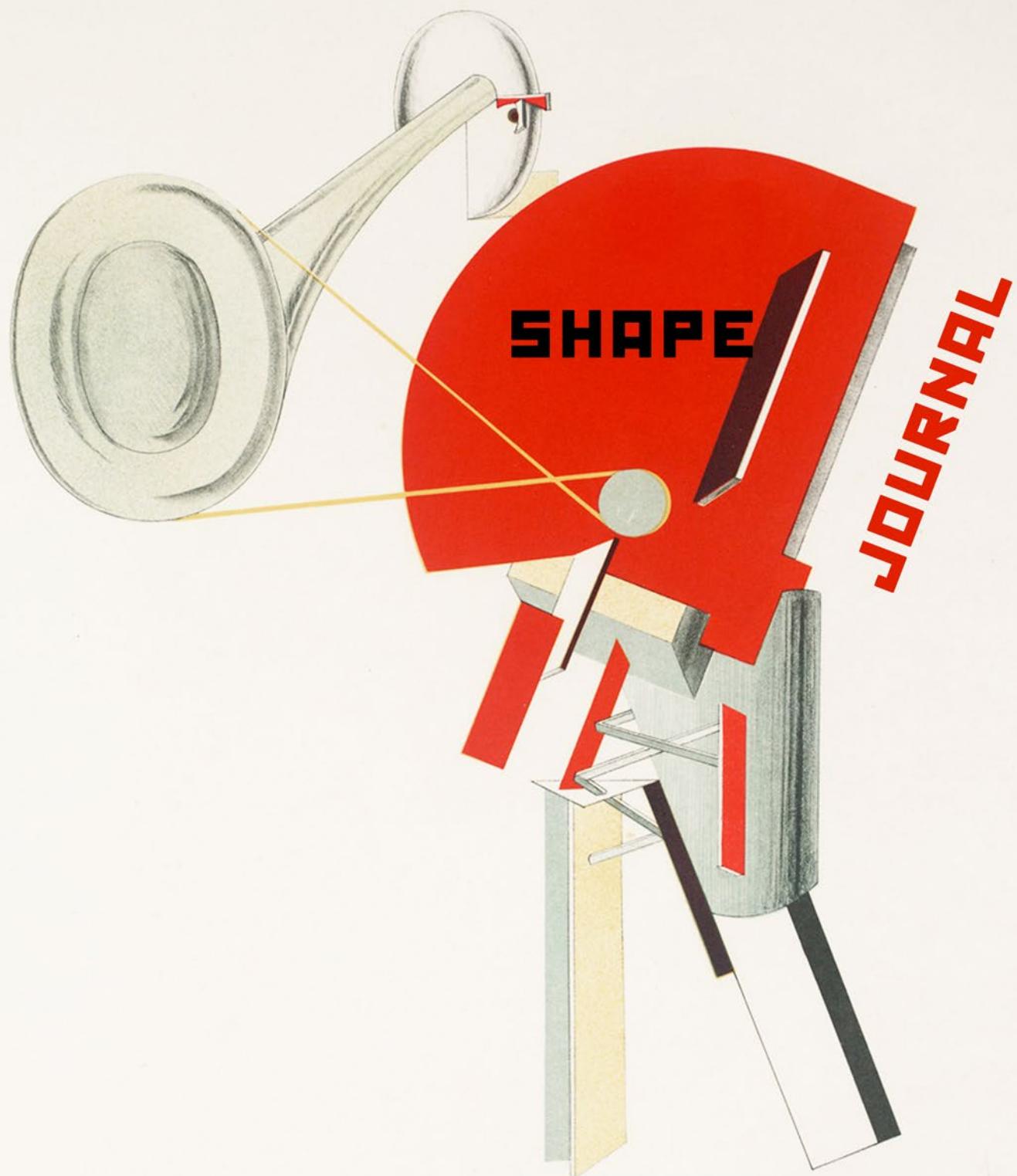


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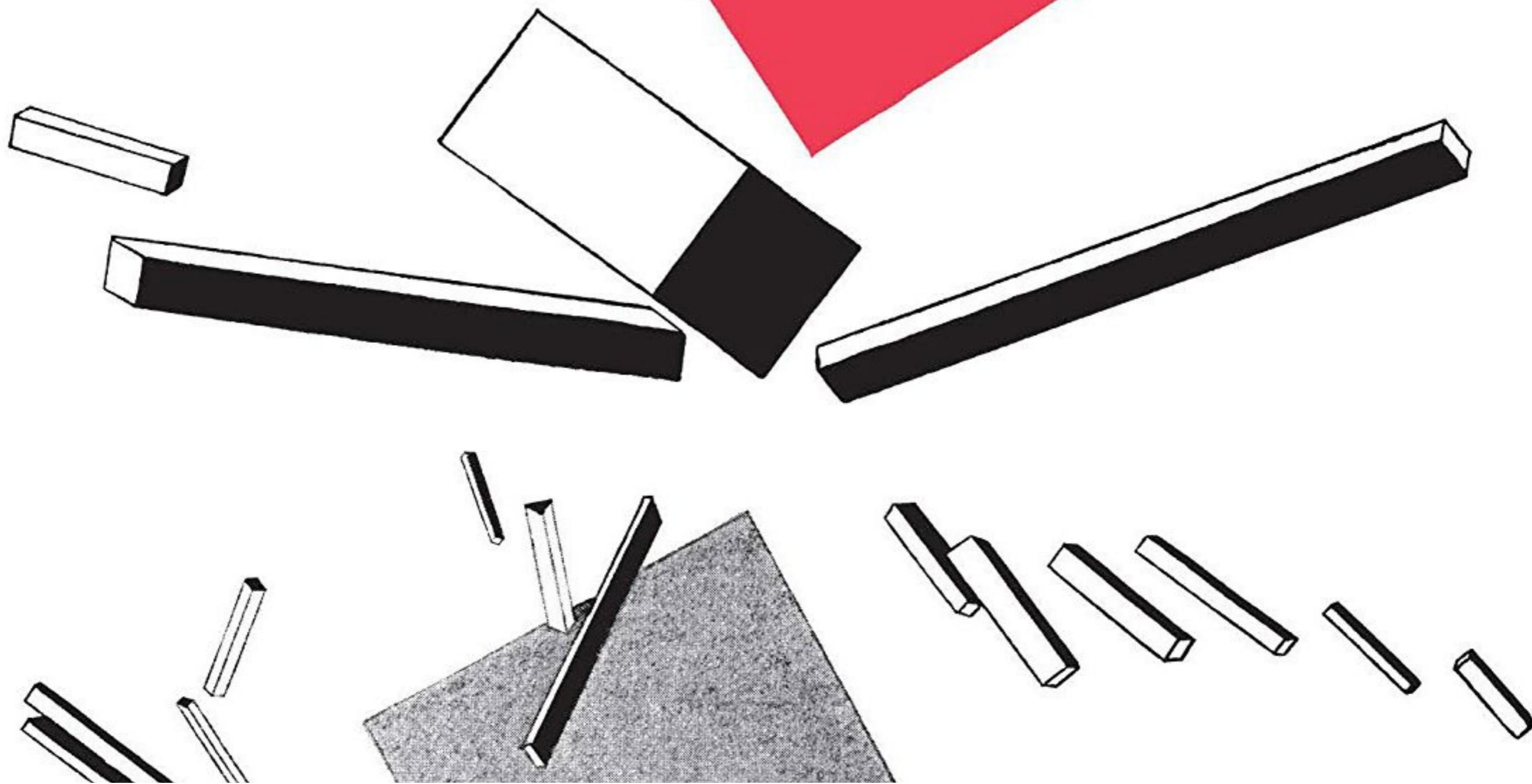
Holist Science II

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Words **Jim Schofield**
Editing & Design **Mick Schofield**

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Understanding Reality

by

Jim Schofield

We attempt to understand our world in order to get the very best from it: but, it is certainly a breathtakingly difficult-to-understand world we find ourselves in. It is currently determinable only by two seemingly diametrically-opposite, yet generally-available overall systems of analysis, that directly appear to often effectively cancel each-other-out, and therefore consequently majorly undermine, both the possibility of understanding its underlying, driving trajectory - or even, alternatively, not being able to predict from any overall, perceived process, exactly what would happen next. So that, all attempts at revealing any particularly long-term set of objectives, at all regularly, appear to be always doomed to failure!

Yet, nevertheless, all short-term-and-local Realities do appear to follow some seemingly Fixed Natural Laws, but only if, along with such necessary time-and-locality constraints, so that we are constantly seeking out only Fixed Laws to enable such plans - until they, as is usually the case, finally fail.

Now, these two possible Stances were both established, at almost the very same time, some 2,500 years ago, but each of them, happening in very different areas of the World.

One of them, insisted that the Natural Laws were both Eternal and separable, but, as they were often acting simultaneously along with many others, one of the contributions was then usually largely Dominant, so that its outcomes would totally swamp all others, in their overall direct joint sum!

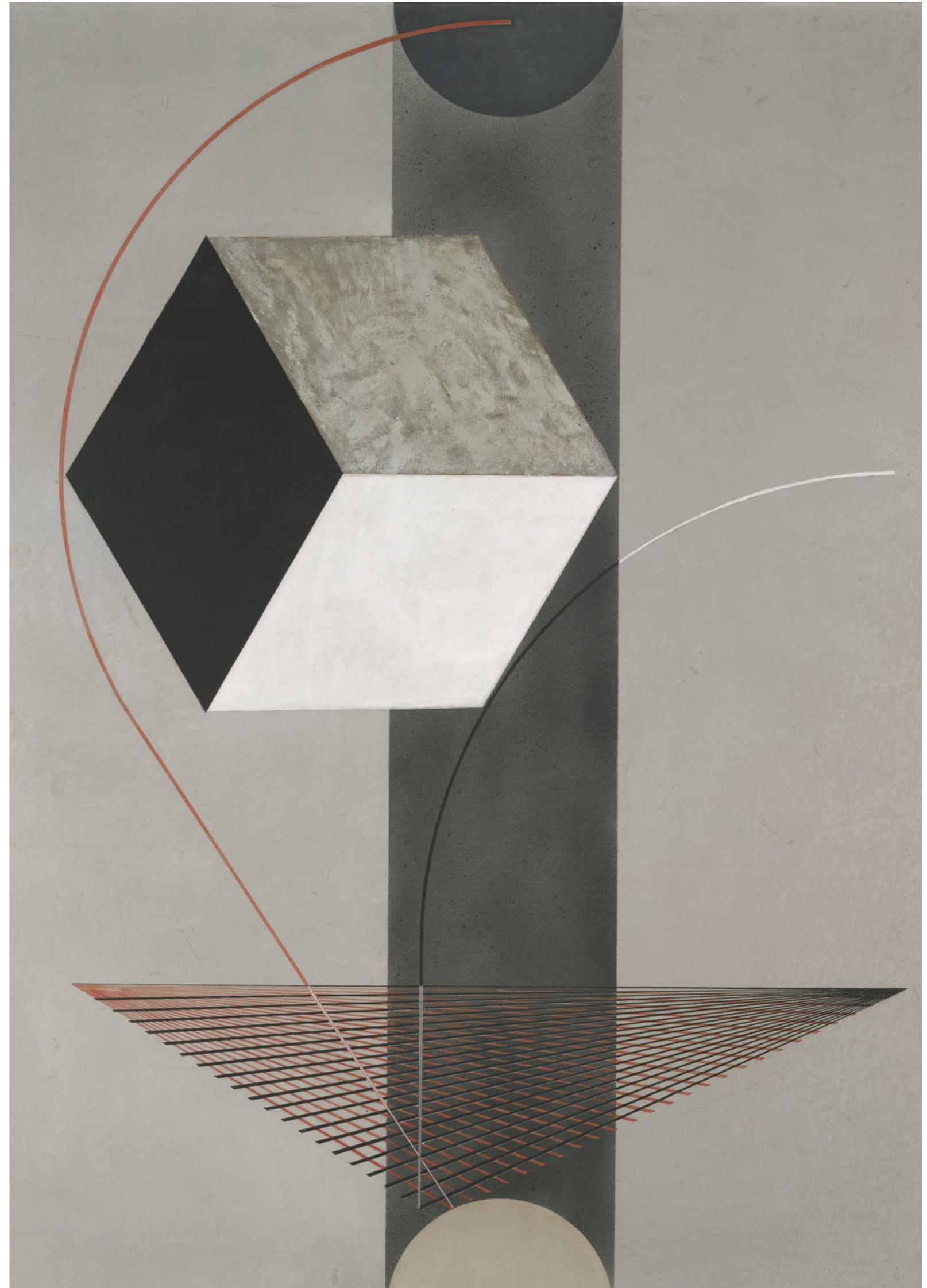
While, the alternative stance, instead, considered that the norm for all simultaneous contributions, was one of a constant variance of all acting Laws, so that outcomes were always changing, and all predictions just had to include an extended range of possible outcomes, with, in addition, a constant readiness to switch to an alternative, if a Key Indicator so suggested a sufficient change to merit the switch.

Certain extremes of these two, were undoubtedly delivered effectively: but, the bulk of cases were always very poorly served indeed!

