatham House Rules prevented that!

Such Discussions merely became harmless Talking Shops!

Now, finally, the elements of an Overall Trajectory of Everything seem to be emerging... though both painfully, and studded with many surprising Developments and Revolutions! Hence rather than attempting to "tack-it-on" to the current essay, I will - as I have slowly learned to do - commence a new chapter, with a much wider remit: finally attempting to glimpse that Overall Direction - though, as always, ready to accept ever further extensions and diversions - it is the Holistic way!

## Time Contexts

The time has come to step out beyond our Earth-Bound Concepts and into the Cosmos!

Well, at least as far as we can, in order to position Absolutely All Developments within their True and Always Re-defining *Time Context*.

For, that too, is Not Fixed: It develops, and does so variously in a Variety of Different Contexts, that we might also see as LEVELS!

But, it isn't a single Trajectory at all! For, though there is always an originating Causality (carried over from a Lower Level), the consequent developments soon far outstrip their simpler Origins, and set off upon wholly New set of produced Contents and Developments., well beyond their original forms. And to confuse the issue still further, for us mere mortals down on Earth - the New Levels can thereafter Causally Affect the very Lower Levels that begat them!

You will appreciate, therefore, that any Strict Bottom Up Causality will be totally unable to deliver Everything appearing Above it! So, NO straight-through Causality of a Single Universal Kind, will be possible.

So, though there will be an ever-complicating History of Development - it will not only be forever-changing, but also ultimately both self-modifying, and then regularly outdistancing its original base, to seem to appear not only "wholly independent", but also always capable of qualitatively affecting its own base!

It this all sounds difficult - you are right!

That is why we haven't bothered to try before. But, it is *Understandable!* Unless, of course, you cannot accept such seemingly contradictory Developments! For, the changes follow one another at *Different Times!*

Consequent developments need time to emerge.

Indeed, a wholly new and necessary stance has to be adopted, to discern and explain things, wherein All Development is found to actually Require Contention - to ever be able to arrive at the Wholly New. And such Emergences absolutely always produce the Unpredictably New.

And, perhaps, frighteningly and surprisingly, a minuscule enclave in the Universe, like Planet Earth, can alone and uniquely outstrip Everywhere Else, in the richness of its Levels - producing: Life, Mankind and Intelligence - there and nowhere else. How can Earth be uniquely (and paradoxically) dynamic enough to see such vast changes, and stable enough to let those changes persist?

It is totally possible that everywhere else a much more basic set of possibilities still predominates!

Sadly, the Sciences of Mankind, which alone could be capable of addressing such big questions, are still stuck with a severely limiting Pluralist mindset, which is largely unacknowledged there.

Indeed, it is interesting, exactly why, in the 5th century BC, the ideas in the West and the East, were so dramatically committed, increasingly, to the Pluralist Stance, established in all the Sciences, by the Greeks, and simultaneously the efforts to be entirely Holist attempted





by Asians following the philosophy of The Buddha!

Clearly it was Production that predominated, initially in the West, via successful Artisans, while the much longer and more developed Agricultures of the Orient, involving Complex Systems of Paddy Fields and other forms of Irrigation, did NOT require the strict restrictions and manipulations of manufacturing Artisans, but, instead, used a much more Natural Approach to farming Reality!

Yet, the East's advantages, were, in the end, not sufficient to outweigh the great advantages of the West's Pluralist Reliabilities in Production, and the Buddha's Limited Holism could NOT be developed beyond its initial advantages!

And, the real chance of a breakthrough, surprisingly occurred in the West, with Karl Marx's Holistic Approach used in explaining History!

For, the extended Holism of Reality-as-is, re-emerged in a much more understandable way, within the explicable development of Human Societies through time: and Marx immediately grasped its significance there, and ran with it to great success!

But, a transfer-over to understanding the very many other activities and Processes of Mankind, for example, those in The Sciences, were never addressed, and the appropriateness of Holism, in tackling the increasingly, mutually-developing drivers, in the rest of Reality, were Never conquered - Until Now!

And though this is now possible, and demonstrated by the best Philosophers, who have converted to the Holist Stance, yet Absolutely NONE of the Sciences have generally made that essential change. And, thereby, successfully implemented Holist Revolutions, have not occurred either, due too the difficulties of dealing with multiple layers of Holistic Changes, which when Wholly New, could never have been predicted in advance: which has meant that the essential developments required within Mankind's Thinking, just haven't occurred: and so all subsequent Thinking is still dominated by the hopelessly inadequate methods of the still Pluralist Scientists!

Now, as was revealed in the initial part of this essay, any Single Bottom-Up Pluralist Set of explanatory ideas, will, therefore, always be far from a complete and adequate

treatment: yet that is all that they can come up with!

Indeed, the old way was to include what are termed Purely Experimentally-based Quantitative Laws (involving absolutely NO Explanatory role whatsoever). But, these have proved to be mere placeholders, for as yet unknown Holistic Laws: so, the correct alternative has been defined as seeking such Laws - NOT only to deliver what was given by the usual rejected means, but also to reveal a great deal more, not even strongly hinted at by the old means, but clearly evidenced only within a Comprehensive Holist Approach.

Just as Marx's Dialectical Materialism had revealed a great deal more about the drivers of History - this switch in Philosophical Stance, will, if applied, Revolutionise the Sciences!

For, The Holist Systems Approach involves a whole series of extra information NOT available within the restrictions imposed by all entirely Pluralist Researches, when the source, or sources, for change are occurring. For example, within a wholly Different Level, either totally unknown or unconsidered by investigators, as being involved.

And that is not all!

The Pluralist Approach uses Formulae considering only the Properties of Single Atoms and Molecules, as sufficient to deliver ALL of what happens in any Real World Situation. It, most certainly, is not true! For, there will be multiple simultaneous reactions all doing the same things, but at very different stages within that process.

And, all sorts of additional Systems Effects between interactions, can qualitatively-effect what occurs, as well as the very dissimilar effects of any other different but simultaneous Reactions also present.

What occurs will indeed be very different from the usually-used Formulae!

And, of course, in Reality-as-is, the individual-reactions, as in the Formulae, will NEVER exist alone: indeed, they will always occur as links in a vast CHAIN, or even a repeating CYCLE of reactions, all linked to one another by an Output-of-one, being also the necessary Input for the following reaction in the series.

And, lastly, in this criticism of Pluralist Laws and their usual context, including the ill-famed “If /Then Clause” within Program descriptions of what is going-on, for this, normally-and-mistakenly gives just two possible outcomes, whereas if the two alternative exactly cancel-out, there will be a third - NO Output, and a consequent termination of series usually fully involved and completed!

Now, very clearly in a totally uncontrolled Reality-as-is, the usual Formulae will NEVER represent what is actually going on, and millenia ago the makers and fixers of Mankind KNEW that to achieve anything, they would have to solve the ever-present problems of Reality-as-is, if they were to be able to achieve a thing.

So they initial worked with things that didn't seem to change! They would be dead (like bits of stone and wood). But as they found other things to use, they had to find ways of avoiding or preventing natural changes: they has to “keep things still” or “unchanging”.

Slowly they developed situations in which they could regularly achieve their intentions. The Pluralist Approach had begun to be successfully developed!

But this was always based on controlling the natural world, rather than understanding it. For to actually understand Reality-as-is, would be necessary - to know WHY things behaved as they did! Hence, so-called “Science” was developed purely pragmatically, as a series of reliably Working Techniques! But, they were entirely practical achievements: any Real Understanding of Reality-as-is, was distorted or missing completely.

Mankind did not realise this, at that time, and, because they could put together the achievements of several of these different successfully-producing situations - they believed that were *building* “A Comprehensive and Meaningful Science”! But, they were actually inventing something new.

They were, instead, merely building wholly Unexplained Technologies! For, every step in the processes involved was in its own distinct arranged-for and drastically simplified Context: they, as a set, had NO unifying commonality! You most certainly could not just “add them together” to deliver Reality-as-is! So, absolutely ALL general conclusions were both wrong and misleading!

But, interestingly, they do have a measure of approximate validity - because what were initially-and-easily discovered, were all at the same Lower Common Level - achieved by ignoring all effects from other, as yet, unrealised, and also, even still not fully-developed Levels, affecting things still very little from without.

Immediarely, the always Evolving-Multi-Level Structure of Reality-as-is, raises its head!

And, of course, this radically-and-ultimately always-changing the Nature of Reality-as-is in the long term, while also regularly limiting immediate changes by ever more-emerging Contending limitations too! The rare Revolutions of major General Turnovers NEVER gradually emerge, but, instead, appear to precipitate out of a Seemingly Ongoing Stability.

The Norm, however, is, indeed, this long-lasting adjusred-for Stability, but Contentions to it, though usually held - will ultimately always cause a Catastrphic Collapse - and a General Re-Organisation of Systems!

And all consequent Laws, over-time, will seem to accumulate added diversions, which will ultimately NEVER be dealt with, in the usual Causal Way: they will, in time, be accomnodated as added-in Empirical Laws - BUT having NO Evident Explanations!

The trouble was, of course, that these Extra Laws proliferated - and most certainly didn't help the development of Theory!

For, though the properties of Atoms and Molecules did really contribute to Theory, making it a Developably Purely Cerebral Process - and, thereby, adding both the speed-and-power of Thinking, as an alternative to Experiment in the development of Theory!

