



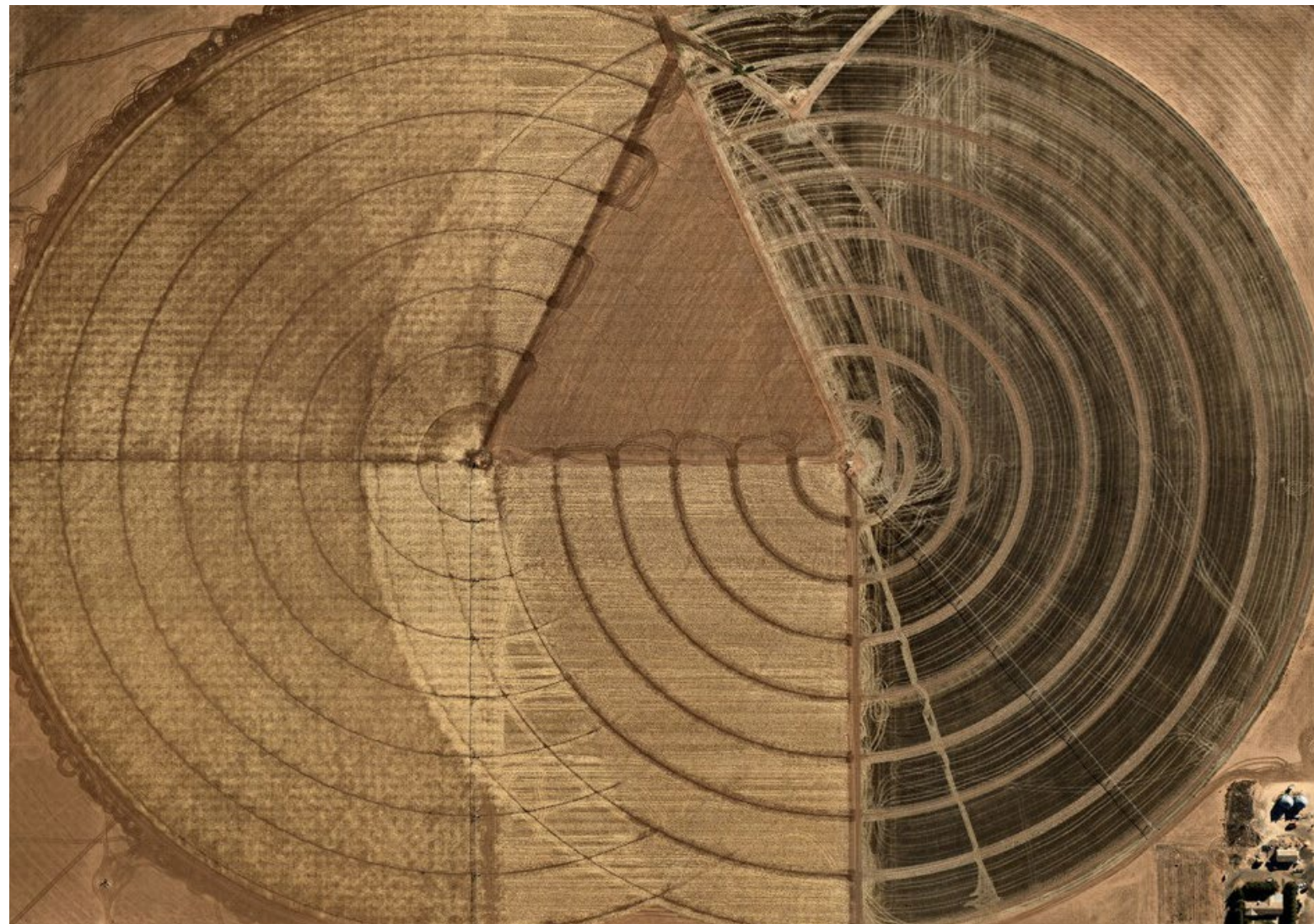
SHAPE JOURNAL

HOLISTIC MATERIALISM II

MATERIALIST DIALECTICS / HOLISTIC STABILITIES / COMPLEXITY OR EVOLUTION / HIERARCHICAL AND RECIPROCAL DEVELOPMENT / MULT-FACTOR SITUATIONS IN NATURE / STABILITY WITHIN INSTABILITY

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Words Jim Schofield
Editing & Design Mick Schofield
Cover Art Edward Burtynsky

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Holistic Materialism II

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What is Holistic Materialism?