The former case was later termed Plurality, and was attempted to be brought strictly to heel, by rigid and long-lasting controls upon idealised situations: but these still proved impossible, unless the number of active factors within a situation were significantly limited, which enabled a kind of Stability to be much more easily achieved-and-maintained.

Now, this was justified by the rapid and successful developments during the Greek Intellectual Revolution of that time, which ALSO kept the idea of all Natural Laws being Forever Fixed, but, as their contributions, to the overall sum, did vary in magnitude - that was the supposed to be the sole reason for the different outcomes, The Laws were still always Fixed, but their overall sum wasn't.

That did not suit the alternative Stance, as its supporters insisted that the individual Laws themselves Varied Constantly to some degree. So that was seen as the reason for varying overall outcomes, as well as being the reason





for the Variety and Beauty of the Natural World, and, particularly, those involving all *Living Things*, which could never be seen as being due to Eternally Fixed Laws.

This view was later termed Holism.

But, of course, neither case delivered The Full Truth of Reality!

The problem was that simultaneously-acting Laws often affected one another, and changed their Effects. So, things were constantly in a moment-by-moment, consequent on-going, melee of multiple Changes in ALL contributions! This, initially, seemed to undermine all attempts to predict overall outcomes.

But that too could, and often was, also negated, by the fact of Temporary Stabilities, caused by the forms of the interactions going on within such multiple simultaneous sets of processes! For, though some of these, in turn, were caused by the Effects due to Diametric Opposites - but only ever within on-going, multiply-repeated processes.

For Cyclically-repeated processes involving such opposites, selectively eliminated all extraneous materials, so that ultimately, *Pure*, constantly repeating cycles were the main outcomes. And, these could balance with their equally Pure opposites to cancel-out. And, what also frequently "steadied-the-boat", was the fact that in diverse bundles of such sets, including such Pure Processes, where stabilised sets simply repeated, while ever there were Correcting Processes for every change in an existing process, occurring within another of the same set.

So, constant repeating of effectively unchanging Cycles of the same contents, due to the above effects, necessarily delivered many Temporary Stabilities, as long as those conditions remained! For, in such constantly repeating Cycles of those processes, all Non-Opposite Processes would be effectively eliminated, leaving only the Balanced Opposite processes determining the consequent Stability.

When these did change, entirely-locally, they were termed Emergences: and when they changed much more generally, over wider, extensive Systems, they were sometimes called Revolutions!

Clearly Pluralist Science and Holistic Science are very different views of the same world!

NOTE:

It is clear, to this researcher, that, though the above does correctly show the effects of constantly repeating Cycles of processes, and, in so doing, selectively-eliminating chance ingredients, and even processes, to ultimately arrive at a constantly-repeating, overwhelmingly dominant unity of the same sort of processes - the actual mechanisms involved do not, at this stage, entirely satisfy!

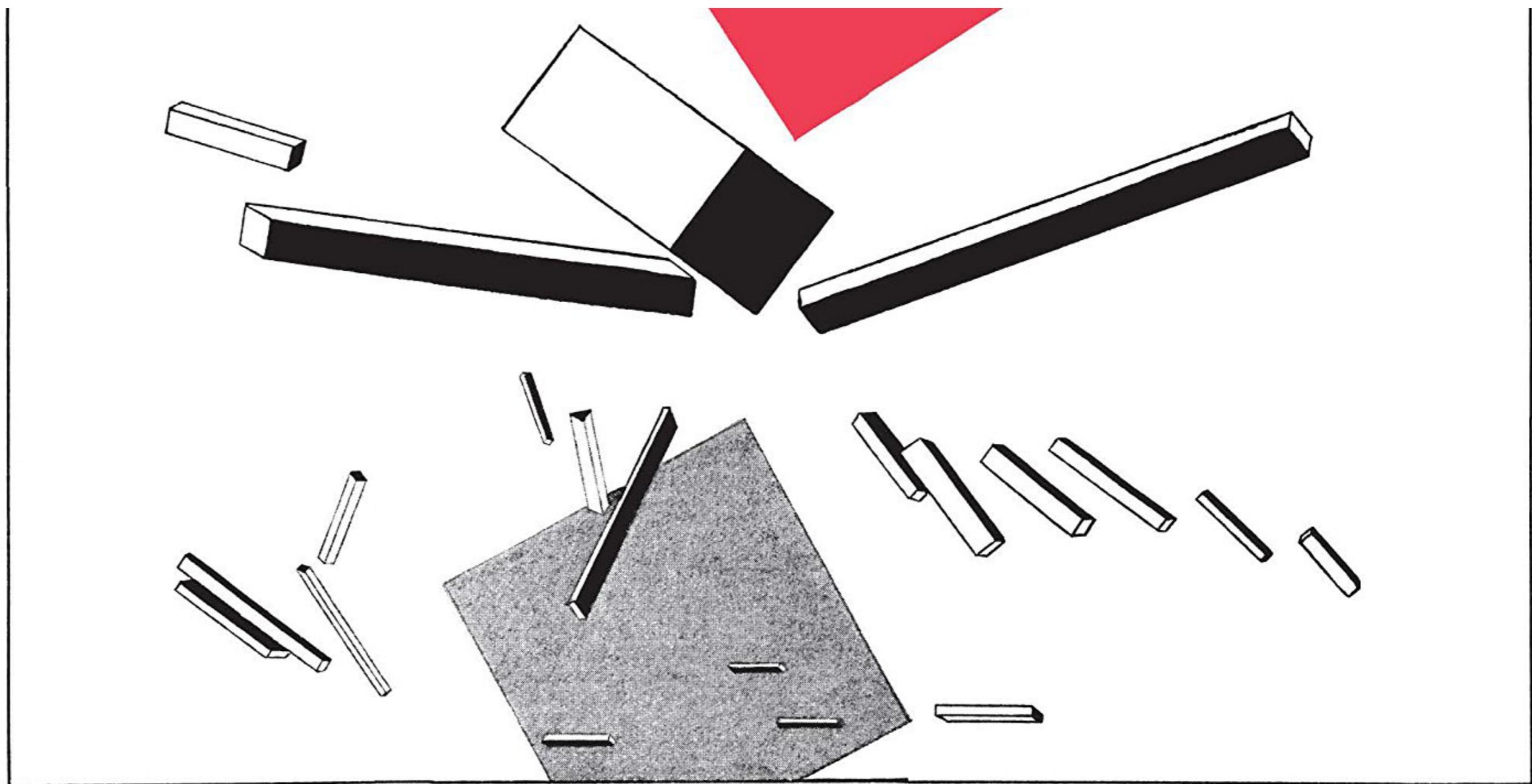
And, in watching one of Gareth Samuel's "See the Pattern" videos, about the processes taking place in the Sun, it became clear that he too was arriving at seemingly dominant sets of processes, that had been similarly refined into constantly repeating systems, that must have emerged from initially complex sets, that only gradually arrived at what he concluded were the final regular forms: so, it seemed likely, that these could have been arrived at in the same way as the processes I was considering.

In addition, it was clear that, in spite of their seemingly constant arrived-at state, they also were never permanent: so the ultimate transformations to other steady states might also reflect such changes elsewhere too.

What is usually generally called *Science* is actually no such thing: we might more accurately term it Technology, for as a wholly pluralist undertaking, it is not even derived from any dependable form of Science, which would have to be, to some degree, Holistic in its philosophical Stance, to be able to deal with Reality-as-is!

But, because that cannot be distilled into a collection of Pluralist Fixed Laws, the practitioners involved, by taking the route of greatly modified and controlled situations, did manage to effectively enable a Pluralist version, always limited to only very highly constrained situations - but sufficient to also deliver a wholly achievable, and increasingly broad and useable Technology.

But, of course, the required extension into a generally applicable Science, within which it was intended to reside a comprehensive and Explanatory Means, was always impossible! Indeed, researches have proved conclusively that a Science, based upon Plurality, can't help us understand the natural world, even though a functioning Technology certainly gives us vast control over our environments - and has effectively transformed the world to suit our means of understanding it.



The revelation of these crucial flaws, were revealed very soon after the Greek Intellectual Revolution, by Zeno of Elea, who was able to demonstrate the failures of Pluralist Science in his work called Paradoxes, in which he was able to reveal irresolvable Contradictions in Movement, using the Rationality discovered legitimately in Mathematics, but then wholly illegally applied in both General Reasoning and the Sciences, and from which, they had done it, in spite of Zeno's valid revelations.

In fact it wasn't until the early 19th century, that Hegel took Zeno's work and applied it more broadly to logical Opposites, that the truth was finally generally revealed, by Hegel's follower, historian and philosopher Karl Marx, who began the mammoth task of applying those dialectical ideas, first to History in General, and then to a major Critique of Capitalist Economics! But, nevertheless, since Marx's death in the 1880s, no-one has attempted the task of applying Marx's Comprehensive

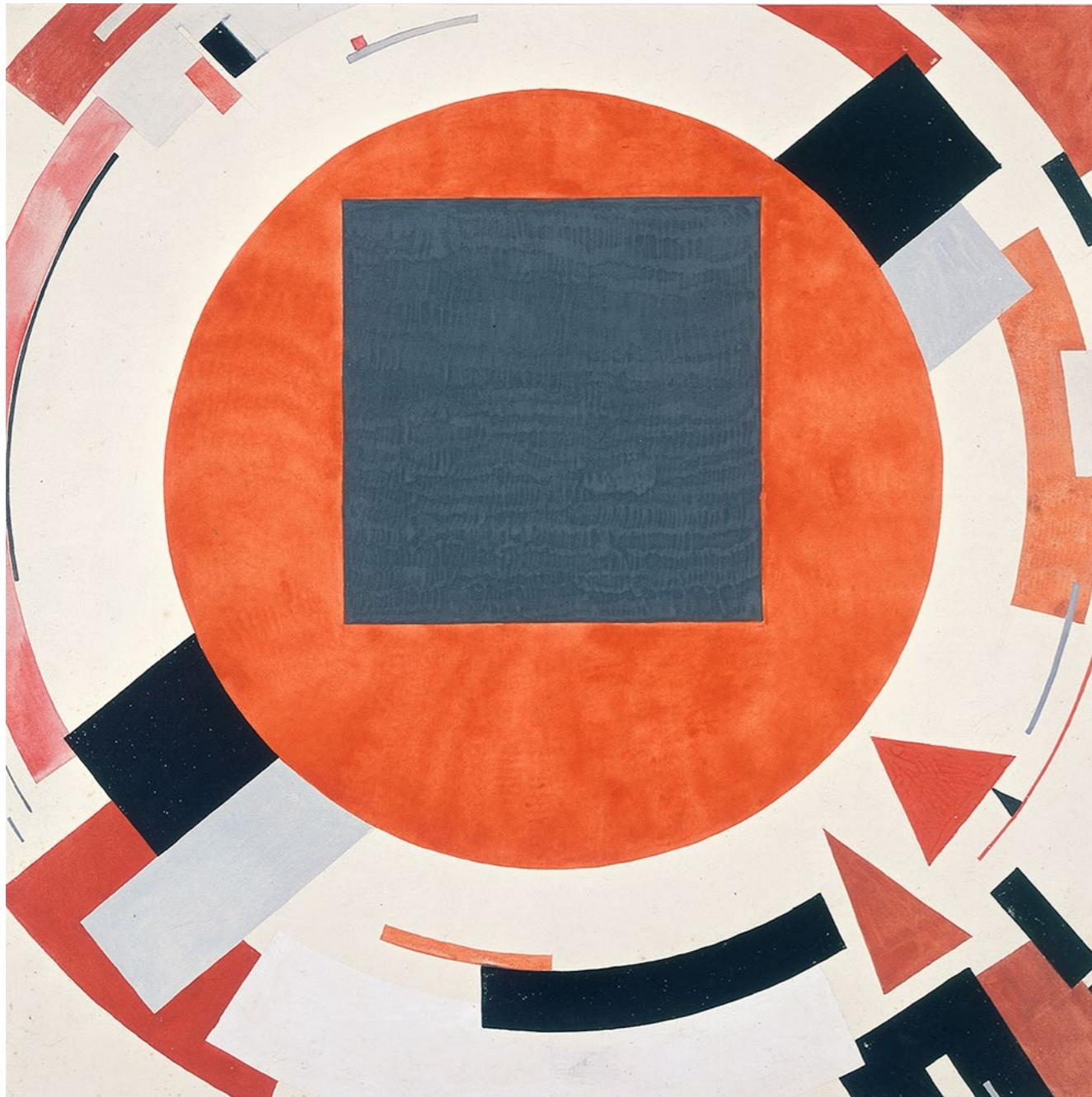
Method to any of the Sciences, so that in spite of Lenin's warning, in his book *Materialism and Empirio Criticism*, the most important areas have still NOT received the necessary treatment, resulting in the Copenhagen Interpretation of Quantum Theory, and a similarly disabled Cosmology!

And, in fact, Modern Holistic Theory, which has been wholly a product of the 21st Century, has not been applied to anything comprehensively, though many individual papers have already been published here in SHAPE Journal - and in the near future the writer of this paper is nearing the completion of an alternative to Copenhagen. While a short pamphlet upon Holistic Science is also completed, and will be published, in print, this Spring. There is still much to do.