But NOTE: The Emptirical add-ons, gradually transforming these Laws, initially, had NO associated Properties the same as those based entirely upon Atoms and Molecules most certainly did: so, there was a mounting pressure, from the so-called Positivists, to give absolutely equal validity to all of these purely Empirically-Defined Laws too, and though originally universally rejected by most Physicists, supporters then proliferated at such an increasing rate, that, in the end, these were generally accepted as the “Unavoidable Truths”, yet were never able to contribute to an associated, and hence

comprehensive Theory! Indeed, they were so important that they sometimes transformed the Theory - based upon Known Properties into wholly different ones, based upon wholly New Ideas - such as those generally-termed “Quantum Theory”

But, of course, for such to be seen as defining of a great number of phenomena, completely without those once totally-dominant, Causal Explanations: they could only be, not only accommodated, but also given a truly Basic Role, by endowing Reality-as-is with the assumption of significantly varying Properties, OR alternatively finding the real causes for such behaviours. And the Consensus was to choose the Former... And they were WRONG!

They could NEVER explain such results in terms of the Properties of Atoms or Molecules, so they had absolutely NO other possible causes available!

Actual Real Causes began to emerge within The Systems of Processes involved, and these emerge at a wholly New and Higher Level - effectively, and for the first time, involving Top Down Causalities from a Higher Level!

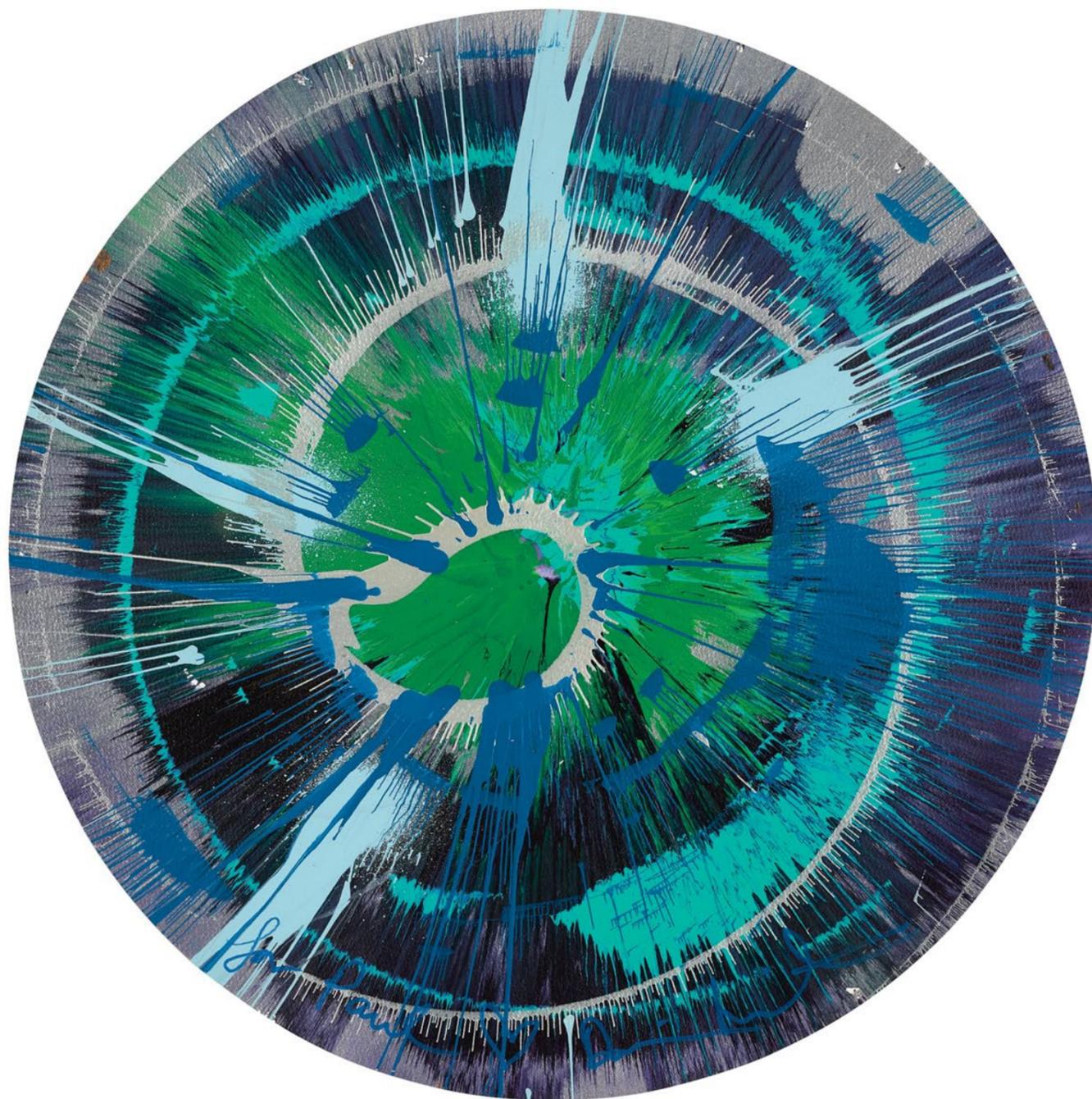
And, this actually required a wholly different set of assumptions, which, so far, had never been considered: AND never would be with the usual assumptions! WHY? It was because no-one could see where they originated from!

In fact, they actually originated from productions BELOW, but initially had literally NO Effect: but, as they grew in significance they produced Higher Level arrangements, that began to have recursive effects upon what had caused them! Causality could become TWO WAY!

And what makes this possible and happen over time? It is, of course, *Evolution*. For, as soon as that is allowed, the Wholly New can both happen and indeed then develop, so that not only the new features can begin to affect their Own Producing Base: BUT can also start to create a system of its own, even involving further and Higher Levels!

Evolution becomes the means by which a generally applicable System of Developments with their own possibly rich complications! It is, of course, how Life emerged, and ultimately Mankind - followed remarkably by Intelligence too.

## Assumed Restricted Scenarios and their consequent Man-Made Laws



The remarkable way that Mankind was able to investigate Reality, and get a sort-of-handle upon one-or-another of the intrinsic Relations involved, was itself a unique Emergence in Reality.

But, human beings also very soon realised that Reality-as-is was actually multifarious, and did not always present the same circumstances, and hence inter-relationships, to Mankind in all situations! So, they, therefore, attempted, where they could, to strictly limit those circumstances sufficiently, to get both consistent-and-reliable conditions, and hence find only unchanging-relations within them. And there, they would always clearly work-effectively, within those steadfastly limited-and-maintained circumstances: but, outside of those constructions, they would be joined by many other very different relations, which would significantly vary what could happen.

So, to reveal any particular one of these, a switch to isolate things to access another individual relation would be necessary! From the outset, therefore, it was mistakenly believed that the known Law always stayed exactly-the-same, and was "merely-added-to" by others - when present! It might even be possible to find another relation by appropriately limiting the circumstances with that relation solely in mind.

The background assumption was that the individually-revealed relations simply-added-together, to give an overall-joint-effect, without in-any-way qualitatively affecting one another!

Now, that assumption was incorrect! And for a series of different reasons.

First, the arrived at Formulae are based upon the assumption that the properties of the absolute minimum Defining Set of Atom's or Molecule's properties, which are involved will simply grow, without qualitative changes, or even unsynchronised disturbances, to give the exact same results as a single occurrence - even though thousands or even more instances MUST be involved.

While the effects of CHAINS or even CYCLES of multiple different natural processes, which could be interrupted or even transformed are NOT considered.

And yet other SYSTEMS Effects, most definitely NOT included in these Formulae will also not have been considered.

And, finally, the unavoidable, and elsewhere-determined Change of State transformation into one or another of the Solid, Liquid and Gaseous States, caused by Context Changes, again not-allowed-for in the Untouchable Formulae are, therefore, ignored, and these could precipitate other Unexpected Effects.

Looking at it this way it quickly becomes apparent that the whole method is gravely flawed!

Let us consider the most alarming of these: Change of State.

Clearly, a substance whether in atomic or molecular form, will behave very differently depending on whether it is in Solid, Liquid or in Gas state. In addition, different solids will behave in different times, and in different ways, depending in whether they are in solid blocks, or as Powders. While, Liquids are affected by gravity,

so though they could be a shower of falling drops, they could also partially fill a container, presenting only a flat surface having differing Surface Effects.

And even forming a non-interacting Mix, with another Liquid: or alternatively react together to produce something-else with its own different properties.

Finally, in Gaseous forms both inactive mixes and active reactions are possible with wholly new properties!

Then we must address the absolute certainty that no substance within unfettered Reality-as-is ever naturally comes Totally Pure: it will contain other substances!

The whole Method, that is Universally-employed, is only about wholly *unnatural* situations, which are then used to provide entirely what is wrongly-assumed-to-be Universally Valid Characterisations!

The always-applied limitations restrict things to A Single Level, which as-such actually delivers a self-consistent set of relations - BUT only by eliminating all other active causative factors.

And, by doing so, it does deliver some Objective Content (there is certainly some truth to what Scientists find): but certainly NEVER all of it! So, in certain areas it can give an approximate idea of what is going on, but something is always missing.

And, indeed, it is the truly creative, developmental features that are omitted: those actually-always contentious features, that alone lead to natural development, and the emergence of the Wholly New!

And these are never delivered in the reductive properties of Atoms and Molecules, which determine the Properties of the substances involved - for they remain the same!

It is the Causal Relations associated with the higher Systems Level, that alone delivers Development Via Contention, and even those Qualitative Changes associated with something as basic as Changes of State!

So, the Laws we extract with our strictly maintained conditions within Experiments, do NOT deliver Reality-as-is, but, instead, an entirely Man-Made Environment, with its own misleading versions of the required Laws!

It was an achievement, when first conceived-of, and at that time entirely sufficient to its intended purpose - as an adequate basis for crude forms of production and prediction, but useless in developing that aspect in *Thinking*, delivering the Explanations- WHY things behaved as they did in absolutely ALL circumstances! WHY new things evolved! Explanatory Theory of Reality was then impossible!