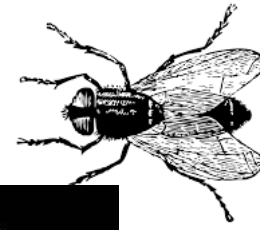
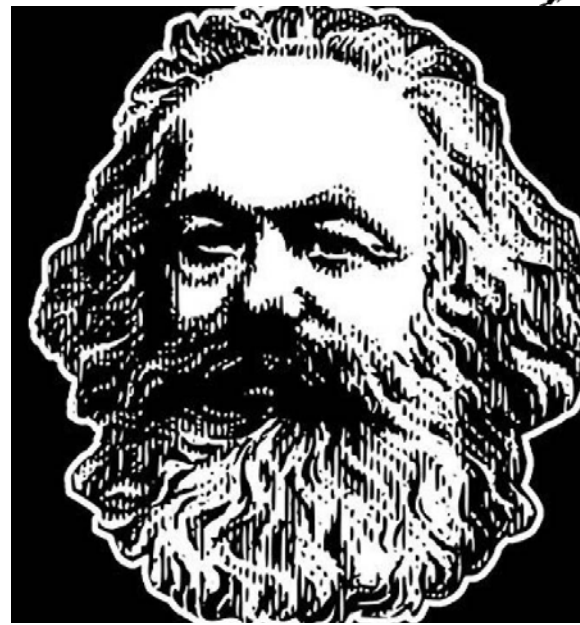
Preface

by

Mick Schofield

Welcome to Issue 67 of SHAPE Journal, the second in a special two part series entitled *Holistic Materialism*. These issues constitute a set of loosely related papers by Marxist theorist Jim Schofield concerning his philosophy of science, and his application of Holism and Dialectical Materialism to the sciences, especially particle physics. This has been a historical and epistemological project as much as it has been a philosophical and scientific one. In order to understand the mistakes and impasses we are presented with in science today, it is imperative to go back and have some understanding of how knowledge and philosophy have evolved over human history.

But what exactly is Holistic Materialism? *Holism* is a word that means different things to different people, a seemingly vague term that is often abused and misused - 'holistic medicine' for example covers all sorts of pseudoscientific nonsense no empirical researcher would care to be associated with. However Holism as a philosophical concept refers to something quite specific, and for Jim Schofield it is encapsulated in its opposition to the Pluralist position (not to be confused with pluralism), which sees all entities and laws as separable - capable of being isolated and studied in isolation - but more importantly, that this separability will somehow unlock the truth of how things in reality work. Essentially it is the philosophy of reductionism and this underpins almost all contemporary scientific research. Jim Schofield's work is a unique critique of the hidden assumptions which underpin all science.