ONE STRIKE
EVERYTHING IS SCATTERED

The Trajectory of Real Development I

The Ability to Create the Wholly New



Mere Complexity...

To even begin to consider Real Qualitative Development, we must first dispense with the idea that it is caused by Mere Complexity, as well as its restricted form of Explanatory Rationality, based solely upon Mathematics, which is congenitally-Pluralistic - entertaining exclusively Fixed and Mechanistic Laws, and, therefore, via Legos-like formal constructions, totally incapable of dealing adequately with the Emergence of the Wholly New.

Plurality, therefore, only offers "Quantity into Quality". as the sole means of explaining the Wholly New, and, at best, causally explaining Absolutely Nothing, and merely only indicating when-and-where such remarkable Transitions occur, without in any way explaining Why, and How they actually happen!

For Qualitative Change is NEVER explicable merely by a changing amount of some key quantity! It also depends crucially upon the Causal relations within Reality. And this is because Reality is always composed of many simultaneous processes: most of which are so minute that their actual potential effects are unknown, and can, most of the time, be totally ignored.

But in situations of original Qualitative Change, processes and entities that always were, in the past, inconsequential, can very quickly become, existentially significant: and for the first time ever wholly transform the subsequent possibilities.

For, usually, we never know anything about them; they are always so minuscule as to always be swamped by other

clearly dominant features! But that very complexity, though usually hidden, always contains the potentiality of unique situations arising, which, for the first time ever, move into never before occurring situations - not only changing a single feature, but also, by so doing, triggering a cascade of consequent other changes, so that the overall result is a wholly New situation.

That is the potentiality of a Holistic World that Pluralist Science cannot apprehend!

This acknowledgment also transforms the usual ideas of Stability! Indeed, such unchanging situations are merely extended interludes that usually don't precipitate such changes, but when they do, cause wholesale transformations in many processes that were previously inconsequential, causing dominant processes to impose a seemingly permanent Stability upon the situation!

NOTE: Indeed, this aspect of the Real World usually projects such Stability as the natural state - and in addition persuade those attempting to achieve certain results to impose such Stabilities in order to do so! Such activities inevitably impose Plurality upon a naturally Holist World!

Abstraction

Now, all efforts to understand our World must involve a measure of Abstraction, in order to deliver something of the true nature of Reality-as-is. And the initial means were to attempt to extract enough from it, when circumstances appeared to be Stable...

There were many everyday situations when this seemed to be the case, and, even more others, when a bit of artificial help could make them even more extractable, to then be related together to deliver the apparent Order that seemed to be present.

And, a Crucial Assumption was made, about the many different Laws, that were acting within a given apparent Stability. And, this assumed that the usually hidden laws were always Totally Fixed, and simply summed in a particular situation to give validly measureable results.

So, a "Kind of Science" was developed, that commenced with a carefully imposed-and-maintained "Stability", and via sets of careful measurements was able to deliver Fixed Laws governing each contribution of aspects of that current imposed situation.

Now, apart from the unacknowledged belief that "All Laws are Fixed", and merely summed to deliver those results: it was also believed that certain applied appropriate controls, would allow individual Laws to be investigated experimentally to deliver their appropriate Fixed Law, and via this plus measurement, individual values could be obtained. But, of course, this was a wholly Pluralistic Assumption - effectively a kind of Abstraction, which could only be true within a Naturally Pluralist World! And that certainly isn't the case: instead a version of that had to be artificially achieved, and that is at best only approximately achievable, and wrongly always fixed too.

Now, where-and-if that was achievable, it could extract correct data, which could then be fitted up to a Mathematical Form: all of which is inherently pluralistic, and fundamentally different to Reality-as-is! So, consequently, as long as the Conditions for Production were exactly the same as those for the original extraction, the achieved Formula could be safely used to get what was required!

So, in spite of the limitations involved, Reliable Technology could be carried out, despite the differences from Reality-as-is! However - and this is crucial - any derivations as to the actual Real World relations could never be delivered! Only a Pragmatic set up was involved.

Holistic Reality

But Reality-as-is isn't Pluralistic!

Many Laws act together in all possible natural situations, AND affect one another qualitatively! So though perfectly effective Productions are always possible from a strictly Pluralist Standpoint: they never match with natural situations in Reality-as-is! So, the real performing *Natural Laws*, and their resultant combined Effects within Reality-as-is are NEVER revealed within Pluralist Abstractions! And, all attempts to remedy this by using a "supposed" full set of such Pluralist Laws, "in order to deliver" their actual effects by a mere SUM, and will always fail in Reality-as-is - because that isn't what happens there.

Now, that would seem bad enough, but as all Holistic Laws also affect one another - all such Laws must be constantly-varying too!

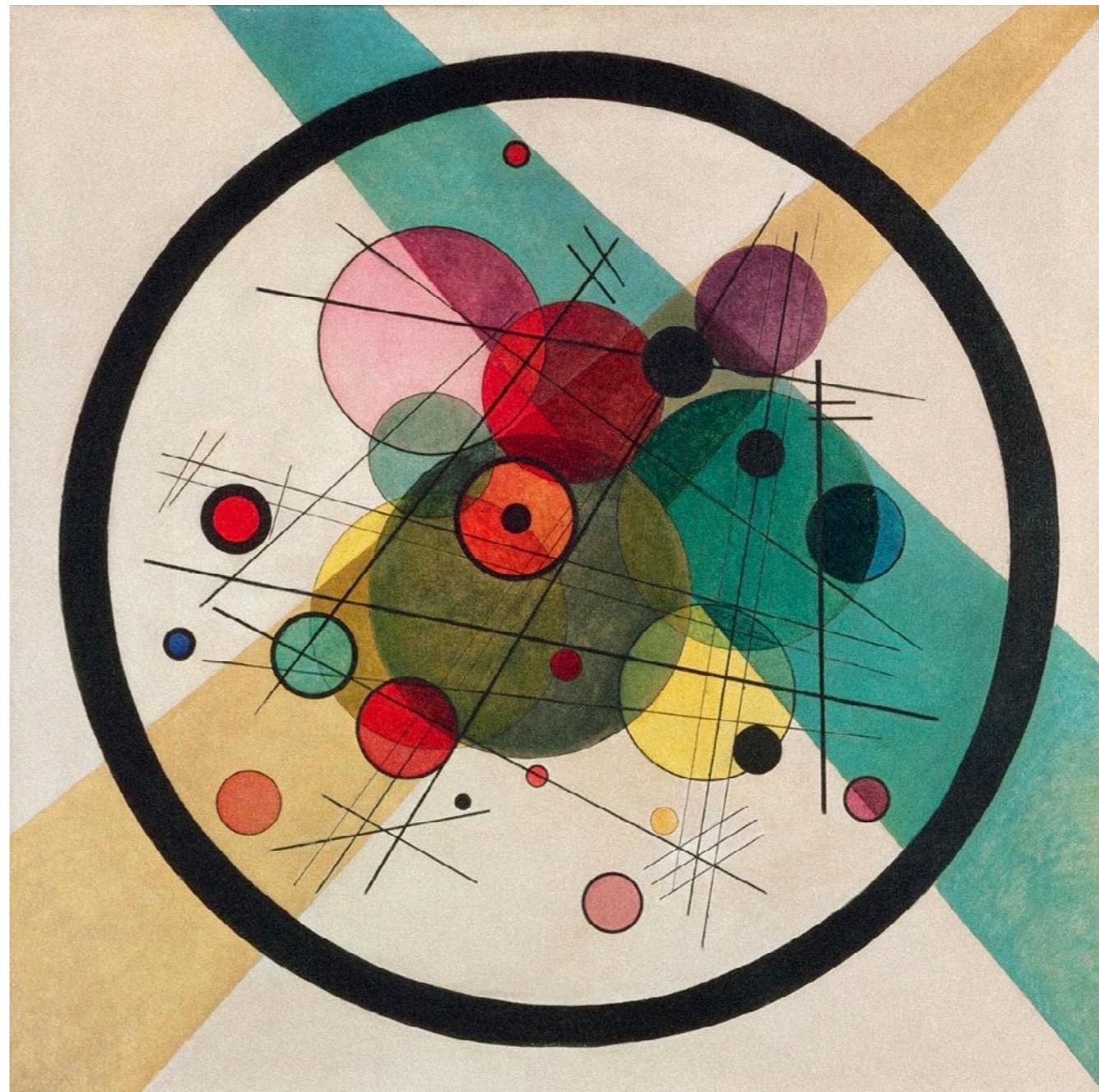
So, how is Real Holistic Science ever possible?

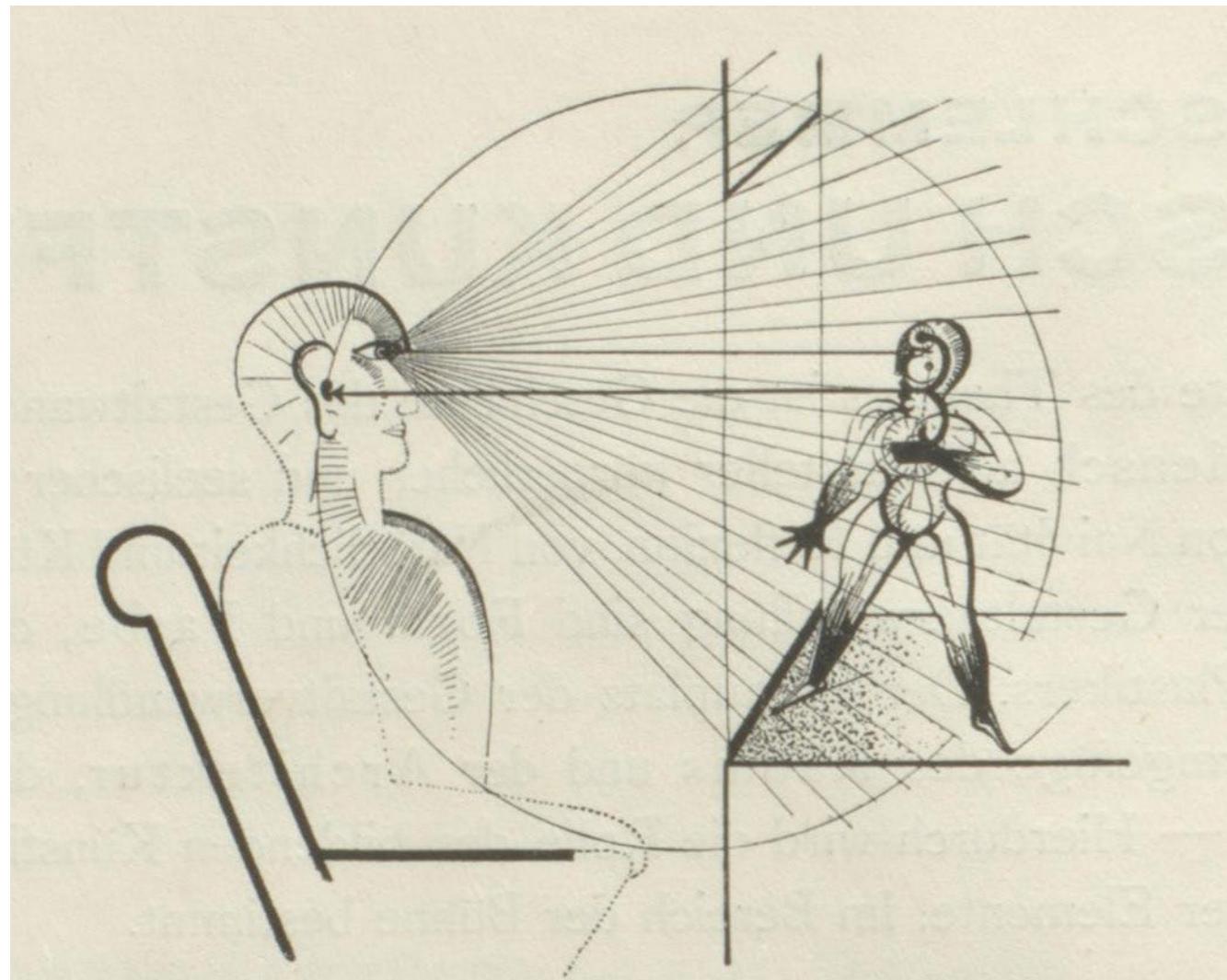
For multiple, and both-ways, Recursions will constantly affect-and-then-re-affect them all! Indeed, when you think about this emerging Reality-as-is, it is clear that, in one sense at least, The Seemingly Constantly New must actually be The Norm.

We can only hope that most of the constantly varying contributory Laws are delivering only minor contributions, so that they will be generally swamped by relatively few Dominating Laws, and thereby enable some sort of understanding of what is going on! But, if that seems to be The Saviour Revelation: it ISN'T! Because that will NEVER occur whenever a Really Wholly New and its Major Qualitative Change occurs! For, such will always, and necessarily, involve the usually tiny "spoiling" Laws, but here involve one-or-more of them, bumped-up tremendously, into providing the dominant contributions to the New system.

So, the possibility of coping with Qualitative Changes seem to be slipping away into ever increasing Chaos... But, there *is* a saviour!