Now, some kind of Theory had been successfully made possible by the Ancient Greeks, for Mathematics, which by means of a wholly New Kind of Relation between Abstract Forms, within Thinking, actually delivered a Concise, Coherent and Comprehensive System - a Mathematical Rationality!

Now remarkably it fitted very well with the Severely restricted circumstances required for Experiments, as they too delivered the very same limited environments (or very nearly did so!). So, a particularly Major Error was strongly instituted, yet, not only in these obviously Matching Environments - but also by assuming that what had been discovered, was an apparently Completely Generally Applicable Rationality - indeed, A Seemingly Universal Logic!

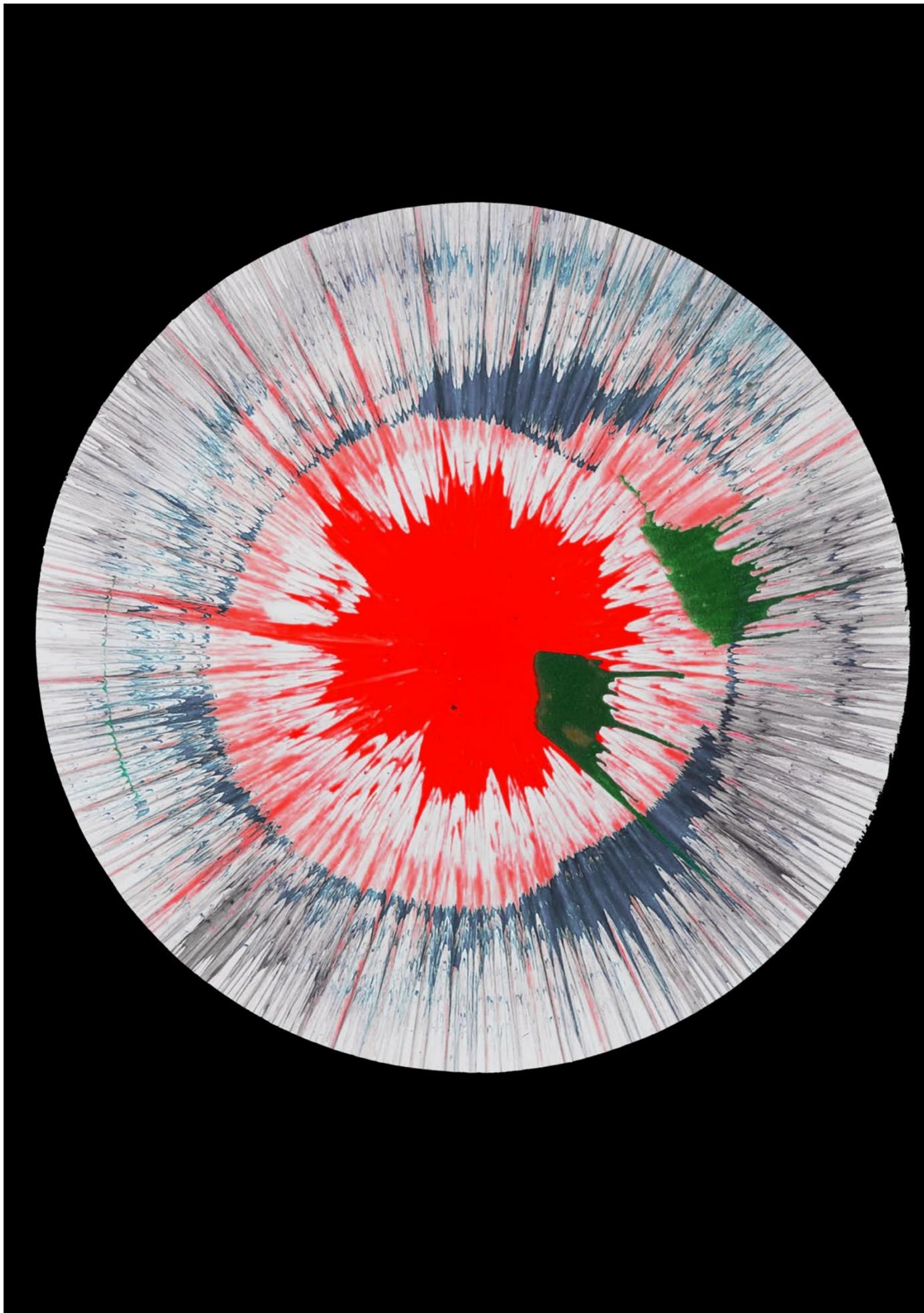
But that, of course, was wholly incorrect - as Mathematics could not deal with the Holistic Material Change, fundamental to the existence of anything!

And, the evident commonalities, involved, both in Mathematics, and in well-established Production-for-Use, actually strongly cemented these mistakes, in place, for well over two thousand years!

Now, the alternative to the above stance, adopted by the Greeks, was the simultaneous, but diametrically-opposite stance, taken by The Buddhists, and others throughout the Orient! For, they took the Entirely Opposite Holist Stance, where literally Everything had the potential to affect absolutely Everything Else! And, this contrasted-markedly with the Pluralist Stance increasingly dominant across Europe.

Yet, we must, necessarily, see both of these developments, as the very First Real Attempts, by a developing Mankind, in its currently arrived-at context, to try to make Some Sort of Sense out of a very complex and confusing Universe.





By 500 BC, Mankind already had a detailed Recorded History: and it was already very clear, from such evidence - that many things had Significantly, and even Qualitatively Changed: and some of these had been Clearly Cataclysmic!

Some sort of Required Explanations were certainly needed: and these Two Different Approaches, were both based upon very different Basic Assumptions! For, whereas the Holists attempted to see the full range of possible factors within Developmental Change - and also in any necessary decisions to be taken in what to do about it - the Pluralists concentrated, instead, and relied upon, the many advances made in *Making Things That Worked*, and thereby KNEW very well, that they achieved nothing in those areas, without steadfast and always maintained Controls.

Of course, the disadvantage of Holism was how very difficult it was to cope with the complexities of Reality-as-is, when taking things just as they really are.

While the Pluralists, with their essential steadfast Controls, could indeed regularly get predictable results - which did not always do what occurred in uncontrolled Reality-as-is, but were enough to build useable things and useable knowledge.

So, the Holist Approach, though philosophically correct, was at that time far too limited to take things very far beyond a merely philosophical approach to daily life: the Pluralist Approach greatly limited their investigations and consequent actions into very narrow Pragmatic Sequences of highly controlled operations only.

Now, surprisingly, that situation endured, unchallenged, for millennia, until in the 19th century when two serious academics demurred - Marx and Lenin.

The first was Karl Marx, who extended the Dialectics of the Idealist Philosopher Hegel, deep into a Materialist Stance: and thereby, began to address Qualitative Changes in History for the very first time!

He just couldn't avoid the Tumultuous Qualitative Changes that evidently totally transformed things with in Revolutions! And these, though rare constituted the unavoidable, major re-directions throughout History.

And, the only way to even describe what occurred, causing him henceforth to seek entirely Holistic Explanations to hopefully also explain such developments.

And, while Marx was still alive there arose a primarily political follower of that philosopher - naturally termed a Marxist, who began to consider the effect of Marx's work on Science, and particularly upon Physics, where two leading physicists, Henri Poincare and Ernst Mach, calling themselves Positivists, Defined a New Approach, which they termed Empirio Criticism, which attempted to end the very long-standing anomaly of both Empirically obtained Laws occurring alongside the original Causal Laws! Their belief was that the Empirical Laws deserved the Same Weight as the Causal Laws: and Lenin knew immediately that they were wrong, and wrote the book *Materialism and Empirio Criticism*, in which he demolished their claim!

But, though entirely philosophically correct, Lenin was NOT a professional physicist, and, therefore, could not demolish them physically too!

But, the writer of this essay certainly is a trained physicist, and has spent his life as a teacher, lecturer and researcher (in the latter period exclusively addressing the questions revealed by a Dialectical Materialist Philosophical Stance), which has led him, in just two years, to an appreciation of the remarkable value of The Systems Approach, in supplying, finally, to many of the Required Causal Explanations for the once purely Empirical Laws in Physics.

So, these last two years have produced in excess of 200 papers, NOT only when applied to Physics, but via the works of Denis Noble, in Biology too.

Indeed, it has taken all this time, to begin to actually Explain many previously purely Empirical Laws, as well as to criticise the inadequacies of many, who profess to be Marxists, who in their Analyses and Actions, have been doing Nothing to either further Human Knowledge or bring about the demise of Capitalism.

For, remarkably, the very same inadequacies, philosophically, turn out to explain BOTH of these failures (despite their seeming divergences!). The reasons lie, in the evident failures to understand the Many Different Levels involved in both the organisation of relations, coupled with the major disparities of scale:

but also, crucially, demanding an approach that attends profoundly to the role of Evolution, not only concerned with Living Things, but also with Absolutely All of Developing Reality-as-is!

Marx had begun the process within his Holistic Analyses of Human History, but, neither he, nor anyone else, tackled any of The Sciences in this way, which to this day have continued to be approached purely pragmatically, using the Pluralist Stance established in antiquity by the Ancient Greeks!

The purpose of this work is to bring such a rigorous Holist method to all study. But while the Realisations of The Systems Approach, have finally begun to reveal the Causes hidden within Other Levels, MOST of these Levels are, at present, still currently well beyond our ability to address them - mostly because we do not yet realise all their importances Cosmologically!