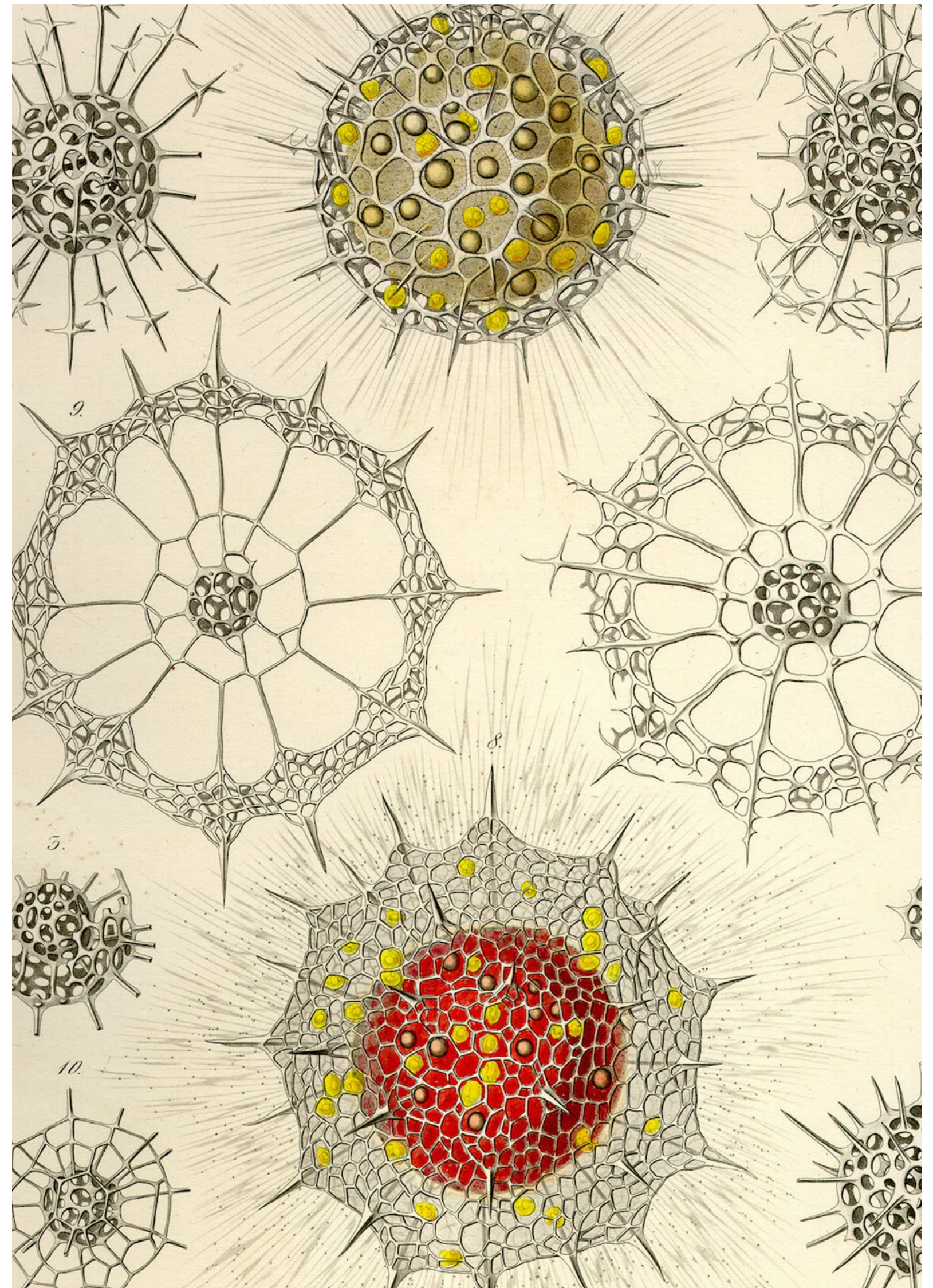


This is not the first time the term Holistic Materialism has been used, however. We see it linked to biology and 19th century naturalists in the writing of Ernst Mayer.

“The discovery of the similarity between dialectical materialism and the thinking of the naturalists is not new. Several authors have called attention to it, particularly Allen... He starts quite rightly: “The process of natural selection is as dialectical a process one could find in nature.” Allen thought that the dialectic viewpoint of the naturalists had been lost between 1890 and 1950... Allen asserts that the “holistic materialism” of the naturalists had failed to incorporate two important dialectical views. First “the notion that the internal change within a system is the result specifically of the interaction of opposing forces or tendencies within the system itself.”

The Roots of Dialectical Materialism (Mayer, 1997)

In the work of Schofield we see this kind of holist view of natural systems but very much informed by the dialectics of Karl Marx. It is not enough to see the interconnected-ness of things but realise how natural dominances emerge, to the point of seeming universal, and also how these dominances can come crashing down as their internal contradictions finally play out. It is in these crucial events that we see the Emergence of the wholly new. In these papers we see how Pluralist science prohibits access to this fundamental feature of reality, and that while those 19th naturalists may have hinted at the way forward, holist science is something new.





Holistic Stability

by

Jim Schofield

My current theory is that Holistic Stability paradoxically lies at the heart of all substantial development. But we really can't address this yet! For Holism is most certainly not generally well understood.

It is always connected, indissolubly, with "oriental mystics" such as The Buddha, and encapsulated-terminally in the tenet *Everything affects Everything Else* which though a good starting point, and certainly true to some extent, alone does not do it adequate justice at all, and never did. For, though it is rightly contrasted with its supposed opposite Plurality, it is really only to summarily dismiss it in favour of that alternative, which contrastingly insists that: *Everything is composed out of a sum of many components all obeying FIXED Universal Laws*, which was actually much easier to understand, and actually use.

So, Plurality has certainly always been the default stance - assumed for literally all significant Intellectual Disciplines, that has always been the case, ever since the truly Revolutionary contributions of the Ancient Greeks around the 5th Century BC. And, that universally-lauded interlude, being the first of its kind in the intellectual development of Mankind, was always-and-necessarily misunderstood, precisely because there was nothing to measure it against: it was indeed a unique Revolution, and the gains that it delivered, especially in Mathematics, were absolutely tremendous, yet it was still only the very first step - it didn't, and indeed couldn't, deliver the means to address absolutely everything revealingly!

Now, the gains were exclusively in the establishment of the first Intellectual Disciplines, which included Mathematics, Reasoning and Science.

Now, these have allowed an almighty extension in Human Thinking, but also, at the same time, an unavoidable disabling limitation too, upon all of these means.

For our World is most definitely Holist! Yet, clearly, when attempting to interpret, and even use, elements of that World, they were certainly NOT helped by a Holist View!

For Holism delivered, necessarily, an unavoidably contradictory view.

So, instead, we learned how to hold-things-Still, either physically, with restraints, or conceptually, by limiting all the things involved, to being solely considered as existing only in a single unchanging state. Plurality was, always, much easier to deal with - and contained enough objective content for us to successfully use it everywhere, via our continuous innovations in technology.

And so, we imposed Plurality onto all those aspects of our World!

Indeed, we termed all such assumed states as being *naturally Stable*.

Now, keeping-things-still was not always easily achievable - for it was clear that many different causative factors were frequently simultaneously involved, all of which changed things to some extent: so, Mankind learned to physically modify natural situations to artificially impose a "trustworthy" Stability upon them - by totally removing individual factors, and which, if also carried out sufficiently, over many factors, would certainly bring it to the required state.

But, what we had actually done, was to *exclude* many significantly contributing factors, in that natural situation, to finally bring it to an artificially-maintained state, where only one factor was dominating: and any method of revealing that single factor over an amenable range would deliver a strictly-Pluralist Law, which could then be extracted and used.