It is the on-going occurrence of constantly-repeating Cycles of multiple simultaneous processes. For, these, unavoidably, have a surprising, Selective-Elimination Feature, which always radically prunes out all but the Qualitative Change contributions, and thereby, ultimately, enable sharp and clear change-overs, -most of the time.





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But, nevertheless, no-one seems to be addressing this absolutely vital aspect of Science.

Real Abstraction

Yet, in spite of these well established Pluralist Aberrations, True Abstraction is still the ideal to be followed: but exactly "What that is?", requires, for us, a necessary detour into the very best of 20th century Modern Art!

You might think that the damage done by Pluralist Abstraction, was sufficient to permanently condemn literally ALL Abstraction as dangerously misleading: but that would be wrong too!

Indeed, it must be clear by now that the Real Holist World and its multi-level Development, is such as to far outstrip currently Dominant forms of Abstraction. But, nevertheless, Mankind has not only survived, but has indeed developed prodigiously, so that many of their attempts at Abstractions must have had at least some crucial Objective Content - indeed sufficient to get us to this point at all! But philosophically, and from the Understanding of Reality-as-is requirement - NOT YET GOOD ENOUGH!

But, something of what is required does actually occur, but not in Science and primarily, and largely unconsciously, it has appeared best in the Arts!

Now how would I know this? While I am an intellectual, specialising in Modern Physics and Mathematics, I am also for 50 years a Sculptor, in Wood and Stone, and unifying all of this, a multi-disciplinary Teacher all of my life, from early years education to lecturing in Universities. And since failing eyesight terminated some of these activities, I switched to majorly being a full-time Philosopher and Writer, publishing well over a thousand papers in the last 12 years!

But, an unconscious switch in my regular pursuits had first occurred while still at school, when I insisted upon a book on Modern Art as my School prize for Academic success in Science and Mathematics! While, thereafter, at University, I ran the University Art Society, while ostensibly pursuing a Degree in Physics.

I also, subsequently, switched my core Discipline many times, throughout my career, finally ending up as Director of Computer Services for Goldsmiths College

of London University, after a series of ever-higher posts in Higher Education, in Hong Kong, Glasgow, Bedford and London (including a British Interactive Video Award for research in motion studies, which effectively used Film, Video and overlaid, derived Animations, to deliver Key Movements in both Performance and Choreography).

Now, such a circuitous career was certainly unorthodox, but it was somehow very necessary-for-me! And the happening that originally set me upon this varied career, was my encounter with the artists of The Bauhaus, active in Germany in the time between the Two World Wars.

For they were using Abstraction both very dramatically-and-profoundly, by NOT merely simplifying from given content, but actually forcing the viewers of their works to return to that content very differently indeed! Many of their works provided, and emphasized, a significant and not-directly-evident sub-plot, that even superlative representation could never deliver. They were revealing, as we must do now in Science, essential hidden contents within the subjects of their works, which were clearly more important: and, crucially were also about the artists' themselves also - though rarely overtly expressed! Or, frequently, not consciously intended.

And our objective is even more hidden than those examples, for the "stabilities" of Holism are generally wholly absent from current Thinking and Observation, and will involve some real difficulties in exposing and then using them.

Postscript:

Clearly, this trajectory will result in yet another Profound Revolution, both in All the Sciences, and primarily in Philosophy, so as with the prior series on Holistic Science, this essay can only presage that major following work, which will also be published in SHAPE Journal when the time comes.

The Trajectory of Real Development II

Stability's Role Within Constant Change

There are always apparent *Contradictions* within any Holist situation. This initially appears to be entirely counter-productive, but, ultimately these contradictions actually reveal themselves to be the only real Engine of All subsequent Qualitative Change, but, whose actual role was initially at least, never obvious.

For the primary conclusion, on studying Development, was always to assume that it initially required a stable-and-persisting, reliable Starting Point - as an unchanging Base for all subsequent Changes. And, to an extent, that was indeed correct: for constant and unstoppable changes, in literally Everything, and happening All-of-the-Time, would surely only result in ever mounting Chaos - any emerging system of any complexity would be swept away.

Indeed, Stability seems naturally to be both the Temporary Reward, and the necessary precondition, for successful-and-enriching Development: but, it is also always-and-undoubtedly a preventive barrier to Development occurring, both before, and after, an Interlude of significant Change, often lasting for very extended periods of Time!

And, in Mankind's early attempts at Reasoning, Contradiction was always seen as the enemy of understanding and reason - the spoiler that actually terminates all further possibilities.

So, it was only very late in our Intellectual Development, that a Thinker such as Hegel realised that Stability was the real terminator of real Qualitative Change: and that Contradiction was the sole means by which things could mostly be initially kept as they are, and then become the

actual driver for the Wholly New, which would then somehow emerge.

There had always been a "fly-in-the-ointment" of all Development, which was initially identified as Contradiction - and, in fact, Zeno of Elea had seen it, soon after crucial gains within the Greek Intellectual Revolution - following them, in his studies of Movement, within his work, on Paradoxes! But, his revelations were largely ignored, and it took well over two millennia, before Hegel revived that line of questioning, and identified the Contradition of Opposites as the means by which the self-maintaining nature of Stabilities were initially terminally undermined - thus allowing something Wholly New to emerge and play a key Role, finally enabling a further extension of possibilities.

But even Hegel's contribution was limited to resolving the long-standing difficulty of switches in the "if / then" clauses within Reasoning, usually between Direct Opposites. He made the resolution of this difficulty Dialectics.

But, it was only his follower, Karl Marx, who generalised Hegel's Dialectics into a wholly New and necessarily *Materialist* Philosophical Stance. Dialectical Materialism, as it became known, could go much further and address all Qualitative Developments, in both the natural and social worlds, triggered when previously established seemingly-permanent, but evidently only temporary halts, in the ever on-going march of real Understanding, founded upon breakthroughs in a recognition of those Temporary Stabilities, and the much wider subsequent avalanche of changes sufficient to dismantle the previously self-maintaining Stability.

But, of course, Marx's Developments were wider and deeper than Hegel's significant breakthrough: for he took the Buddha's initial invention of Holism to a wholly New Level, by converting mere Qualitative Changes into entirely self-maintaining Systems, and realising that Contradictions alone exposed the limitations in these temporary-but-long-persisting halts, and pressed the Thinker into realising how these had been transcended many times in the Earth's History, and which were absolutely crucial in Mankind's development of Understanding too!

Marx was aware of the limitations dominating Mankind's Understanding, both in his study of Social History, and in Human Thinking generally - and having lived through the Paris Commune of the early 1870s, he realised that the most important Developments would have to be in the Understanding of the Trajectory of Development of Capitalist Economics, which were the current drivers of History, both then and in the future.

But, the crucial thing about Holism, was NOT Reasoning, which is just the current state of Mankind's Understanding of Reality, but, instead, the actually-existing Laws of Nature, occurring in a vast Hierarchy of Levels, and Localites, in particular contexts and environments, forming limited "populations" of processes, which, in affecting one another, and particularly, when involving diametrical opposites, can, and indeed do, form mutually supporting sets, which can perpetuate a given population as a kind of maintained Stability!

Now, it is important to remember that natural processes are basically one-off Events, yet literally never occur as

such! Indeed, they invariably repeat, whilever the required resources are available for them too.

And hence the resources and productions of these processes must productively-match with one another, in order to establish a Repeating Stability. And, apart from internal relations of the overall population, there must also be a persistant supply of any resources NOT delivered solely within the population.

Thus, such Stabilities are absolutely never permanent, unless expressly maintained as such - as crucially in the most successful case - in all Living Things.

So elsewhere, when such controlling higher entities are not involved, any temporary Stability will be threatened by absences of required resources and will ultimately always fail in time.

Yet, surprisingly, many natural Systems: especially those concerned with Life, and particularly those involving Human Social Organisations, show surprising resiliences - coping with innumerable existential Crises, yet coming through them, due to dramatic internal changes, wherein what were once considered essential and eternal, can be replaced by a vigorous development of available alternatives.

Stabilities are only maintained by change.

But, even vast dynamically maintained Stabilities can fail - and a whole System can collapse into oblivion, to be entirely replaced by a wholly New Alternative. If this happens in human populations, a Social Revolution will have occurred!



Now, there are many still unrecognised Laws involved in the establishment-and-dissociation of these Temporary -but sometimes very long-lasting Stabilities - occurring at many different Levels in the Extended Hierarchy so created.

Some of these involve the populations of processes forming only Local achievements of such Temporary Stabilities, while others are only limited to related "editing effects" of regularly repeating Cycles of sets of Processes, which are mostly not understood as limiting the variety of contents within a set, yet critically edit the Range of Contents, giving an increasingly stable situation, that will thereafter be dependant solely upon external supplies, and no longer affected by what turns out to be inessential inclusions. These inclusions could only have survived in such a set, if they required similar contents, and produced useable products. But, its continuance, within the set, would always have been incidental, and its own different resources would not get the supportive features available to the rest, so it would gradually also be eliminated!

Thus, regularly repeating Cycles will always selectively eliminate collection's extraneous materials and processes, ultimately regularising its essential processes, leaving NO alternatives to take over, if crucial external resources failed - for then the Stability would dissociate irrevocably!

Now these Temporary Stable situations can occur at a whole range of Levels in the Natural Hierarchies of Reality - from Sub Atomic to Cosmological - and within these occur as mere bundles of Persisting Balanced Stabilities, via various Systems within the Hierarchy, where by far the most important occur at the Human Society Level, wherein the most transforming of them are termed Social Revolutions! BUT NOTE: These are not Existential for the Continuence of the System as a whole, but only its current embodiment.

For Major crises still occur within particular stages (for example, within Capitalism - and certainly they do, routinely), but only in a mere single System's demise, for it doesn't terminate Capitalism as the overall Economic System on Earth: as only one key sub-system failing, can be, and often is, replaced by another similar one, which can still retain the overall Qualities of the prior System, via an alternative replacement. Only when the Economic System as a whole collapses, can we really term it a Revolution. And at a global scale, we can't say that this

has ever happened to Capitalism - yet!

But this has happened before - as noted by Marx, between Slavery and Feudalism, or between Feudalism and Capitalism - and perhaps, in the future, between Capitalism and Socialism (or something else).

Now, clearly, you will not have the exact same features and Laws at every single Level in the Overall Hierarchy. Indeed, almost no Laws will be common to every single Level, and the raft of conceptions which always characterise Holism, and will be paramount Everywhere, will be those about the multiplicity-and-simultaneity of Laws, involving their interactions, dominances, and even their direct opposition!

But, most of all, there will always be a Causality determining every performance, and NEVER an over-arching and determining Mathematical Equation - from which all individual cases can be neatly derived: and, consequently, there will be absolutely NO primary subscription to Mathematical Rationality, and its consequent primary-determining role in any Explanations.

Indeed, no such Law (embedded within a single Formula) will be resorted to as "The Truth": and no Newly-emerged Law, in a never-before-experienced situation, will ever allow accurate prediction, before the outcomes have been experienced in detail.

Indeed, the main objective will always be the formulation of Real Holistic Causal Laws, as they emerge, and an expectation of them changing, or becoming something else, as the context and the content, AND of course *the scale*, changes into something very different, and even Wholly New!

The Trajectory of Real Development III

Trajectories of Revolution

Preface:

The biggest error one can make in addressing such questions, is to assume that such processes are exclusively-quantitative, and only govern the various ways in which such increases are brought about, for they, then crucially, and unavoidably thereafter, affect the resulting products. This can always then lead to changes in the processes involved, but entirely due to the consequent changing Quantitative context alone!

Obviously, by far the biggest determinator of both the following initial processes, and how they will ultimately and inevitably be self-defeating, will certainly depend upon that assumed starting point - the nature of the initial units involved, and how they were originally produced, because to assume absolutely nothing about such questions, prohibits any kind of start in addressing such consequences.

But, of course, the whole problem goes away, if the Principle of Plurality is assumed: for then, simultaneously-acting Laws dont affect one another - they are totally independent of all others, and their quantitative individual effects will simply be summed-unchanged. Yet, even the most basic assumptions would surely include both Matter and Energy as unavoidable basic components, and an initiating Event, presumably as the result of some unstoppable initial dissociating cataclysm!

The trouble with even this, will always be that the situation we are attempting to understand, will inevitably be a very long way from any such initiating Event.

And, and will have passed through many different phases of subsequent changes, and even the separating into various different simultaneous lines of development, which could (and indeed will) thereafter affect one another.

Plurality as the basis for the Rationality employed, is therefore an incorrect assumption, only existing in rigidly controlled situations which we term as Stabilities!

Interestingly, Karl Marx, essentially an historian, was presented with just such problems in bringing together Hegel's recent formulation of Dialectical Development, (that involved unavoidable Qualitative Changes), all with multiple, very different Events occurring throughout recorded History. Marx finally began to address the hierarchy of multiple levels containing such changes, by what he realised mostly happened in the most tumultuous Episodes in that History - for these were the Social Revolutions - ultimately a very late occurrence in History, having followed a truly gigantic slower-moving Pre-History, along with multiple even lower contained levels of development, before Societies, and before Man, and even before Life itself!

You would think it was the worst possible place to start, by ignoring all of the vast prior trajectory of Development on which these complex social situations were built. Science generally tries to go back to fundamentals to answer questions. But, it was, in fact, the-only-possible place to begin!