## Levels and Tempos

### Rates of Change & Inter-Level Causalities

The most important thing to both recognise and pursue, when it comes to The Naturally-Existing Levels of Organisation in Reality-as-is, is that they are mostly exceedingly well-hidden, by the surprisingly diverse Tempos that are simultaneously involved, occurring over a truly prodigious Range of Values.

For, sometimes, these are, initially, so slow-to-change, that they are never recognised as continuous-ongoing current progressions: and, therefore, are often just seen as “one-off purely-accidental variations”!

But, this very easily seen, and regularly arrived-at, Mistake, which makes the actually-inevitable consequent switch, to ever more rapid Tempos, almost impossible to recognise, as such: for, when at a very early stage, their ultimate growth, into an ever-increasing Dominance, is, at first, very easily missed or wrongly regarded as a rare and maybe even temporary, unsustainable Interlude - whereas, in fact, they can indeed grow sufficiently to actually dwarf previously totally dominant alternative features, so that they, thereafter, effectively disappear as active contributors.

Such major changes in Scale, present very different scenarios!

NOTE: Such misinterpretations seem to be confirmed, by the prior long interludes of relatively unchanging Tempos, before one Tempo began to change significantly and rapidly! And, these changes, seemingly-from-nowhere, delivered Tempo Changes, that contrasted markedly (and even overwhelmingly) with the usual situations, within what initially seemed to be “permanently-existing” Stabilities.

And, we are, consequently, seduced by the usual, long-existing Stabilities, into seeing *only* them, instead, as the only source of all the “arrived-at norms”. ]

But, of course when they originally started, it would be from a different scenario: the observed Stability was NOT the cause of anything, but, on the contrary, the result of a situation long ago superseded by its then inadequacies.

Indeed, the many Stacks of these older, Apparently-Permanent-Stabilities, are so deep, and, usually, if eventually followed, so that we are, mostly, totally-unaware of the change: and this naturally becomes a truly disabling-error, when Sudden-and-Tumultuous Changes, as in Revolutions, take-over the situation completely!

Tempos, Changes and Causes always demand a much better and actively-revealed Understanding of these crucial features, and their ultimate consequently-caused Resultant Events.

But, the once generally Dominant Stabilities, with their Very Low Tempos of Change, set us up to expect the very same things and Tempos to continue forever: so no Major Tempo Change, when it occurs, is immediately recognised, as most of us will be, as usual, monitoring the previously evident Dominances, and how they are currently behaving.

Now, because of the unexpected very high Tempo Changes, in totally New areas, where things could usually be totally ignored as irrelevant, the current Major Moves in wholly unusual places, will NOT be being picked up

immediarely. Indeed, only seemingly surprising unco-ordinated minor changes will be evident there: so what will be seen are only peripheral effects of the main actions elsewhere.

What is seen is increasingly unanalysable, and can tell us Nothing of consequence: until, that is, the Actual Locations of the tumults are recognised, and the attention is, if somewhat late, finally switched-to where it is actually all happening!

And, because of the vastly-increased-Tempos of those New Changes, many transitions will have been unavoidably-missed: and investigators would NOT know exactly how the New Fast-Changing Situation came about.

The Role of Tempos in these crucial interludes of Change cannot be dtressed too strongly: for these "missed changeovers" were much too quick to be seen, considered and analysed, especially as the attention was always concentrated elsewhere.

So, very fast, dynamic transitions were attempted to be explained via Static Results ONLY"! And, at that historical era, when the Pluralist Approach was established, the true Speeds of Change involved could never have been dealt with! Indeed, these Changes of Pace were (and still ARE) incredible, and turn out to be "at a Snail's Pace" compared with the various norms found as we Increase in Scale - for example in Space!

So that things that were once dominant could effectively be totally ignored when compared with the New, immensely-fast developing Replacement Dominances!

NOTE: These are best illustrated in dealing with Process Cycles within Capitalist Production - where certain particular sub-processes can seemingly be damagingly failing, and thereby threatening to totally undermine the whole System, ONLY to be completely resolved by truly vast contending increases elsewhere in the overall Cycle.

The involved tremendous switches in Tempo, simply must be appreciated, in order to ever explain things in a Universe of truly Cosmic Proportions and Major Qualitative Developments! The everyday normal Tempos of Mankind's existence, only very rarely are matched by such Changes.

The prime Social Example of such accessible Tempos is The Social Revolution - which may be why this is the only area in which this type of Theory is msch developed (by Marx).

But, the truly colossal Tempos within Space-at-large, do NOT allow what happened in this particular locality, and are dominated, usually, by forces such as Gravity - which, therefore, with those dominating Effects, due entirely to the Causing Masses involved, occurring within such large concentrations of Matter! For, these, indeed, rare generally, and obviously fairly recent products of the Cosmos, which is much less of a Backwater than these Matter dominated areas - always necessarily existing at much slower Tempos, to allow such material concentrations to accumulate. And, thereby, differing markedly from the more usual dominance of Colossal Speeds and mammoth Electromagnetic Structures, involving only minimal concentrated Matter - totally dominated by Charge!

AND NOTE: These truly vast volumes of so-called "Empty Space", though clearly lacking in Large amounts of Matter, must, indeed, contain very fast-moving Electric Charges, along with consequent Giant Magnetic fields: yet, such structures must be both amazingly vast, and transmitting effects at prodigious Speeds, in order to produce changes within them! For, local gravitational Forces would be far too weak to do what is observed.

And, the biggest question of all, must be "What could be carrying such a Field?" For, if such effects do so propagate: they need to communicate their real effects across such vast "supposedly-empty spaces"! How do they do it?

By far the biggest problem, is definitely in Space-itself: for it is assumed to be entirely Empty! And, the only thing we know of that can cross such Nothingness, are initially "projected" entities. To have Electromagnetic Waves crossing such Spaces would surely require some sort of Hidden Activatable Substrate, which varies under the impact of the causing Waves, and hence communicates their content - I dealt with this idea in my own Systems Approach to particle physics - *Substrate Theory*.

There is a clue pertaining to literally all such propagations: they ALL obey Inverse Square Laws, which, at least, implies a common passing-on mechanism, even for very different influences.





Nevertheless, the suggestion of merely-moving entities, cannot alone deliver the usual idea of Waves, but maybe a series of such entities variously spaced might well suffice! If this is so, then moving identical entities, transmitting only a stream of individual identical elements at the same, or varying rates might be the adequate communicating mechanism!

But, it must always be remembered that literally all our attempts at understanding Reality-as-is, are always somewhat simplified approximations, and, as such, must NOT be taken as the currently established Truth, until something better is found!

For example, for over two thousand years, in absolutely all of The Sciences, the Established Laws all assume that they reflect all possibilities, which is certainly incorrect! And, the attempts to switch to a more Holistic Approaches, are still far from complete!

Yet, the actual real occurrence of *Levels* - having a usable rationale of their own, which actually also delivers a mostly useable set of relations, that can, and indeed have done so: for, sometimes, over extensive periods - especially if the Context to be investigated, is appropriately strictly reduced-and-maintained, as such, and the Content also adequately limited too!

For, such things actually limits the situation to a Single Particular Level, and hence displays and delivers an achievable limited, yet coherent, Context and Content.

And, if the delivering conditions are, in any way, breached, the appearance of wholly inexplicable anomalies, within their producing Empirical Law Nature, will indicate that an extension to include any as yet unconsidered Level or Levels, may well be necessary, to explain all we see.

Remember! Mankind, in originally finding this route, was wholly unaware of why it apparently worked, and has thereby set the Human Race upon its potentially Cataclysmic Path: unless, of course, they realise exactly what has to be done!

And, this seems highly unlikely, when considering the present state of affairs, currently well-embedded, even within our most Prestigious Universities.

But, there is a Way Out!

Denis Noble, for some years, pursued what he sees as The Essential Systems Level in Biology, wherein he has revealed Clear Causalities, generated solely at this Higher Level, but nevertheless acting at the usually exclusively considered Level actually existing below.

And, the writer of this essay had, very slowly, it must be admitted, begun to find the very same Systems Level Causalities in Levels above the usually considered cases, but for Physics - but also active, so, in a wholly unexplained way, appearing as *Cause* in the Level below.

So, the incorrectness of that Wholly Positivist Revolution, within Physics, was finally explained fully Causally - involving meaningful Systems reasons!

It is still "early days" in the development of this vial Approach, but already, the gains in Physics have been remarkable! Once identified as a major simplification, carrying through ONLY the properties of Atoms and Molecules, to similarly pertain in the bulk substances: and the unavoidable effects of the also-clear Non Synchrony to multiple simultaneous process (even if identical), a whole range of consequent aberrations was easily also revealed, and many effects available to explain things comprehensively in this particular area made clear.

And, because of the Pluralist way that we do experiments, the whole set of CHAINS and even CYCLES of whole necessary Series of Processes usually eliminated by our Methods, were finally addressed, and their mistakes and mismatches included to explain Reality-as-is!

No longer can we separate Natural Processes into their supposedly component Parts, by severely restricting things into a series of wholly separate experiments, only highlighting a single one at a time!

No longer can we assume the individual, fixed Laws that we have found, can merely add-together to give us the full picture.

We must look at Levels and Inter-Level causalities - and to do this we must approach Science more like the Buddha, who was constantly asked, particularly by Rulers and other powerful Leaders at the time, what his advice was upon intractable problems, with many clearly contending factors. His approach was to break such a problem into many Principle Stages, and then each of these, into a small handful of subordinate processes.

## Mankind's Greatest Mistake

Its effect on physics, and how we might put it right...

The Buddha had developed a method, which he had considered for some time, which was to systematically work through the many options for each Stage, to get a better idea of what different outcomes were possible, and which of these, on repeated cycles through them, were the most likely.

It was an iterative method!

Taking each Stage in turn, he considered its component processes one after the other, and noted his results.