Yet, such was always wrongly considered to be a general, eternal and Natural Law, but, of course, it was definitely no such thing! For, it could then only be used successfully, if the Use-Situation was dealt with identically to the prior Revealing-Situation, that had been necessary to deliver it. Otherwise, the Law would always fail! It was, indeed, a Pluralist Law, and the means involved was a purposely-limited Pluralist Science.

Now, similar techniques, though now entirely cerebral, were used, just as illegitimately within Reasoning too. So, what emerged there, was a Logic of Stabilities only: an also damagingly-limited Pluralist Logic.

Now, these two “disciplines” weren’t entirely false, because they could be used effectively in rigidly-stabilised circumstances, whether these were natural or arranged-for: but they were applicable to *Stabilities* only.

Both the resultant Formal Logic, and its products were all of this kind of Discipline. And generally, even today, they still are.

But, philosophically, this route, laid out by both of these two crucially damaged Disciplines was also “confirmed” by a very ancient and seemingly reliable historical prejudice of Mankind! From their earliest existence, as Homo sapiens, Mankind had survived by Naming the most important things in their World, and these had always to be such, because productive social discussion about those things required them to be Fixed! When early, primitive Thinking arose, it had to only relate to those permanently-fixed things: so Plurality was the natural default prejudice there too.

Let’s face it, on most human time-scales, many things did not seem-to-change in nature, so such an assumption was indeed a productive first step!

Surely something must stop changing anyway, before we can effectively name and categorise it!?

Cerebral development was not only slow, but linked indissolubly, for many millennia, with what Man could make-with-his-hands, and the flints and sticks so used also didn’t change of themselves! Clearly, stable things were well worth studying, so Stabilities were always the places to find initial useful relations.

But, that kind of Stability is definitely limited: it is the Stability of the Dead, or of the never-been-alive! So, it cannot be applied to things that Change or Grow qualitatively - that come into Being, or that Pass-away. For, such are always then considered to be “Something Else”! They don’t stay the same forever, like a stone in the ground - they change and evolve, and that was totally inexplicable.

In other words, there are two kinds of Stability - that of the never-changing kind, and that of the bound-to-change kind, but always in unexpected and inexplicable ways. It is only this second kind of Stability, that plays a role in all Qualitative Changes - that is in all Development-in-general.

Though very difficult to observe, those holists who wanted-to-know, saw that the crucial trajectory in Development always arises out of the critical undermining of an apparently-permanent Stability, which, then via a mounting series of Crises, successively-dissociates, until a final Total Collapse occurs - dismantling-completely precisely what was actually actively-maintaining its “Stability”, and, in its demise, consequently delivering all its non-system components back-into an unrelated set (the very kind of set from which that prior Stability had originally arose).

But, now, of course, that will be unavoidably different - due to the added-products of that now dissociated Stability, so though the same sort of constructive processes will begin to, once again, build new sub systems, they will never replicate what delivered that original stability, but now, ultimately, a wholly new overall Stability will eventually be delivered.

So, clearly, we must now attempt to understand this special kind of Stability: it is certainly very different from the prior, primitive idea delivered by the never-changing Dead Stability of Plurality.

Dynamic Creative Stability

The best place to start is with the Holist idea of multiple, different, simultaneous and causal factors, in literally all situations: but these are not mere pluralist factors, but indeed holist ones, for they don’t only sum, but actually affect-and-change one another.

And, the ways in which such complexes of factors can integrate are both many and varied.

Perhaps the simplest is one in which though many different factors are acting together, there will finally be just one, that, for reasons of the abundance of its required-resources, tends to dominate, so that its outputs can swamp all others, and these being measurable, can give the impression that a single factor is “independently” dominant. And that is very unlikely to be the actual case.

Indeed, as the various simultaneous factors can affect one another, in what appears to be a single-outcome, it will literally always be, though related to a specific supposedly-independent dominant factor, it will, in fact, be a modified version of it, modified by everything else going on.

Now, the actual holistic Balanced Stabilities, composed of collections of different factors, can also naturally produce a self-maintaining of itself, only made possible by the presence of totally-opposing components, which effectively balance one another’s effects in a truly remarkable way. Any disturbance causing changes in a given direction, will simultaneously, in a Balanced Stability, necessarily elicit a reaction, via another opposite factor, to cancel-out that first effect.

So, such a Balanced Stability, is a dynamic, constantly-reacting-and-varying *Hub of Opposites*, effectively self-maintaining the overall entity, while also delivering an output determined by the mutual, joint effects upon one another of the many simultaneous factors.

Indeed, with such arrangements, you can see exactly why Opposites are essential in making such Stabilities not only possible: but also their roles in delivering the remarkable trajectory of multiple dissolutions and re-combinations within every Emergent Interlude of Qualitative Change.

And, the title of this paper *Holistic Stability* now becomes clear, for it is nothing like the usually employed concept of a Stability, as being the “minimum-possible-energy-configuration” - along with the Second Law of Thermodynamics - delivering a principle of solely downwards-and-dissolutionary processes!