But Why?



Marx had realised that the vast majority of concrete developments were currently totally unavailable to study by Man! And, this was because most crucial transformative events had happened long ago, and at tempos far beyond Mankind's ability to accurately discern, either by experiencing them, or in studying what remnants were left for Man's subsequent analysis.

But, every single Social Revolution Marx studied necessarily-involved Mankind, as active-thinking-and-doing-agents, and at tempos they could both easily discern, AND purposely intervene in! So, revolutions were actually the ideal places to begin attempting to answer the basic questions involving Dynamic Qualitative Changes, to, for the first time ever, be in a position to see how these decidedly-non-pluralist changes actually happened.

And now, almost two centuries later, Marx's Dialectical Materialism is finally (and belatedly) being applied to the Sciences, observing and understanding the natural trajectories of both Quantitative and Qualitative Changes involved.

But, observing more generally, they still always involved long periods of apparent Stability, separated by much shorter tumultuous Interludes of significant Qualitative Changes - termed Emergences, or even Revolutions. And, these were revealed as occurring at every possible level of Reality, though happening at very different tempos, and involving wide-ranging contexts.

So, the early efforts, pre-Dialectics, by Mankind, were always limited to restricted areas of study, where the investigators always continued to assume the great discovery of the Greek Intellectual Revolution, in carrying over the purely mathematical Principle of Plurality, as being universally applicable to all Intellectual Disciplines. Whereas, it was, in fact, ONLY true of Mathematics, wherein the Pure Forms involved, never changed qualitatively, but only quantitatively.

And this, unavoidably, led to many situations, in which the Logic involved was incapable of dealing with any qualitative changes at all, which hence led, inevitably, to Contradictions, and even terminating Impasses in the Rationality employed!

So, considering Marx's Dialectical treatment of the Trajectory of a Social Revolution, by going from a long-

term, persisting Stability, through various major changes, to finally end up in a quite different Stability - it is clear to me that a fairly detailed description of this process would tell us a great deal about exactly how Qualitative Changes occur in the Real Holistic World. For, when I first encountered such descriptions, I, automatically, also considered other lesser examples of Qualitative Changes, as likely to have a related, if not exactly the same, kind of trajectory of stages, and I produced the following General Diagram to describe all such transformations, presumably at Every Possible Level.

Now, as an initial explanation of what I was attempting to illustrate in this Diagram, I should explain that the original pre-revolutionary Norm is also a kind of Stability, which, in the Diagram, starts on the extreme left, with a seemingly agitated horizontal line, representing that very different Form of Stability.

These ever-present aberrations represent many non-crucial, short moments of always-solveable-Crises, wholly within and essential to that Form of Stability, and clearly, at least initially, they do NOT precipitate, or even participate-in, any sort of cataclysmic Changes, that could get completely out of hand, and precipitate the dissolution of the system.

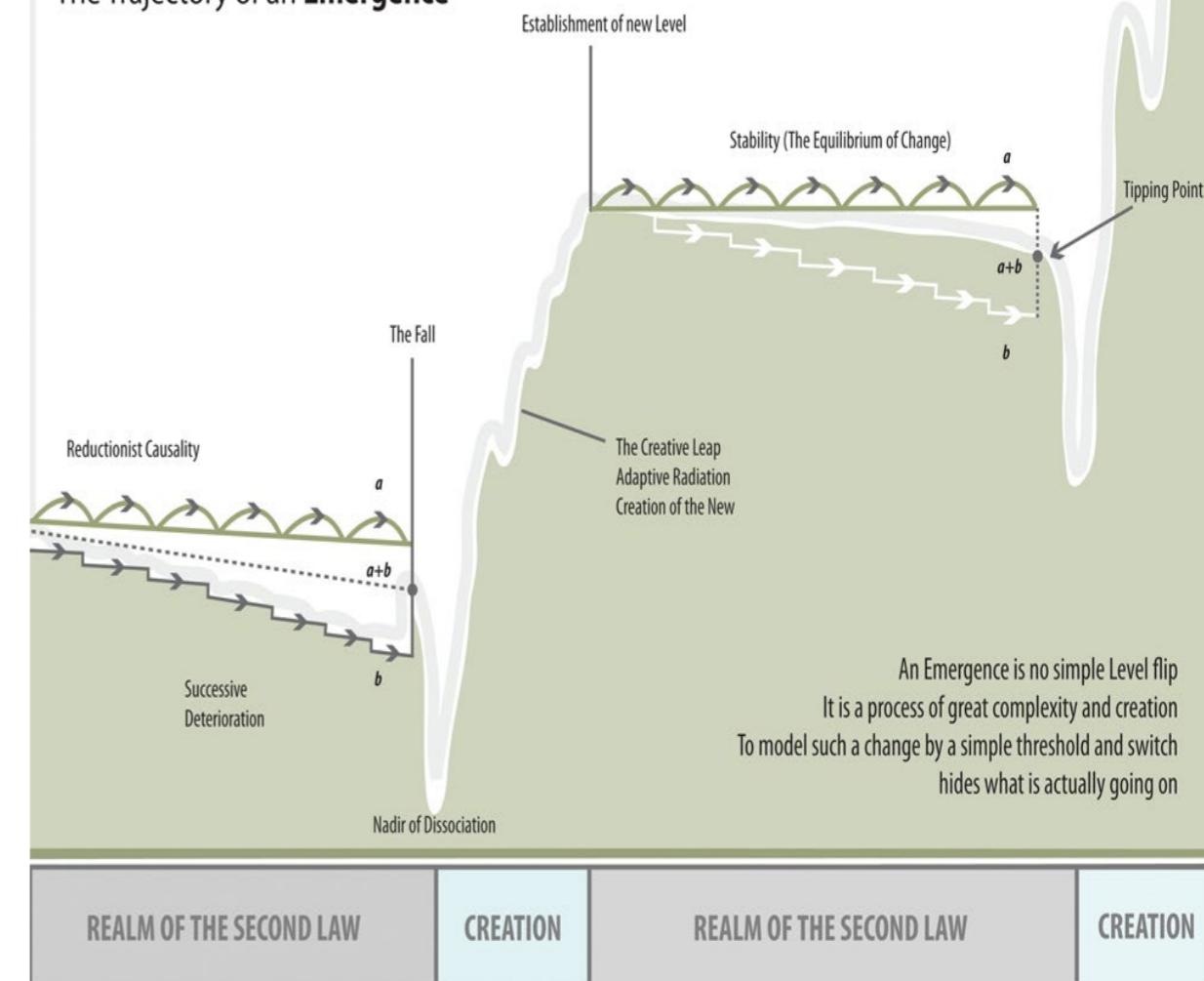
They occur because the situation is necessarily part of a self-maintaining and Balanced Stability - selected-for-and-delivered, over a period of time, as capable of maintaining the current, overall Form, though constantly requiring still-fully-available changes to maintain that present state.

Obviously, after this description, a very much more detailed account of such Stabilities will be required!

But, though these situations often appear to be "Natural and Permanent Stabilities": they are, in fact, only a Temporary one, though sometimes extremely long-lasting, due to its evidently available, and still-built-in possibilities.

But, at some other points, the Crises would develop, into ever more dramatic swings-downwards, until one would finally go on to precipitate a more general avalanche of a series of multiple collapses, seemingly heading for a total dissociation of the whole Stability. But, between the multiple, easily-overcome aberrations, and the final calamitous Failure, there is an intermediate category of

The Trajectory of an Emergence



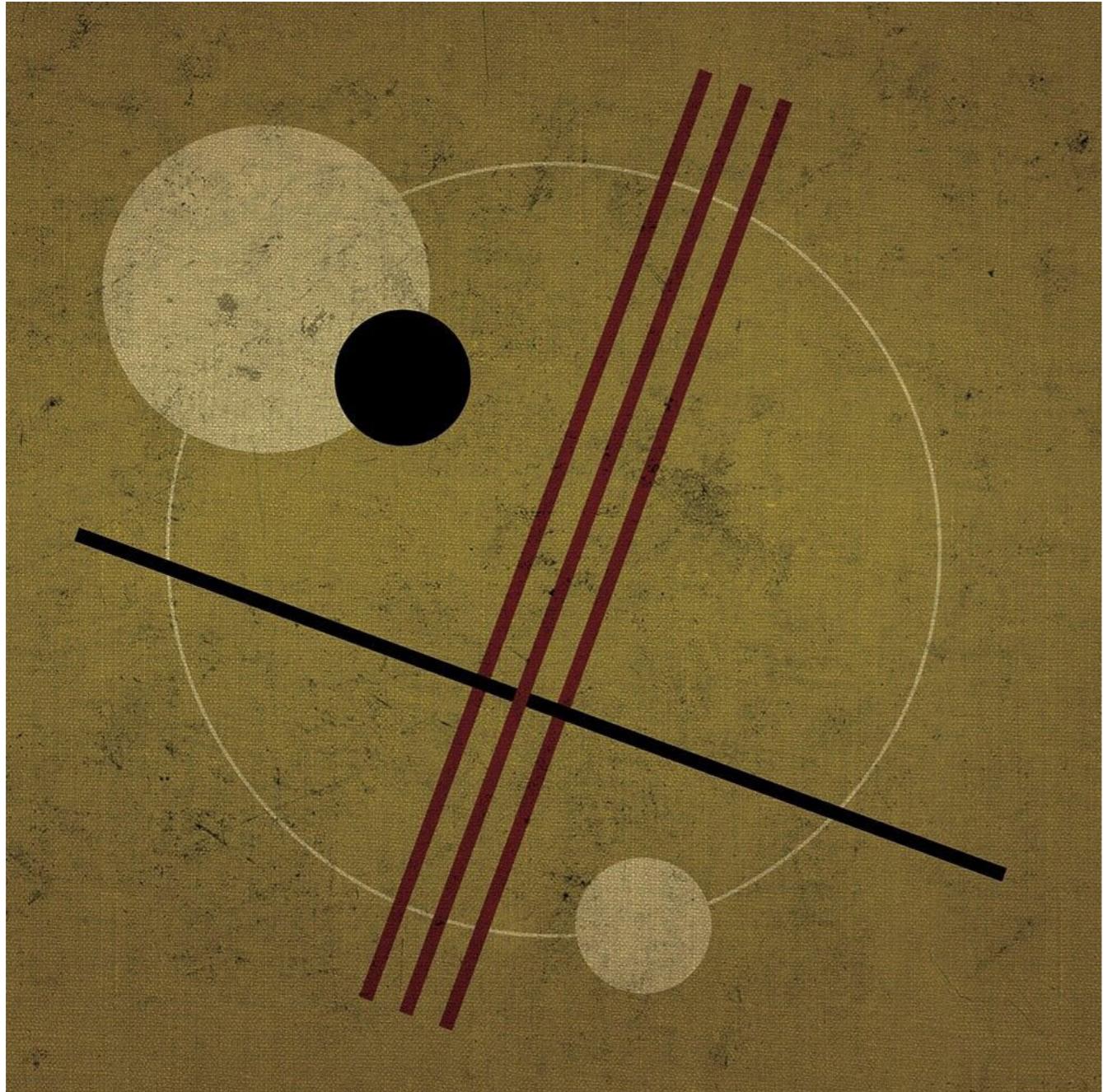
Crises, that has the potentiality for causing Failure, but can be modified by the conscious actions of Thinking Participants, if they are involved - into new forms that can stop that final swoop on the way down, or even torpedo its later building success, with Crises occurring on the way up!

Yet, these are NOT the underlying Physical Laws of Reality, but actually System Laws of Control, which could, and finally do, break down!

In fact, those imposed restraints had finally prohibited the Natural Processes being constantly generated, and selected-for by their effects: in fact, thereby, enabling an ever-better Overall System.

And, when they have finally successfully been dismantled, the Natural achievable process of attempts to improve the overall trajectory will again re-establish themselves in a productive, but different, series once again!

But, let me emphasize, that is no natural mechanistic process: it is, on the contrary, unique to Human Thinking Societies! And, all the active participants, in a Society, are not all of the same mind, as regards the best way for their Society to develop! In fact, different Classes, with opposing intentions, are always involved: and, usually, it is the richer and more powerful of these, who mostly win, and impose their privileged Laws upon the rest of the population. So, for example, many Crises, that once would have precipitated the Final End of a particular form of Society, but have regularly now been overcome,



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within Capitalism, by conscious switches made within different contributory processes, to solve the problem, by countering its effects, with significant changes elsewhere, perhaps in the processes of Production, or Exchange, or even Financing, as long as current facilitaties still dominate, by being always maintained.

Indeed, though temporily effective, most of these improving modifications, were also, and unavoidably, damaging in other ways: so that the incipient areas of future Crises were constantly made Increasingly ever more Existential for the overall Capitalist System, so that, when the tip-over into total collapse finally got underway, it would be increasingly impossible to counter, and for a time would threaten any sort of continued existence upon this planet!

But, the underlying Laws, no longer tightly constrained by an overlay of Social Laws, so attempts, by a series of other alternatives, which, though lasting for a short time, always eventually fail too - until one particular set finally establishes both the destruction of the old, and the creation of a wholly new Stability, in a very different way, and the Revolution is complete!