He then went around them again, and even a third time!

His results sometimes were the same and sometimes different, so he decided upon the most common solutions for each sub process: and then did the same for every Stage and its contained sub processes.

He arranged all his individual results, in an order of most likely to least likely, and then did the same for all the containing Stages!

He was then able to give the asker a solution based upon the most likely results, and even supply others that were not so likely.

He fully described this decision-making processes in one of his Loka Suttas, and his advice, though not always correct was far better than any other the ruler could get!

Clearly, the Buddha was aware that various answers were always possible, and his approach was to weigh between them as best as he could!

Notice that the Western Pluralist approach, instead of considering all possibilities as possible, instead strictly limits the set of component stages involved, so that only a Single Solution becomes possible at each such step. It may not be the best outcome, but it would always be reliably the same.

In spite of its shortcomings, it was still an Excellent Prediction Method, as it always gave the same result, but it could never guarantee to always be the Very Best Result possible!

Now, it was very quickly consolidated as *The Method* in the Sciences for several good reasons!

For, though it certainly wasn't sufficient to explain why things behaved as they did, it nevertheless DID remarkably deliver a useable approximation of the truth for One Limited Level of Reality: and the restrictions that delivered it actually also restricted processes to that Level alone.

One of our greatest inventions has also turned out to be a major wrong turning in Human development.

Though still not universally accepted up to the present day, the significantly debilitating features of current Theory in Physics can be traced back to revolutionary developments implemented in the 5th Century BC, by the Ancient Greeks - achieved in the so-called Greek Intellectual Revolution - and these discoveries both opened the door to Systematic Thinking, while also simultaneously imposing a major-and-misleading limitation upon our Thinking, which we are still unable to circumvent.

Let us, therefore, deliberately address BOTH of these aspects now, in order to not only appreciate its obvious merits, but also, to clearly expose its congenitally built-in disabilities, as both MUST be properly understood to, now finally make any necessary Progress!

Both the Triumphs of that Revolution, AND its inherent weaknesses were achieved within the establishment of the very first Coherent, Concise and Comprehensive System of Thinking - what became known as Mathematical Rationality.

It was undoubtedly Revolutionary, precisely because it was the First (and at that time ONLY) Discipline available. But, it was ALSO debilitating, if used inappropriately: and that, of course, happened repeatedly.

The assumption that Mathematical Rationality was universally applicable was immediately indulged, but most definitely is totally UNTRUE! In actual fact, it only pertains to strictly limited areas of study, which

define the initial content of what will later be termed a Level!

Though Levels will be subsequently extended: it will only be added-to by the usual purely Empirical Laws, which have their Causes elsewhere, in a Higher Level, wherein they must be assumed to reside!

So, these limited Pluralistic Laws can NEVER be universal, though Mankind makes them appear to be so, in these purposely restricted Disciplines.

The problems caused by these mistakes have bedevilled Science for the last Two and a half Millennia! But, the missing Causal Explanations do indeed exist, BUT not always within the Level in which they undoubtedly act.

And, this cannot but transform the Sciences involved, into an also essential parallel search, to reveal the actual Levels where they originate: AND, of course, deliver their reasons-for-being, and hence their necessary Explanations too. Any attempts to do this without revealing their Level of Causal Origin, will ultimately fail!

So, clearly, this radically transforms how Mankind has to build Real Sciences, which will ultimately, if developed properly, be able to Explain Absolutely Everything!

And, that will certainly NOT be easy: for much of The Cosmos is not available for fulfilling those necessary requirements! And not only the vastly extended Cosmic Reaches, but also, and currently just as unavailable to us, the unknown realms in the Sub Atomic regions too!

Now, there have been attempts to extend the only-locally applicable Pluralist Laws we have (without any subscription to the necessary extensions demanded by the alternative Holistic Systems Approach), merely extending the basic Pluralist Set deep into the supposedly Empty Cosmos, by members of the Electric Universe Group, who build their Fields Cosmos-wide, with absolutely no required Causing Material Presence whatsoever!

But, you might well have guessed, it takes its "Fields" as involved as prior-to the material entities, BUT without any definitions of the necessary Forming Levels involved! The Group is predominantly composed almost exclusively of what I call "Engineers", rather than Theoretical Physicists. And, so far, I am suggesting that to understand what they believe, and of course, as Engineers, they subscribe to the usual Pragmatic Standard Approach to Law.

I have, as described, in a previous essay, tackled a line of Hydrogen Atoms, which link magnetically, due to the magnetic fields of their orbiting electrons: and, thereby, deliver a Helical Form, composed of all the involved, individual electrons. And, I even conceived of such a line, NOT being necessarily straight, so that the Helix, as a whole, could itself be distorted by some external force - forming the whole thing into, say, a larger Helix!

But, I still haven't, as yet, explained the make up of the Electric Universe's many very large multi-level type models!

However, I have begun to consider another line of investigation, wholly within the smallest Sub Atomic Level, and the much tinier entities, even than the Electron - both charged negatively - and even chargeless.

And I have addressed in, what might happen, in this truly Majorly Reduced Context: particularly if the Gravitational Forces are still active down there, and could produce a usually totally invisible "Electron" - but here composed of very-tiny-indeed Negatively Charged Particles, orbiting a central purely-material entity, entirely gravitationally. So, instead of being neutral - like an Atom, this would be negatively charged overall.

So, the tiny orbiting charged particles, would naturally repel-one-another, but still all stay at the exact-same, gravitationally-created distances from the solely material centre body: so, effectively it would functionally present

a kind of "electron?". For, the evenly spread-out charges would act as if that combined charge was situated at the centre: it would appear like a single charged Particle!

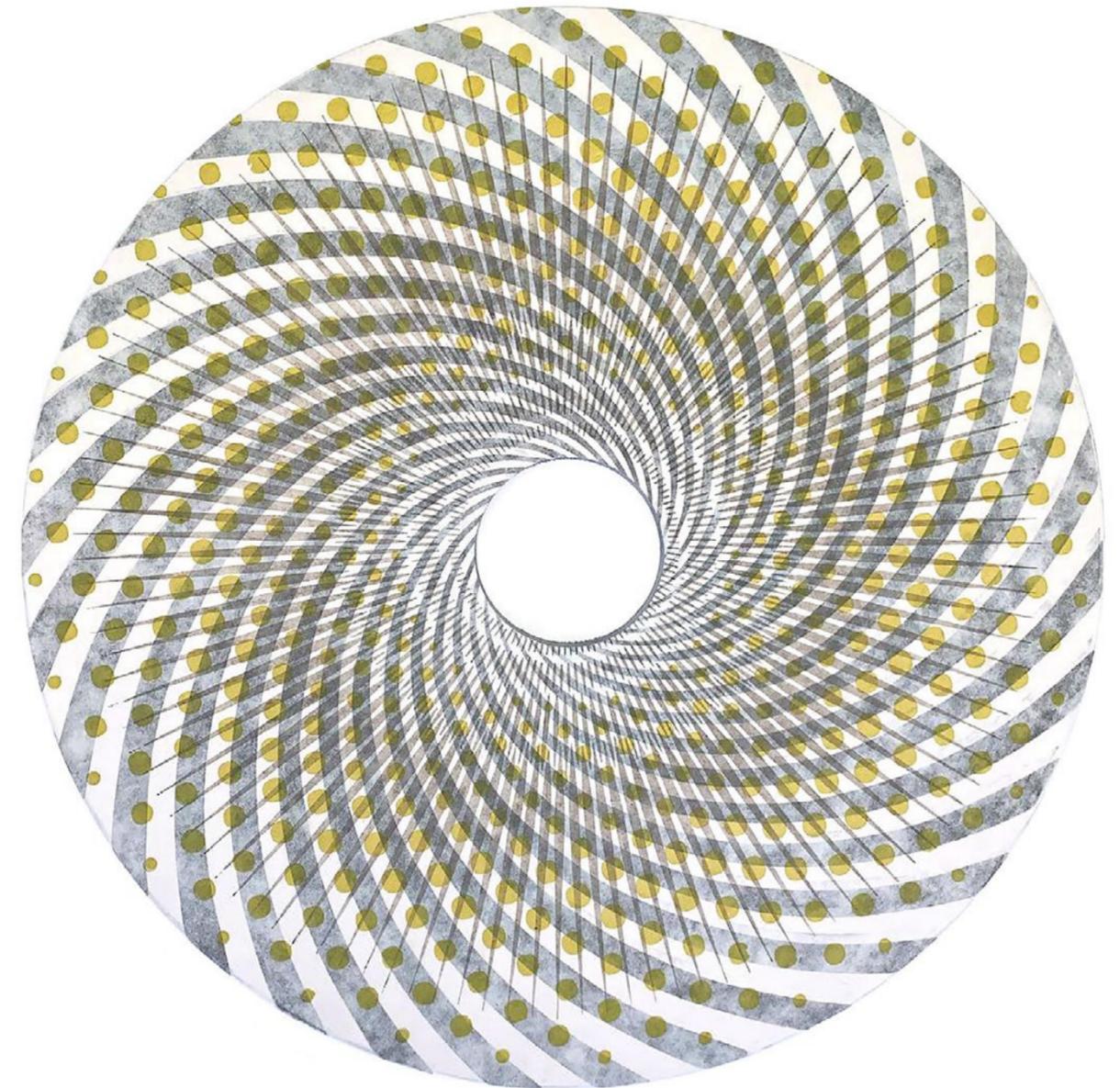
The super-small, Sub Atomic region seems to be beginning to deliver surprising features, without going further than already know Effects, BUT impossible to see for what they are! Indeed, a whole population of invisible, yet still active, existing particles, might well totally transform our conceptions of what occurs in apparently Totally Empty Regions of Space! AND, for the first time, finally enable the communication of various influences across these usually considered Empty Regions!