For this New kind of persisting Stability is always a product of actively constructive systems, which via an oscillation between long periods of THIS kind of

constructed Stability, and short Interludes of Emergences which both dismantles the old system, and replaces it with the new!

Indeed, in *The Theory of Emergences* (2010) - by this theorist - Emergent Episodes are initiated by the inevitable death of an old Balanced Stability at the Systems Level, so its systems-dissolution is explained by the infamous Second Law, into its various constituent components: YET it is always immediately followed by an opposite, active marshalling of a New constructed set of processes, which coalesce into a New Balanced Stability - according to an opposite Third Law? But, a Law that only occurs in totally dissociated conditions, and, only appearing in Emergences, where, because of their very short durations, become extremely well hidden and thereafter, then are effectively totally unregarded.

But, as there is just ONE kind of Emergent Interlude, in which the full trajectory of a transition between different Balanced Stabilities happens, it will be study-able!

The historian Karl Marx, who developed this Stance, knew immediately where to look for details of these vital transitions: it was undoubtedly in *Social Revolutions*.

Now, this theorist has been researching possible explanations for phenomena such as these, for many years, and was drawn into investigating into the pre-life developments in contexts presumably ideal for prior chemical processes, which would ultimately lead to the Origin of Life on Earth.

And there, assuming (holistically of course) that the many different-and-separate processes would necessarily also reflect their common context, by both taking required resources-from, and delivering necessary outputs-to, many others: as well as unavoidably mutually affecting their individual processes too.

NOTE: Some properties would be about the processes outputs, while others would be about the overall affects of the whole collection - at the Systems Level - particularly in its external relations with others at that level! But, the most important relations between them would undoubtedly be in their unavoidable System-causal-connections by their output/resources - necessarily forming chains and even cycles! But, most dramatically, competing for the available resources, both those initially present, and, thereafter those as consequences of the



results of all the many processes simultaneously taking place.

Now, the various processes present would necessarily be those that had their required resources already available, while abundances would select out those requiring such abundances for Dominances. And, within these two different sets, there would be an ever decreasing number requiring, and using, the same available resource!

One could be a process resulting in one kind of output, and another producing a *diametrical* opposite kind! And, though competing for the same abundant resource, it is unlikely that one would terminate the existence of the other, for their other resources, and outputs, would certainly be unlikely to contribute to that competition, because of their oppositely orientated-results.

The final result of that research was the defining of **Truly Natural Selection** in non-living chemical processes (see Special Issue 66 on *The Origin*). But, in spite of its obvious relevance to the Origin of Life on Earth, it was unavoidably also relevant to the consideration of Systems in qualitative Change situations as we are here investigating in Qualitative Changes of Development-in-general too.

Qualitative Systems Development

The reason why those Qualitative Systems Changes can never ever be predicted, from the limitation of causes to only those sub-system levels alone, is because the wholly New Properties are NOT at those levels of the involved components, but crucially at the Systems Level immediately above those contributing processes.

The causality is produced at that superior level solely out of new inter-process Emergent Features!

The wholly New Properties actually EMERGE at that New Level - as it forms: and they become so, because, depending upon the nature of the relations-finally-arrived-at, and those inter-relations, which got so established, are always both unique and particular to each one of many possible integrations.

Materialist Dialectics

Beyond Hegel, Engels, and even Marx

This paper is important because it continues the crucial philosophical task which Marx initiated but never comprehensively completed. He became necessarily preoccupied with his analysis of the established economic system, with its concentrations of power and wealth, and how it might be overturned, once and for all.

So, even as he was in the midst of tackling the monolith of Capitalism, Marx had to significantly change his emphases, with each and every succeeding volume, and even within their subsidiary sections, for never was its actual execution entirely formulated as a totally pre-conceived plan.

The key was not his opposition to Capital! He was primarily a historian, and his chosen job was to make sense of the trajectory of development of Mankind. And, though the old ways of Reasoning were incapable of dealing with such a task, the new dialectical approach promised a solution.

It was a wholly new way of interpreting Reality, in which it was finally realised that it was not a rationally-ordered-system, built solely out of fixed-eternal-laws, but, on the contrary, an essentially contradictory process involving multiple, often-opposing factors, which were the engines of unavoidable change.

Indeed, he was forced to often recast his stance, as he actually addressed the various different, and often contradictory, categories, processes and phases involved. He was, therefore, continuing to devise his projected Materialist Dialectical Method, as he was in the very midst of attempting to use it!

The problem was the task's absolutely-necessary, but nevertheless essentially-contradictory, intrinsic nature.