And, even that situation, which should have allowed of a more powerful Common Purpose upon all possible fronts, opposing the old Society, in fact, only allowed the various campaigns upon different fronts, to only follow exclusively separate paths, and also go so far as to reject the Common Front Approach as preventing the success of the vital nature of their "own singly Most Important Purpose"! And, in so doing, they both reduce the overall impact upon the Common Enemy, that would be gained by joint action. For the powers that be have long themselves subscribed to "Divide-and-Rule" to defeat the Masses! WHILE this policy among the opponents, also preventing the further realisation of all participants, of the unifying and further empowering nature of the Sum of these coincident purposes.

And finally, there is the real purposes of many "sometime participants", who fear that the achievements possible overall, will take away some of their own privileges, so they must keep campaigns upon the Straight-and-Narrow of single intentions, and thereby protecting what they already have, by directing politcal action elsewhere.

All Campaigns include such people!

Just look back to see who have now left the fray and are comfortingly back where they belong!

**Postscript:
Balanced Stabilities**

As promised earlier, the Key concept of Balanced Stabilities was then quickly skated over, in order to concentrate first exclusively upon a currently-observed and essential overall argument. But as with all such crucial "bricks in any significant wall", the latter will not stand long, if such are continued to be neglected: so here, as promised, I will address the idea in a detailed and necessarily extended way.

The core of the concept, as it always must be, with a consistent Holistic Stance, has to be the crucial multiplicity of simultaneous, mutually-affecting processes, that distinguish Holism from the general simplifying restrictions of Plurality, by totally rejecting the usual, pluralistic assumption of completely independant, and therefore permanently Fixed Natural Laws - that merely SUM, and otherwise dont affect one another.

But, here, we must also involve the crucial role of Opposites, not merely as simple additions to complicated situations, but as vital formative qualitative features that significantly change things too! The crucial area is certainly in how multiple simultaneous processes affect one another, NOT as repeatable one-offs, but alternatively also multiply-recursively as well.

And, the first obvious change, that this will make, has to be how all simultaneous processes are constantly varying: for each will affect all the others to some extent, which will then, in turn, re-affect the changed processes more or less constantly, thereafter.

So, the question has to be, "How must we characterise these processes after they have been happening for some time?" And, one thing is absolutely certain: none of them will then behave in the very same manner. They will all vary constantly!

And, the only alternative will be that the inter-affects could gradually-move one-or-more of them into states, where their outputs will significantly change: and, if these cause major differences in the mix, presumably by a cummulative build-up of damaging effects, they could

precipitate a dramatic change in the overall results!

But, the real problems will be concerned with, the nature of the inter-process changes, for they will vary from non-existent to totally transforming, depending upon the actual processes involved, and how they were affected! And, in addition, with a decent population of diverse processes, with affects after multiple interactions might only later arrive at significant changes.

Also, within multiply-repeated processes, as in Cycles, it has become increasingly clear that somehow these multi-process Systems can be changed by "selective-eliminations" of certain kinds of interloper processes, while others might ascend to either individual or shared Dominance - which will be of paramount importance when Direct Opposites are involved.

So, to stack up the difficulties, in this way, may seem to render general conclusions impossible: but there is a valid set of counters to such a conclusion.

For, the very same processes will unavoidably repeat-multiply in very short time periods, and only in exceptional cases will these carry on with the same effects ad nauseam! Mostly, various fairly fixed Cycles will become established, or a balance of continuing processes achieved which will finally enable fairly straight-forward outcomes to be arrived at.

So, the Pluralist straight-jacket of assuming only Fixed Laws, will in Reality-as-is, be replaced by several different possible outcomes, depending upon the precise circumstances. And these can, and indeed do, lead to alternative outcomes that were wholly-unconsidered within Pluralist Science. And, the most important of these is what I have termed *Balanced Stabilities*!

And to make an informed transition to these important Interludes, we have to fully understand, both the effects of Selective Eliminations within repeated Cycles of Processes: along with both the controlling and switching effects of Opposites also!

So, let us first consider Opposite-Producing-Processes occurring within resilient, seemingly self-maintaining sets, composed of many different but simultaneous Processes. For there, the preponderances of certain necessary resources, actually allow certain of them, to totally dominate the whole collection, composed of

linked simultaneous processes. Indeed, the outputs from involved Dominant Processes, will both hide the outputs coming from others by swamping them with a deluge of dominant products. But also they would deliver only which one of the two Opposites is the larger: for equal amounts of them both, will merely cancel one another out. While those Opposite and Dominant Processes, will depend, for their joint effects, upon which is served best resource-wise, as to which appears to deliver the major Dominating Product, while variations in the available resources could easily switch the dominating output to the Opposite Process! Thereby, giving the reason for the famed "if / then" clause in Pluralist Programming, but at the same time hiding an also produced third situation, when the two are exactly equal, for then they will totally cancel out completely, with absolutely NO Trace of either in the outputs!

Clearly, after literally millennia of the misleading Pluralist Approach, with its forever Fixed Laws, such considerations of the dynamical interactions of multiple, simultaneous processes, will never have been systematically considered.

But, of course, instead of the simple Additions of the Pluralist Stance, we must now in the era of Real Darwinian Evolution, also address Qualitative Changes in Everything, wherever and for whatever reasons it occurs!

At the very same time as the Greek Intellectual Revolution which established Plurality, in India, The Buddha was beginning to define the Holist alternative, and in spite of its evident drawbacks, it has survived ever since because it begins to address Qualitative Change.

And though, via Hegel and Marx, a new version was developed in order mainly to understand History, and latterly Capitalist Economics, it was never effectively addressed both in General Reasoning, or in any of the Sciences! But, in the last decade significant gains have been made particularly in Sub Atomic Physics, in The Critique of the Copenhagen Interpretation of Quantum Theory.

So, the necessary application to the above posed problems is now clearly evident!

Now this Postscript upon Balanced Stabilities, has I believe, pointed the way to an understanding of the important features of Developing Reality: but NOT YET as a fully fledged Explanation.

Certain things about these Temporary Stabilities very quickly become clear, but must also be adequately explained.

And that, of course, is far from complete!

For, it simply must be the case that a Balanced Stability, within its arrived at composition, must be completely self-maintaining, so that whatever begins to threaten its Stability, must also immediately initiate what will bring it back to the stable state. Yet though this will be the long term Norm, it can and indeed will be insufficient at some critical point and instead precipitate a general collapse.

But that is easier said than done!



Patterns and Pragmatism

Electric Universe “Theory” and “See-the-Pattern” Pragmatism

Having been totally disgusted at the state of Modern Physics (particularly in the Sub Atomic Realm), while also finding that most physicists are surprisingly useless at solving practical problems, I have always, (since I had access to the best of them in my places of work - latterly in Colleges and Universities), turned to Engineers and Technicians for solutions to many problems - BUT, also very soon realising, never to make the mistake of, in addition, expecting any *Explanations* from that same source!

Now, in my early education, wherein I found myself to be extremely able at Mathematics, I had however, fairly quickly discounted it as a Lingua Franca of Absolutely all Understanding, as it didn't ever explain anything at all, and so had turned to Physics, where all my teachers subscribed to the idea of Causality for Explaining Everything, and hence for the first time in my experience subscribing to a sound-and-developable approach, which should, if pursued productively, equip us all, to increasingly understand our World.

Of course, it was never presented as “already complete”, but, nevertheless, it did have a built-in Confirmatory Practice of proving all extracted Theories via appropriately-devised Experiments: and this, if pursued intelligently, should be able to keep scientists upon the “Straight-and-Narrow” paths towards the Truth!

But there was still a “major Fly in the Ointment”, in that the only soundly established Rationality that was defined (ever since the Greek Intellectual Revolution of two and a half millennia ago), only consisted of totally-Fixed Relations and Laws, and so Rationality was restricted to the Principle of Plurality.

This inevitably hogtied it to a restricted subset of the Full Set of Relations within Reality-as-is, and which allowed only Fixed Laws, and was totally inadequate in representing the true range of possibilities in a Developing and even Evolving Reality.

Indeed, all Qualitative Changes, and hence all Development was entirely congenitally impossible within Mathematics, so practitioners kidded themselves that mere Quantity-into-Quality was sufficient to deliver all developments! And, as Mankind for many, many millennia had depended solely upon pragmatism - “If it works, it is right!” - this was used to fill the gaps, so that Purely Pluralistic Rationality was the unavoidable result!

So, in a joint Campaign between the Pragmatic Engineers and the Pluralist Scientists, a false amalgam was erected, which could never deliver True Reality-as-is, but, instead, only a distorted cut-down version of it, that limited itself to the Pluralist World we had created.

Now, a kind of truce was soon involved, which was restricted ONLY to that part of Reality which conformed to Plurality, and was, therefore, wholly incapable of addressing all Calamities, Crises, as well as Absolutely ALL True Qualitative Development! Indeed, though development was recognised as occurring, IT COULD NEVER BE EXPLAINED, so Causality was wholly abandoned as the necessary Lingua Franca, and was replaced instead by Mathematics, which was accepted by both sides in the union of Scientists and Engineers involved!

Now, this was readily accepted by the Engineers and the Scientists, because it was accompanied by an

absolutely essential distortion of the situations involved, by the Engineers skillfully transforming those situations - by dramatic restrictions in the content of delivered contexts - to totally conform to a strictly Pluralist State, while investigating it, and then delivering the exact same Context for use of the extracted Pluralist Law within Production.

So it would all work!

But it wasn't a true situation for either process. And so, the derived-and-used Law was certainly NOT the Actual Law in Reality-as-is, but a CUT-Down Law restricted only to a specific artificially pluralised situation, that could never be used anywhere else.

Indeed, the usual substitutions between those Pluralist Laws could never be legitimate in how they are used to supposedly develop "a comprehensive extended Discipline", via only pure mathematical substitutions, between those entirely Pluralist Equations unavoidably involved.

Let us be clear! The whole version of a supposedly comprehensive Discipline, derived solely from such Pluralistic Experiments, is clearly illegitimate. And, the only other Stance available for constructing such a Discipline is ONLY the Holistic Stance developed by Karl Marx in his Dialectical Materialism.

Now, how can that be soundly achieved?

First, there is NO Common Ground between all possibilities - for as all Laws affect one another, but No Single Situation is ever our required Common Ground: that in the past was delivered by Pluralist Mathematics in strictly-maintained Pluralist situations. So now, it is likely that literally NO candidate for such a Common Ground which can never change can be relied upon.

ASIDE:

In a TV programme, on Sky TV, concerning David Hockney's recent excursion into Portraiture, he embarked upon a mammoth series of portraits - all taking 3 days each, but sitting upon a dining chair in his studio, with a brown floor, and Blue walls.

He was clearly seeking a Common Ground to sharpen up his portraiture independant of the Context. For, the

early portraits of his youth, which had won him world fame, had done the Exact Opposite - positioning them in their own homes and in their self-chosen Contexts.

So, that context was vital, in defining how the sitters had chosen to be illustrated. Indeed, Context was paramount!

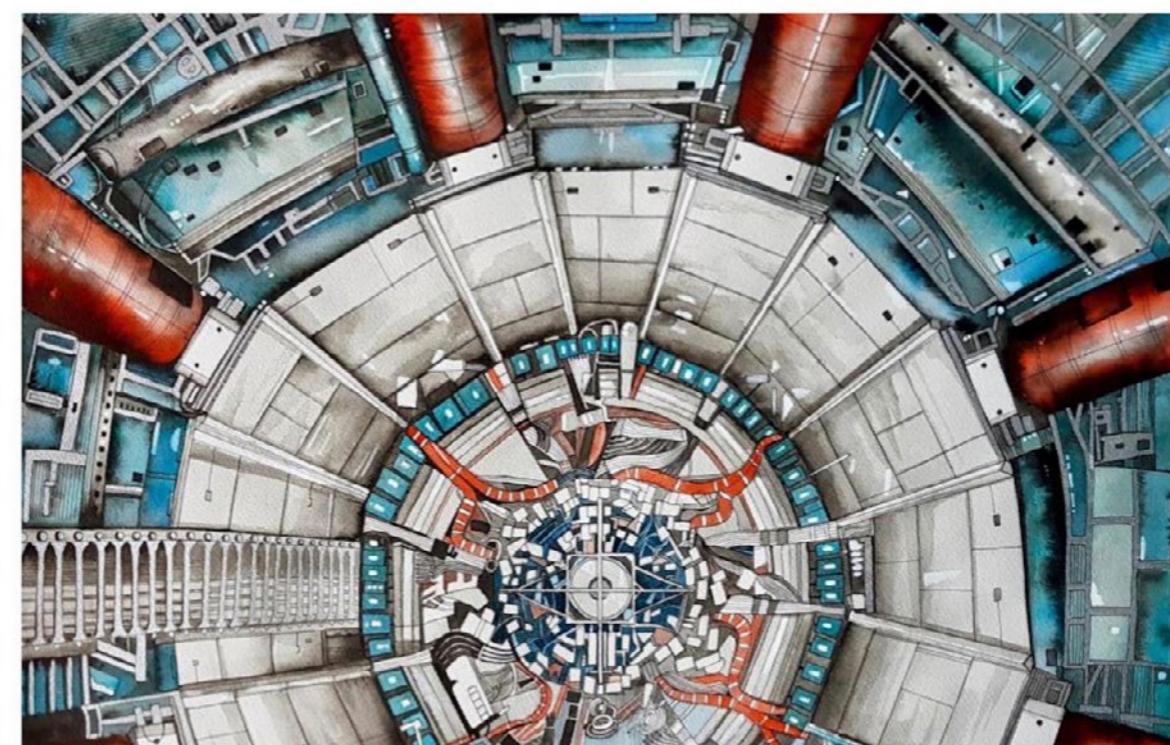
Now Hockney had, not long before this great endeavour "done-a-similar-job" upon the Landscapes of his Home County - Yorkshire, which was also tackled via a limited set of parameters, very different indeed, to his last excursion in the same area 20 years earlier. So, Hockney was not to be deflected from his steadfast intentions to reveal exactly how his technique could be developed independently of the usual determinants. He was dismissing the easy determinants for something more intrinsic to the actual subject.