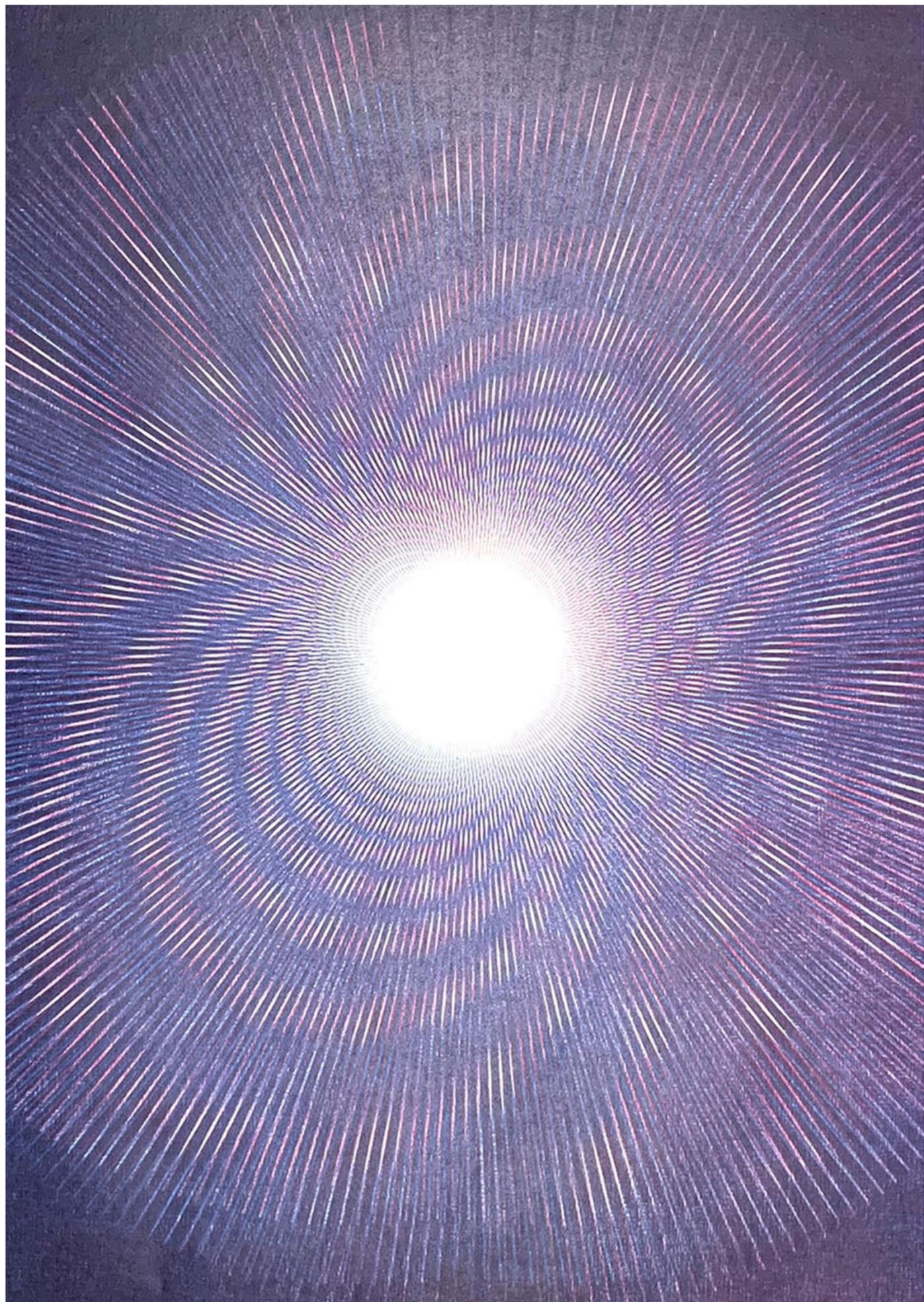
Now, the problem of the Propagation of Fields, through this "Empty Space" certainly presents a Special Case within these considerations, for even with a great deal of Looking, absolutely NO Universal Medium is apparently visible, and yet, most certainly both Light and Heat are definitely propagated across space as Waves, so maybe The Fields use the very same tiny means - whatever they are!

But, clearly, our first considerations (outlined above), also must involve a range of both somewhat larger, as well as other very-tiny particles, also all currently invisible of course, but betrayed by what they *do!*

So, there will be some, that still should be detectable, as well as others, that might well be totally invisible, but are still propagated by the same bottommost means available! But, as such, it is not necessarily being seen itself - for that would need an even finer textured medium to be able to "make it visible" too. And, of course, the larger particles are certainly to be seen in the same way, without revealing any delivering medium!

So, there will be two aspects, to this hidden medium! **First**, we will see its results by means of its evident effects, while **Second**, we will have to speculate just how the other seen effects are delivered - most likely via a medium of invisibly small but numerous set of particles. (Indeed, these may well act somewhat like the nature of an atmospheric gas - being in constant rapid, random movements, but having the usual simple mutual-cancelling-out, to deliver the propagation unaffected!).





## Fields as Systems Effects

On considering Propagations in general, it wasn't easy to involve a possible Medium that is entirely discrete in its nature - while also, at the same time, still continuing to produce a stable and fully-maintained Field, that was still everywhere also a source of all such distantly-caused-effects initiated by some sort of forces to then be applied to affect any interlopers into that media, and introducing them throughout: yet everywhere still continue to be maintained in exactly the same general state, and maintaining all of the same possibilities, thereby delivered, as well as those added in by any prior, and remaining interlopers!

For, the only Source for maintaining that Field, exactly-as-is, would initially have to come from The Initial Producing Source of that sustained Field, added to the basic features of the Medium's own inherent composition!

But, this was unavoidably required it to come from that Field-Producing Source, but it would NOT have been, in any way, produced by reducing-or-changing those contributions! For, they will both stay exactly the same: and that, surely, is impossible: so, any force affecting the interloper, would have had to come from somewhere else to affect it!

And, repeated activations of this sort will always do some sort of work, without, in any way, diminishing the Source and its Field, and all of any subsequent effects thereby caused!

How is this Energy sourced?!

Now, all interactions are actually of, at least Two, very different types: each of which answers this question in very different ways!

In the First kind of interaction, which is more of an Encounter: the interloper, itself, delivers ALL of the resultant changes, back onto itself, without taking any energy whatsoever from the other partners involved.

Indeed, all the energy comes solely from the Movements of the Interloper itself - requiring absolutely Nothing from the encountered other elements, OR indeed even from its Field!

For, after the completion of the whole interaction, the encountered body, its Field, and even the Medium, will stay exactly the same, as before the whole episode even commenced.

Now, this is so surprising, that I will explain it in detail first!

For, we are well aware of the Encountered Resident Particle, and its subtended Field: so we tend to think of that alone as being the main (and perhaps only) instigator of all the quite significant changes that any arriving interloper certainly receives. But, it then surprises us when the now encountered object, and its Field are left totally-unaffected by such a clearly significant encounter!

But, this is because the event only directly involves the Field delivering all the now encountered effects, BUT never the body itself! The interloper only interacts with the body's extended Field: and NOT with the body itself. So, in a sense it is more like bumping into a constantly maintained barrier, so everything comes instead from only the Interloper's Own Energy of Movement, which is returned-to-it in a modified way!

And, this was only possible, because the encountered particle existed within a vast Substrate, composed of tiny particles, that were able to develop into a Penumbra containing the Source particle's Properties, but only "virtually" as an outlying influence, informing just how to reflect back an appropriate part of the interloper's energy.

But, of course, through delivering the vast majority of the possible interactions with interlopers, there was involved a far more damaging type of interaction, which could indeed occur too: but here was prevented from being too common by its primary-protecting-Field.

For, when an interloper got beyond that protective barrier, the Field-projecting particle itself could allow more damaging encounters: and even collisions directly with the field-making Body itself!

And, in such cases, BOTH participants interact in such Close Encounters of a Different Kind.

NOTE:

Now, the case already dealt with, though it is by far the commonest kind, was indeed taken from being the extreme and simplest end of such interactions with some justice. They are common throughout Science and are often misinterpreted, as here!

But, the cases to be addressed now will, apart from the main example above, also be in a position to include various intermediate cases, that include several different sizes of interaction types!

And what requires immediate attention, are the effects of *Scale* upon the different processes, particularly those outside of the usually studied cases: as it becomes necessary to know the limits and the ranges of particular processes.

Perhaps the most important cases to be made available, are the bottommost possible sizes, where orbits around already very tiny particles could make them neutral, overall, and hence impossible to detect.

Indeed, it has raised its head in current maximally general attempts to deal with entities and their interactions at these sort of scales, leaving what can happen there completely unknown!

The whole problem of investigating the possibility of a sub-microscopic Substrate in otherwise Empty Space, has been effectively terminated, currently!

#### The Cause

The causes for such wrong and long-persisting errors was undoubtedly down to the Pluralist achievements of the Greek Intellectual Revolution - but the possibility of addressing those mistakes didn't even emerge in The Sciences, until the early 20th century, when the vast acceleration in the number of Purely Empirical Laws, posed the Question- Why do we have both Causal and Empirical Laws: and is one kind more informative than the other?