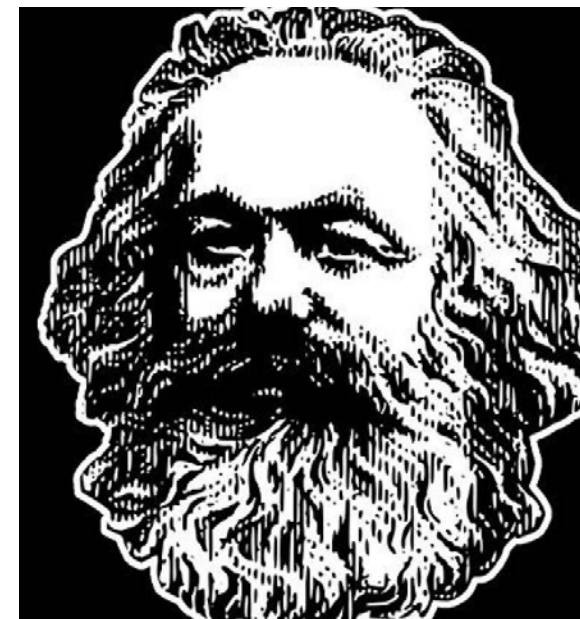
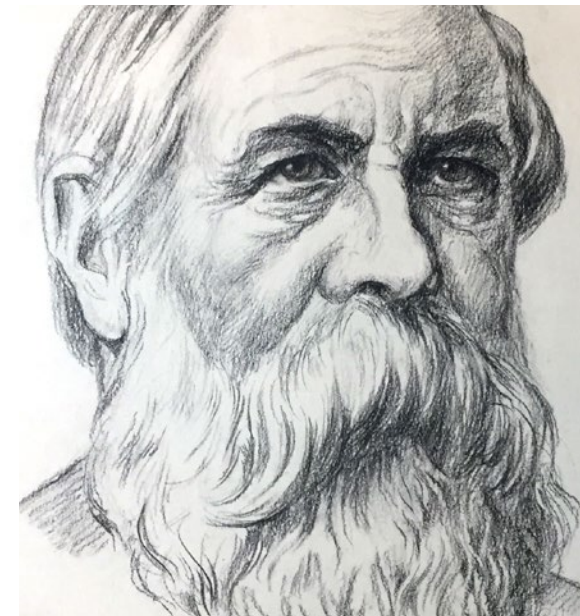
It just couldn't be addressed in the old formal-logical, and pluralist way - for it was never a description, nor even an comprehensive explanation of a fixed coherent, consistent and comprehensively defined entity. It was, instead, a real, always-qualitatively-developing system.

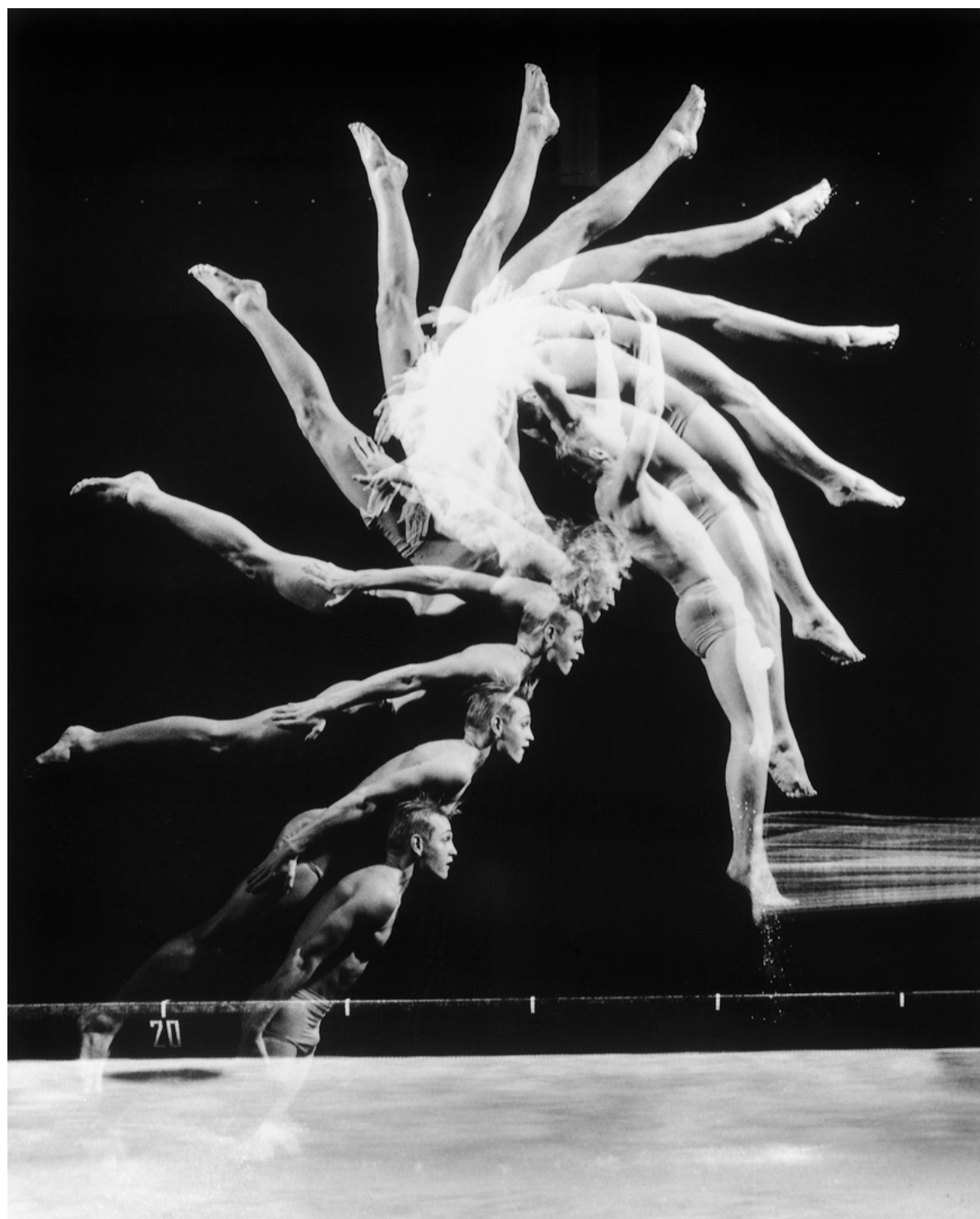
But, it was also, very clearly, a dynamic, holistic super-system of many simultaneously contributing sub-systems, all of them with their own very different complement of component processes, which, in spite of their unmistakable contradictions, still, nevertheless, frequently came-together into an overall, self-adjusting super-system, with describable and explainable components that clearly required a great deal more than the usual, established means of Reasoning - namely, Formal Logic, to ever get near to coping with its mutually-affecting interactions, complex development phases and even multiple crises!