Now, there are parallels between Hockney's turn, and what is necessary in detaching The Sciences from the Plurality of Mathematics: but in Truth, the task is much more difficult. For the adoption of Plurality and the tight, and entirely possible control of both Investigative and Production Environments made wholly reliable productive processes both achievable and trustworthy: they just totally detached them from a Real Understanding of Qualitative Change and Development.

So, Pluralist Science did indeed deliver a Path to viable Technology, but NOT to Science as the means of Understanding Reality-as-is! But, it was also still inadequate, even within its proven strengths, for many areas of Reality were totally excluded from being accessible to Human Control and use, and the supposedly "agreed-match" with Science in the relations between Theory (in Physics), and Practice (in Technology) were forever breaking down, and "solved" by Engineers wholly pragmatically.

The New Ideas behind the Copenhagen Interpretation of Quantum Theory did not convince the pragmatic Technicians and Engineers, while both sides were wholly content with the Pluralistic Mathematics, as encapsulating all that was achievable (as long as they were not stretched too far!)

So, it was in Cosmology, where the Engineers began to diverge dramatically from the Scientists, as they had a link between what could be investigated in the Laboratory, and what also happened in the Cosmos -



which the scientists had ignored! The Link was the role of Electricity and Magnetism in both of these areas, on the Cosmic Scale, these Effects were due primarily to Plasma Streams, consisting of Charged Particles within Space itself, whereas, on Earth, Mankind had long limited such processes to at least being initiated within Wires, or in otherwise evacuated containers, as in Neon Lights, or as cataclysmic Lightning Strikes between Charged clouds and the like.

The role of these, in Cosmology, had been largely rejected by Scientists, who explained everything Cosmological entirely in terms of Gravity alone!

Yet, particularly among Scandinavian scientists, who experienced regular sky-filling displays of the Northern Lights, this didn't seem right. The aurora, which turned out to be Streams of Charged Particles (Plasmas) from the Sun, homing in upon the Earth's Magnetic Field, emerged most strongly pouring towards the Earth's northern Magnetic Pole! These scientists both had the experiences and required the answers to these dramatic occurrences, and by the time of Hammes Alven, this body of Theory had reached the required standard for him to be awarded The Nobel Prize in Physics.

Alven's contributions delivered an alternative mechanism for the Structure of the Universe that make Electromagnetism even more important than Gravity in its development!

ASIDE: Now we have to attempt to position all of this within the then-current Scientific and Social Political World Environment, in which it is all materially taking place - enchanted, on the one hand with High Speed Particle Accelerators, and on the other, with Capitalism versus Communism and the Atomic Bomb! No Powerful Country could replace Current Researches with Alven's Alternatives, and they didn't. Massive amounts of State Funding were being poured into Nuclear Research - and NONE was available for Alven's Alternatives.

But a sizeable sector of the Technician and Engineering Community in Physics increasingly differed fundamentally and turned towards Alven's Approach! But they were still Pragmatic Engineers rather than Real Scientists, with their indispensable tenet "If it works, it is right!" And, they were also still wedded to the same Pluralistic Mathematics as their shared Common Ground with the Scientists.

One of their number, Gareth Samuel, runs a very popular Blog entitled "See the Pattern", which clearly epitomises their stance, in that once a recognisable Pattern has been established, with a pluralist mathematical Form - the "theoretical" job is considered complete: their Common Ground steadfastly remains Pluralist Mathematics alone!

As a committed Explanatory Physicist, myself, I DO NOT consider such Mathematics as sufficient: I require Physical Causal Explanations as being the actual drivers of Reality, and NOT their shadows in mere Mathematical Forms alone!

But they never come! And, of course, these alternative theories end up as speculative as the Cosmology of the Traditional Approach.

Where are the On-Earth-Experiments attempting to resolve such questions?

Believe it or not, they are alive-and-well, in the midst of the same Electric Universe Group as themselves, but working upon Nuclear Fusion, where they are engaged in the actual Generation of Electricity - the leading scientist being Eric Lerner of the Focus Fusion Group!

Now Lerner and his small group do NOT rely exclusively upon Mathematics: he does seek Causal Physical Laws, particularly, when they are simultaneously present, but can be moved in-and-out of Dominance via physically-controlled-&-varied-situations passed through by various stages within Flows involving Differing interacting materials and Laws.

By years of detailed studies and developing appropriate designs, he has built a machine based upon flows of his chosen materials, in a system where increasing concentration and heat generation as they pass into different conditions, cause different Laws to become dominant, and which along with the physical design of the succeeding receptacles gradually forces the materials into different conditions and dominant Laws to finally undergo Fusion.

His machine is on track to produce a viable source of Electrical Energy within the next few years, as an ongoing repeating pulse machine.

There are many aspects of his work that are supremely Holistic, and its ultimate success has a great chance of helping to establish Holist Science more generally!

Finally, as personally, a Holistic, Causal Explanation Physicist, I must return to so-called "Electric Universe Theory", for a final condemnatory criticism, which totally undermines its method and conclusions: for, whatever else it purports to be, its complete subordination to the Pluralist Stance, and the supposedly "confirming objective" of a strictly Pluralist Equation - as the "full embodiment" of the underlying Theory, immediately scuppers its supposedly "Objective Credentials" - it just can't be True, as the strict and extensive limitations required to arrive at such an Equation, permanently detach its Form from actually-existing, and constantly-developing Reality-as-is!

It is merely a Law, set up within a fixed set of circumstances that are so far removed from that Reality, as to deliver only "Truth-in-a-box" - and in a box devoid of all Qualitative Changes and development - the richness of the natural world.

Whenever following any theoretical arguments from any members of this group, the sole objective is, indeed, to "See the Pattern", and once this has been achieved, the process terminates.

The assumption is that a piece of the Fixed-Law-Jigsaw-Puzzle of Reality, and such an "argument" always ends with an encouragement to continue the same process until The Jigsaw is Complete!

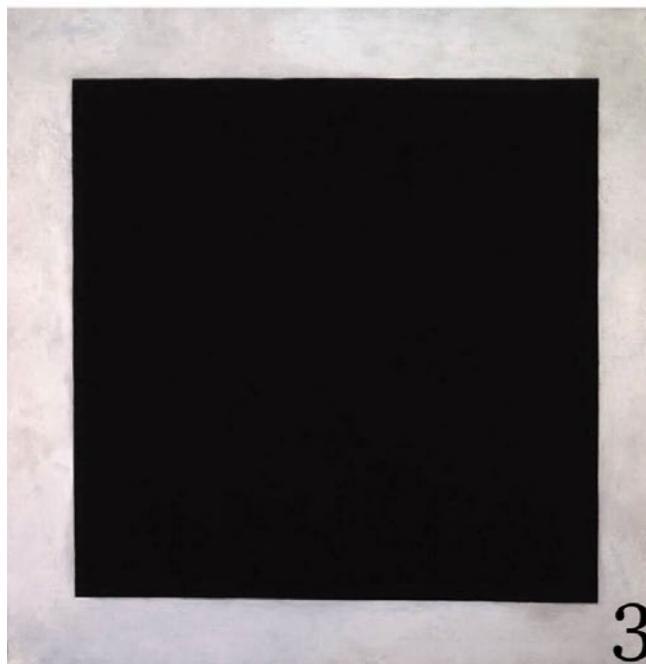
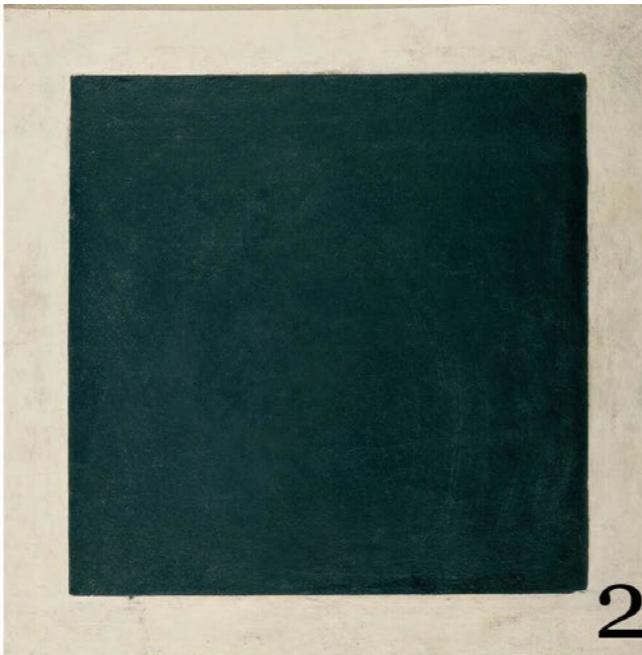
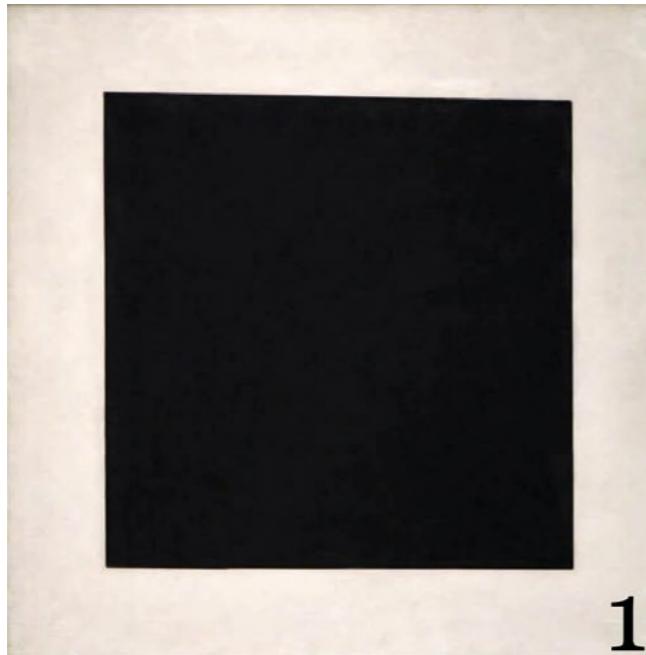
Clearly, Causal Explanations of Reality are wholly replaced by Strictly Formal Relationships, which will finally emerge as an overall, merely integrated collection of permanently Fixed Laws.

[Editor's note: for more on Jim Schofield's assessment of the Electric Universe alternative physics, please see Issue 72 of this Journal]



Theory and Cosmology

Addressing the impossibility of its Experimental Confirmation



The performance of scientific Theory over millennia has taken an unavoidably distorted trajectory, due entirely to who were involved in both initiating and then developing it! They were, most certainly, NOT in immediate and detailed possession of what they needed to begin to interpret the Night Sky, which was where they sought answers, to what it displayed, as the context, for where-and-how they then were.

And, in spite of the clear evidence, everywhere else around them, of almost constant change, The Heavens were seemingly in constant *movement*, regularly across the sky, but were otherwise seemingly fixed, in its content, displaying also an intricate-but-unchanging order.

Surely, they thought, the clear unchanging order of The Heavens above, must also underlie the complexities of things down here on Earth!

So, a general Ordering-Mythology was constructed, in the image of the observers, Mankind, by those who resided up there in the Heavens, and consciously-directed things down below, like pieces within an ordered game.

It wasn't very effective in influencing things down here on Earth, but it still satisfied the majority - by reflecting those evidently occupying positions of power on Earth, while justifying largely what those Rulers did also. But, it could not suffice, as clear causes and effects were increasing evident down here on Earth, and certain privileged individuals, with both the time and the resources, began to look for analyses here, not only for what happened on Earth, but also for the Nature of The Heavens, as they were increasingly observed in ever greater detail.

And, even more damning, there were increasing numbers of ordinary people, certainly not of the Privileged Class, who were intervening ever deeper into Nature, down here on Earth, to regularly increasing success, even if it was in the areas that were restricted to the Non Privileged Classes, such as those who planted Crops, and both tended them, along with their captive Food Animals, built wheeled Carts, and even smelted Iron from naturally occurring Ores. So, the increasing Intellectualism of the Privileged Classes, more and more, had to include these real concrete achievements, but always somehow-and-necessarily subordinated to the overall Philosophy that justified the current Political Order down here on Earth!