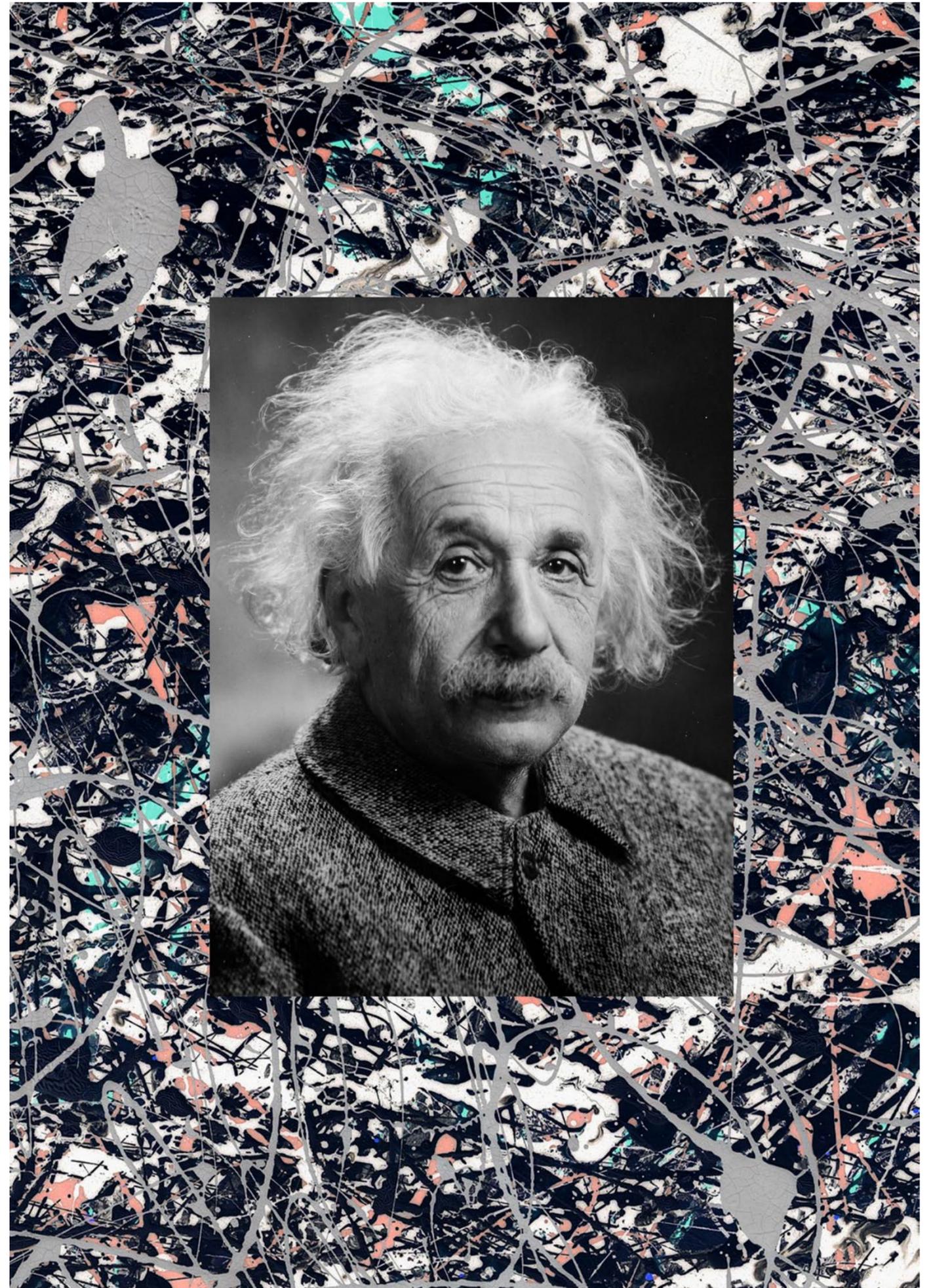
The initial suggested answer to this Question was delivered by The Positivists, who condemned the common position of most physicists, in insisting that our Causal Laws were higher than all Empirical Laws, and argued for equal status for both.

But, giants like Albert Einstein, though proficient in both ways of encapsulating Reality, had absolutely No Doubts that Causal Laws were Primary, and that Empirical Laws were merely insufficient reflections of as yet unrevealed Causal Laws, which would ultimately supersede and extend the purely Empirical Laws into something far more profound and revealing!

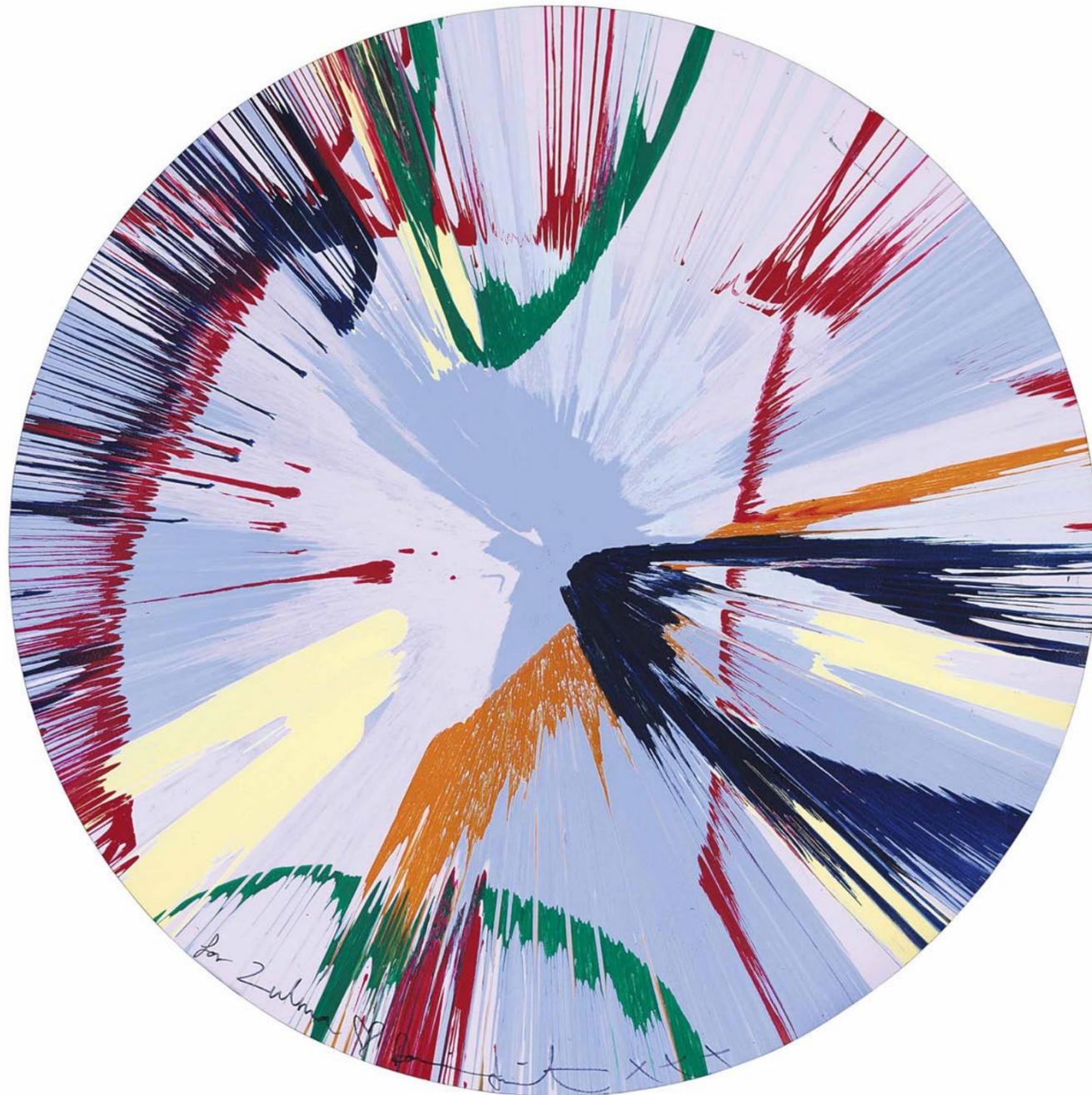
But, he never managed to do it himself: and the reason was that the seeming total absence of an alternative Causality, to add to that supplied by the Properties of Elements.

And the reason that these were never found, was because everyone was looking in the Wrong Places to find such a Causality, and it wasn't until the advent of The Systems Approach, and the necessary Division of Reality and its Laws into Different Levels, that the Real Laws began to emerge!

But, the Laws did not emerge at the Same Level, as that at which they acted. So, it wasn't until this surprising Pair of different Locations were finally established that real progress could become possible!



## How the Mistake Affected Theory



The initial achievements by Mankind, in tackling their World, were obviously attempting to merely describe what they found, and only very much later, were they looking, also, to real causal reasons for their actual existence, and any obvious changes taking place, thereafter, over time.

Of course, originally, these objects of interest were what occurred naturally, and developed, as it became evident that they could also be *useful* too! So, most attention was primarily concerned with what could be eaten, and only later, how other things could be effectively used, perhaps for defence against fierce predators, who saw Mankind as food for them to eat! But, it wasn't too long before Man found a whole range of uses for other things that could be employed by them in a wide variety of other ways.

And, of course, as part of this current series of papers, upon just how Mankind began to be able to develop their ideas concerning their World, and what they could do within it: we will naturally NOT be producing a comprehensive History, but, instead, the ultimate appearance of the possibility of continued on-going development of an ever-better Description and Explanation - capable of a continuing development!

For, in fact, that objective was never, at all obvious, and many persisting errors of varying significances, have made such a task by no means easy: and more often than not, our assumptions have been greatly misleading.

The objective will, therefore, be not only one of incremental additions, but, crucially, also in recognising the many Wrong Turnings, and how to correct, for their often misleading directions, and establish ever

more reliable means! Indeed, by far the most important contributions have been in profound criticisms that when soundly pursued, have led to major transformations in the methods, thereafter, to be employed, and also, in drastically criticising and drastically changing, what at earlier stages, were considered to be reliable bankers - towards the Truth.