Mankind's initial attempt could only be to address those regularly-occurring periods of persisting Stability, but though unavoidable, that route alone could never cope with real Qualitative Change.

The new system would have to reach beyond its usual capabilities, and into the poorly-understood processes of Qualitative Development - where those stabilities break down, once the balance of forces are undermined.

Marx had taken the Dialectical View, from the idealist philosopher Hegel, who had clearly revealed the pluralistic inadequacies of traditional Formal Reasoning,





in dealing with a whole range of philosophical problems involving Qualitative Change.

But, Marx had, in addition, realised that it also was extremely relevant to social history, particularly in the developmental trajectories of past economic systems and even their ultimate demises in social revolutions.

But, this necessitated the wholesale transfer of Hegel's Dialectics, from its then use only in Human Thinking, to making sense of the whole material World: so he renamed it Dialectical *Materialism*, and realised its role as essential in all the Sciences too. It would be relevant everywhere that qualitative changes happened: it could revolutionise all fields of study.

Now, Hegel's Laws of Dialectics, derived in dealing solely with contradictions in Human Thinking, would most certainly never suffice in dealing effectively with explaining the development of a material World. So, the bringing in of that material World would inevitably also involve concrete Causes-and-Effects, so would also vastly complicate things well beyond Hegel's relations between only purely cerebral conceptions.

And crucially, when finally effectively applied to the mad Sub Atomic World, it would move into a wholly new territory, where the prior methods of Science were increasingly rapidly coming to grief!

But, though Marx did indeed address this new world dialectically, he did NOT merely do it by finding relatable-opposites as the idealists must, for that was all they could possibly access.

Marx, quite differently, had to match his abstractions, as a scientist certainly must, to explaining aspects of Reality, but, in addition, also effectively tackling Development, and all of its sequence of constituent phases - causally.

It could no longer be in the prior formal-logical way of explaining outcomes: he would have to also explain the evolution of contexts, via, for the first time, the modification of what were previously always conceived of as eternally-fixed-Laws producing only complication rather than Evolution.

And, in addition, Hegel's crude Dialectical Laws had to be turned into Revolutionary Emergences, wherein the outcomes are never predictable from the prior

circumstances, and only emerge from the complex interplay of multiple simultaneous relations - in wholly new ways.

For, they only ever find a temporarily persisting Stability, and they do it first via a series of dissolutionary Crises, and thereafter by another very different series, but this time of system-building Phases along with their inevitable Crises, and ultimate resolutions.

Indeed, the writer of this paper had to dedicate himself for many years to the development of *The Theory of Emergences*, and also to a physical explanation of the actual physical development of Opposites in nature; within mixes of divergent, simultaneous chemical processes, as in The Theory of Truly Natural Selection, occurring in collections of diverse simultaneous chemical processes, immediately prior to The Emergence of Life on Earth.

For most of my professional career. I was unable to effectively criticise the amalgam of contradictory stances involved in the whole current range of Intellectual disciplines, that I encountered, and perhaps I never would have, if it wasn't for my unusual range of extensively studied interests, ranging from Painting, Sculpture, and even Music and Dance, and from Biology and Archaeology to revolutionary politics - many of these arising out of my final professional designation as a Software Systems Designer, and resulting in a professorial level post within London University.

For, it was in diverse Computers-in-Control developments, that I finally grasped Dialectics in motion - as a common integrator of problems across that whole range.