The discoverers weren't what we would now call scientists, so their devised incantations were as important, if not more so, than their sequences of appropriate processes: for at that stage they only knew How, but never Why things worked as they did! The basic Principle was always "If it works, it is right!" And, the early attempts of the philosophic wing of the Privileged Classes did Nothing to throw a revealing light upon these Pragmatic Discoveries.

But this did change in Greece in the 5th century BC, when they did ultimately impose the general Principle of Plurality - first legitimately upon the Emerging Discipline of Mathematics, and, thereafter, wholly illegitimately, upon both General Reasoning and All of the emerging Sciences. But, literally from even before the Bronze Age, Mankind had been Observing both the Heavens and the varying times of sunrise and sunset, the Moon's, rise and set: and also crude means of measurement of both Heavenly events and their Times, all slowly-but-surely,

related to measureable things, and these were purely for crucial prediction purposes - such as, the planting and gathering of crops.

The most advanced of these early cultures were always connected with Rivers, due to their Flooding, and then with primitive irrigation. But, as to any overall Explanatory Meaning to all these observations and discoveries: that was only present in the form of being the controlling Decisions of the Gods!

It was only by the time of that Greek Intellectual Revolution that they began linking their measurements to Causes, and these were, always, wholly idealistically, arrived at, with Number itself being given Causal Weight, when it could, while all the rest still being attributed to the Will of the Gods! Indeed, several millennia were dominated by such "explanations" for natural phenomena, and it was not until the early Middle Ages that Mankind added Investigative Experiments to the crucial means of developing the first real attempts at Scientific Explanations, independantly of Mathematics, though that continued to be a major means at the early Scientists disposal! It was only when supposedly Explanatory Equations were developed, that Plurality was imported along with the increasingly dominant Mathematics, making all of these "Laws" also permanently fixed.

It must be emphasized that literally all Explanations were originally wholly independant of Mathematics, and always involved concrete physical Causes, which NEVER DID gel completely with the Equations formulated by the inclusion of Algebra and its evident Rationality into the System! They were similar, or even close, but as accuracy gradually improved, they increasingly differed ever wider from each other.

So, to cap it all, the technicians and engineers, who established the conditions for these Experiments, became supremely adept, by drastically limiting the context and content delivered, so that what went on was artificially converted into a wholly-artificially Pluralist State, in which the Pluralistic Equations DID reflect exactly what happened there!

Yet, a further wholly WRONG assumption, underlying this whole process, was that, even in the World of Reality-as-is, the many naturally-simultaneous, individual Laws acting together were definitely NOT exactly-the-same as

the artificially Pluralist Equations obtained from such Experiments. For that was wholly UNTRUE!

And that has major implications for a supposed Generally Applicable Science, developed wholly-mathematically from a collection of uniquely constructed experiments, each strictly pluralised for that situation alone, yet here merged illegitimately into a "generally-applicable set of coherent Laws", achieved wholly by algebraic substitutions between its actually unique, individual, Pluralist Laws.

Now, in spite of these wholly damaging effects theoretically, yet technologically, as a whole sequence of wholly separate processes, they could be successfully marshalled into an overall Successful Production! And what had been the perennial, justifying tenet for many millennia? "If it works, it is right!"

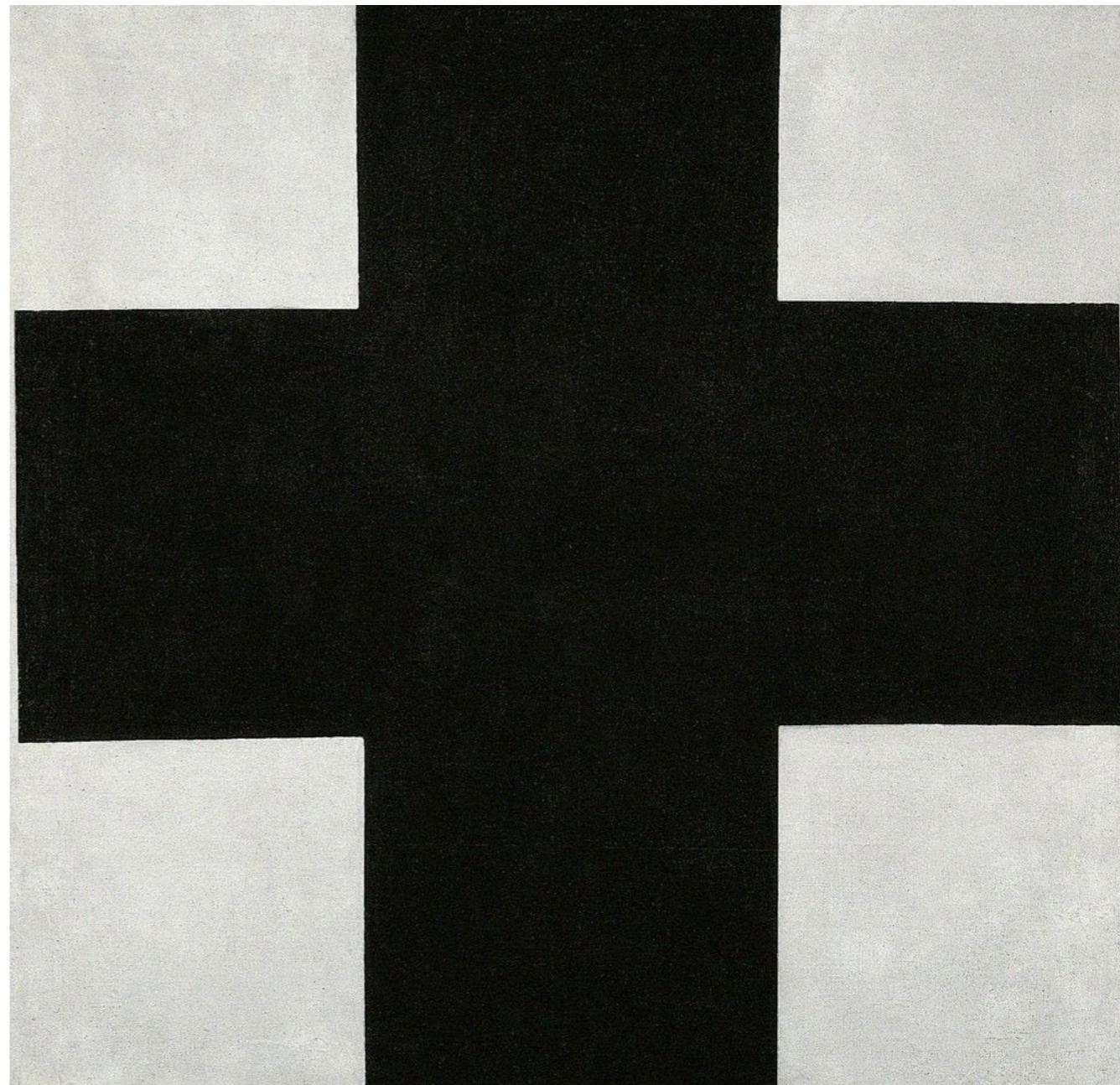
But Real Laws DO NOT remain exactly the same in all circumstances: they ARE affected by both context and content of their situations! Pluralist Fixed Laws were always a simplification: a "Holding still of Reality", in order to tightly restrict its natural relations, and substitute a Single Fixed Law as a step towards understanding a situation. Sadly, it Absolutely NEVER does that! It is, at best, a crude approximation, that, along with others of the same ilk, takes the overall theory ever further from the Truth, while in experientially demonstrated sequences can still achieve desired objectives.

But, it is NOT an adequate means for Extending our understanding of Reality-as-is, for it uses only Fixed Laws, which, at best, move in and out of Dominance.

To illustrate just how lame this is, it cannot ever predict-and-explain any Qualitative Changes at all: and the absence of predictions of the Emergence of the Wholly New are because they are always totally impossible, and even when such do happen, they can NEVER be explained!

The whole Dynamical Trajectory of Evolutionary Changes were-and-are wholly unobtainable, because so-called Science hasn't ever addressed such things!

The most important, and really-existing Natural Laws are all to do with how purely locally-defined-laws, can relate to one another: in fixed ways, and even then it isn't simple addition: nor should it be replicated by Overall





Randomness, and Probability Theories, especially when Qualitative Changes occur, and remove the situation from its wholly Pluralist conditions.

It is then, on the contrary Holistic!

For, in Reality-as-is, absolutely NO law exists or acts either alone, or in such simple relationships as occur in all cases in Plurality - which is an abstract simulation of the material world that we have built over the last 2000 years.

All results involve a number of contributions, that always affect one another: and all the involved qualitative changes, which can only be addressed in some sort of Holistic way!

But, the Laws governing these interactions are largely, wholly unknown, and never sought, because they appear to result in endlessly complicated, and forever varying results! And, though that is almost true, it isn't entirely so - for these seemingly unanalysable complexities DO indeed settle into regularities, but with frequently initially-totally-unpredictable outcomes. Perhaps, the very best illustration of the difficulties involved in Holistic Science, was demonstrated by Stanley Miller's famous Experiment upon the Origin of Life on Earth.

He set up a sealed System, containing all the known components of a pre-Life Earth, with the elements of a primitive Atmosphere, Water and the application of Heat, with a condenser to deliver Rain, and electric Sparks as Lightning, and set the System in Motion! Within a week, he opened it up, and analysed the reddish-brown liquid that had been formed, and discovered that it contained Amino Acids - the Key Building Blocks of All Life, which had been produced! But, he had no idea, and could not discover, just how it had all happened: as well as no idea how, then, to proceed further with his investigations into Life's origin. The Experiment was abandoned, as it was deemed impossible to achieve anything further that would be useful.

But, as this physicist has discovered, developments since Miller's time, along with, instead, a required whole sequence of experiments that would be necessary: each one determined by Questions arising within prior-produced versions. And also, the included provision of inert channelling barriers - devised, to allow alternative simultaneous paths of development, along with non-

intruding monitors - built into those barriers - gathering a great deal of information that could be gleaned, in detail, about what exactly was going on!

Clearly, such experimental means simply must be a major part of the Holistic Experimental Procedures, for what, generally, needs to be revealed are NOT Single Fixed Pluralist Laws, but whole sets of related circumstances, with their contained, but varying Laws - and, of course, sufficient validations of any extracted theoretical conclusions! And, instead of merely linear additive development, there surely has to be an effective means of recognising the precursors of a Coming Qualitative Change, that will transform almost everything involved!

Now, the reader will be wondering exactly when we are going to address Cosmology in this paper! But, clearly, though in the usual Pluralist Approaches to the topic, many obvious criticisms could be validly made - they would, most certainly, NEVER lead to new and revealing solutions, because the whole Pluralist Basis is both wrongly and wholly incapable of revealing what is necessary! Clearly, the only possible effective approach to Cosmology has to be Holistic too.

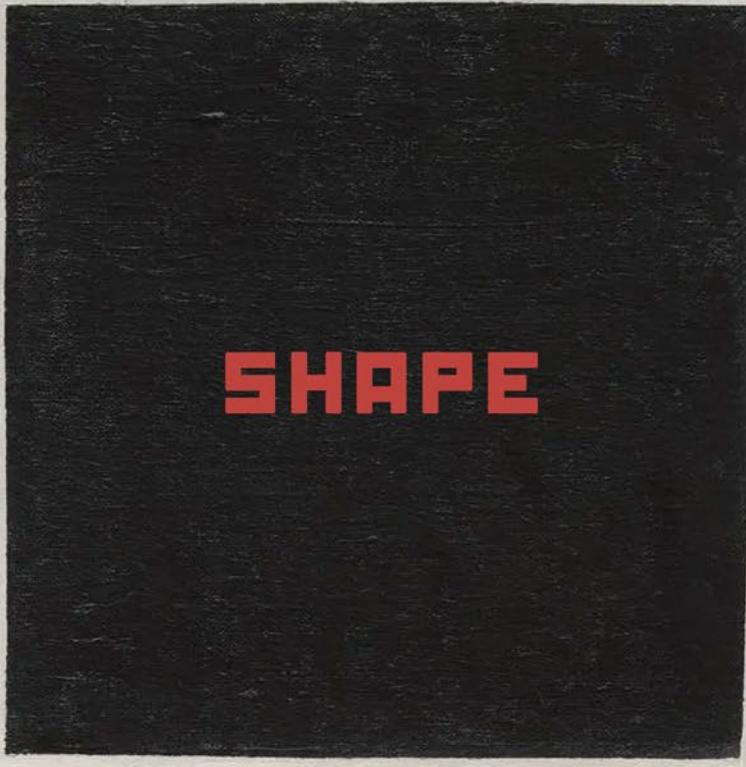
Just think about the difficulties of effective Confirmation Experiments on Earth. They would be wholly impossible in Cosmology! But, the very variety of outcomes with a Holistic Approach, could only match with a profoundly close set of holistic explanations: and further possibilities could be suggested and examples of them sought in The Cosmos! Indeed, the very variabilities become an advantage, so that mere Observations would be far better confirmations than they could ever be with Fixed Pluralist Laws guiding Cosmological Theory.

Postscript:

Just imagine Miller's Experiment, re-designed as described earlier, involving long sequences of versions, with separated paths of development, along with others in an investigative-remix!

What could be learned there would be the best possible primers for a subsequent set of applications in Cosmology.

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