The major mistakes have been in establishing reliable general methods, that turn-out to be, by NO means, as generally applicable as was initially believed!

Now, as I have already mentioned: this is NOT to be a serious Historical academic record of these events, but, instead, an immediate effort to get the usual flawed methods back on track, NOW!

It will concentrate upon the prior efforts of this researcher in achieving, via a "best for now" approach, made absolutely necessary by the complete General Failures, now evident within literally all developing Scientific Theory at the present time.

It will, hopefully, reveal all of the current Wrong Turnings, particularly in the Planet-Wide, totally-failing Theories in Physics, which has been my primary task for many years, BUT only recently expanded into what I believe will be a better and comprehensive alternative.

So, what I will be concentrating upon, in this essay, will be the major mistakes that were at the very basis of all the initially current Scientific Theories concerning CAUSES!

For, the initial and, as it turned out, correct conclusion, was to take the Properties of the variously discovered

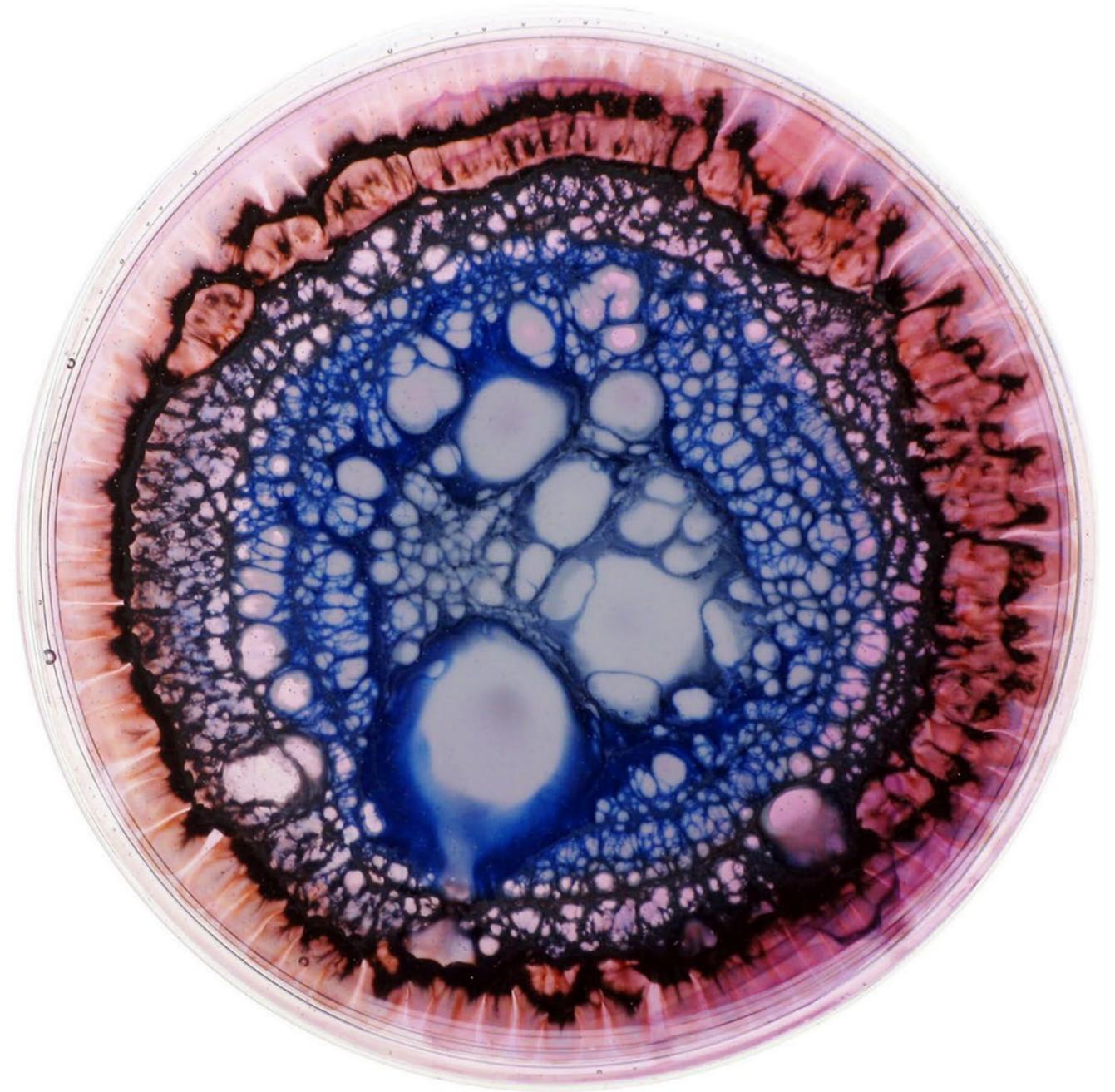
Elements, and their compounds, as the primary way of Explaining the revealed relations: which established Theory upon a potentially-correct beginning, and from the outset, made such Explanations, the central feature of all such Theories!

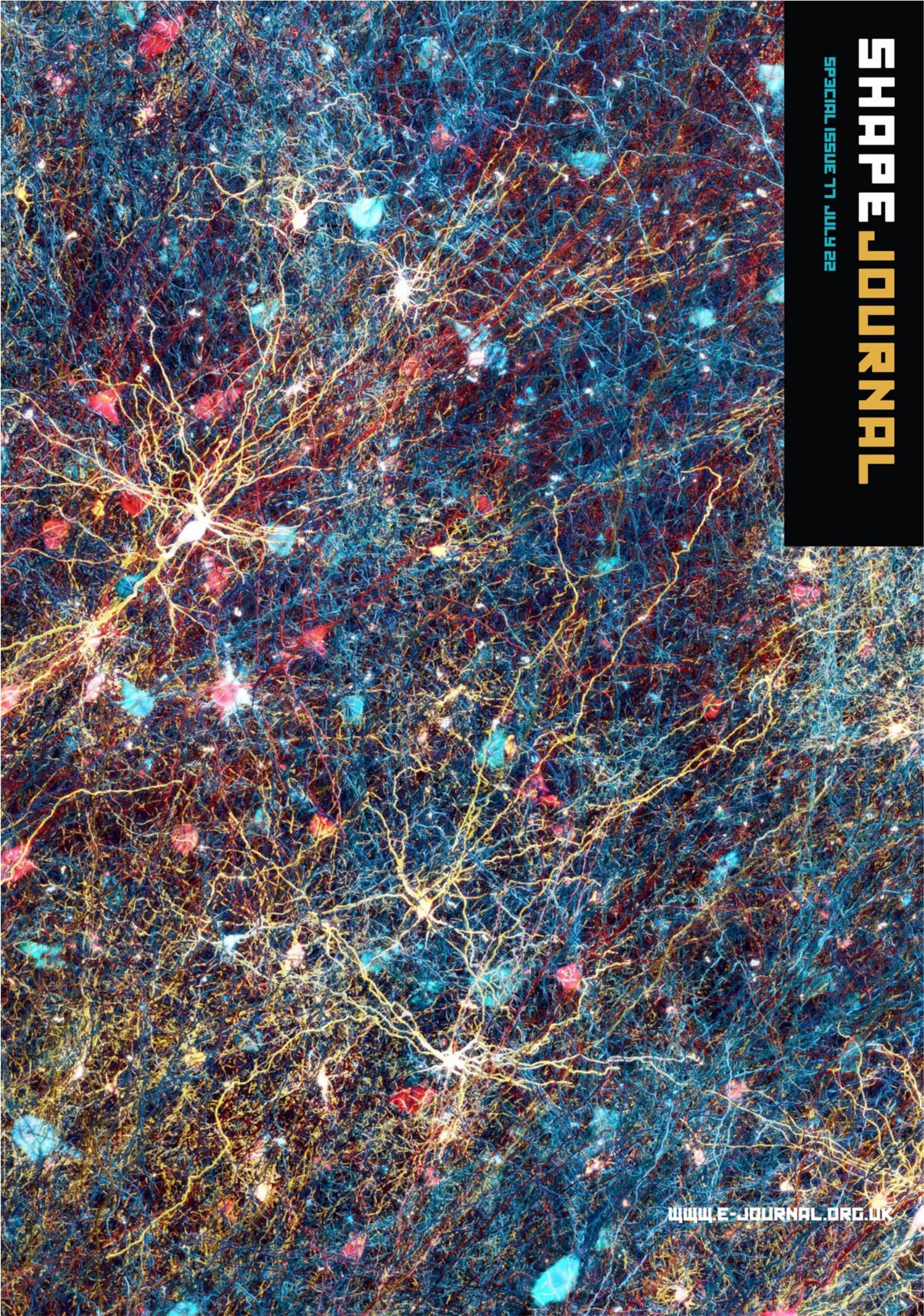
But, it was also significantly premature, because the way that these Properties were discovered was ONLY in experiments involving radically restricted and tightly-controlled situations, that effectively removed all the usually confusing extras that often masked those features! The simplified situation of single substances regularly replaced the actual multi-Level Reality-as-is, because of that method's useful revelations.

But, it didn't only wrongly remove the confusing departures, of all naturally recurring components simultaneously present: as we have shown, it also threw away all of the Systems Features too, which played a major and unavoidable *Causal* role within Reality-as-is!

For, these also added wholly new combined and other changing features, due to the effects, even if just a multiplicity of the very same features in repeating cycles.

So, the Forms Developed within Theory never presented vital features of Reality-as-is: and these had to be both artificially produced and maintained for the Theories to fit with observation.





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