Surprisingly, the breakthrough occurred in supplying effective Multimedia Access-and-Control in recorded footage of exemplar Dance pieces, which were impossible to achieve with the usual means available. And, instead, had to do it by finding a way to transcend these difficulties, I was propelled back to Zeno of Elea's Paradoxes. and the contradictory concepts of Discreteness and Continuity, when applied to Movement. For, it became clear that the problems could only be solved, by using both Analogue and Digital means to simultaneously deliver Past and Future trajectories superimposed upon a moving, but totally controllable Present.

Hierarchical & Reciprocal Development:

The developing interactions of intrinsically different entities



On listening to a “cover-all”, knowledge-imparting delivery of the questions posed concerning the Origin of Life on Earth, it became increasingly clear that without a Modern Holistic Approach, pluralist scientists, as is now the usual situation literally everywhere in present-day Science, could never address what must have been happening in that Supremely Revolutionary Development, for their exclusively pluralist stance certainly prohibits the inclusion and explanation of Real Qualitative Change - absolutely imperative in such a narrative! Whatever they found would, necessarily, be confined to Pluralist relations involving only Fixed (indeed actually eternal) Laws.

So, what is the alternative? What philosophic basis, coupled with a scientific Methodology could actually cope with such a Holist World as we obviously inhabit, and increasingly have to Understand?

Clearly, the continuing dominance and failure of the Pluralist approach cannot continue - and yet, an approach that deals effectively with Qualitative Change, surely will, with current assumptions in place, always falter upon an avalanche of contradictions - so pluralist Formal Logic will have to go too!

And, the whole range of current related disciplines, cannot continue without a philosophic stance that explains and copes with Qualitative Change, in terms of The Interpenetration of Opposites, as already underway in Hegelian Logic, but still totally unimplemented as yet in any key area of Science. Karl Marx commenced the general task with his 3 volume work, Das Kapital, but, though aware that its application to The Sciences would be vital, as a relative lone figure in that endeavour, he never even got to start that necessary undertaking.

And, we must commence this paper, by way of an Introduction, with a sincere addressing of the

many unavoidable problems associated with such an undertaking, while easily, and illegitimately avoided by the pluralist alternative!

For, plurality, always assumes fixed entities and Laws, so effectively “plays the game” with the actual opposition either standing still, or made to do so, and hence made to be totally unable to move: there can be games effectively similar to that, but they are certainly not Football, and thankfully, they are rare! As soon as you get above the infant level, such an approach will invariably fail. It is a mere Pass-and-Shoot kind of game, with absolutely NO Levels involving Attack and Defence systems, or multiple alternative strategies to make the desired result possible.

Indeed, as a natural process, entirely without a controlling consciousness, all the equivalents of these various Levels of organisation, will have to be naturally arrived at, by merely selective means, rather than determined by Natural Law, and therefore will be subject to changes at crucial points, and never be fixed and unchanging.

In other words, Mankind was originally enabled to cope with a Holistic Reality, only by “nailing it to the floor” and, if possible, being the only active element within the processes involved.

No wonder Qualitative Changes were never considered!

But they have to be now, because the current approximations are rapidly leading us astray: we have absolutely NO idea how qualitative changes really occur, or even where they reside, and both of these must be revealed and understood! The problem arises because various kinds of apparently localised pluralities exist within much wider Levels of a holistic nature, and which also stack-up as causal hierarchies, within which Balanced Pluralistic Stabilities deliver apparently Pluralist regimes!

By forcibly limiting what occurs to only doing so within arranged-for pluralised localities, or such natural Balanced Stabilities, we get what we call Science today.

No qualitative changes are allowed to occur within such limitations. Indeed all, qualitative changes that actually do happen naturally, only occur within the current containing holistic level, OR in major qualitative innovations, even generate a wholly new one at a higher Level.

Indeed, the general term for creating the wholly New is that it is an Emergence, while the truly major occurrences are termed Revolutions! And, the latter are always at a higher containing Level than where they came from, and invariably ultimately change the conditions of the lower level, which actually produced them.

So, the overall structure is both Hierarchical and Recursive in its effects. Simple lego-like Complications are clearly wholly inadequate alone, when comprehensively dealing with Reality-as-is.

In the famed Loka Sutta delivered by The Buddha to his disciples, this was already grasped even then, as he insisted that when the stages in argument were complete, there should be at least one complete re-iteration of them all, once again, to pick up any such self modifying effects.

Of course, such Qualitative Changes were noticed and involved, but never formed part of a currently-investigated causative process: instead, they were assumed to always be outside of the investigatable parts of Reality! Needless to say, such a congenital part of that approach, purposely left causal gaps literally everywhere, and divided the Study of Reality into different Subjects, and then Specialisms, precipitated by every such gap! Scientists ended up with a barely-related Bag of separate eternal Natural Laws, and solving problems came to be more like applying recipes rather than revealing

Understanding. Clearly, the Key had to be in how Qualitative Change produced the Entirely New, and as Hegel had, long ago, devised for Human Thinking, so also, in the developments of Concrete Reality, the secret had to be hidden in what Hegel had termed The Interpenetration of Opposites.

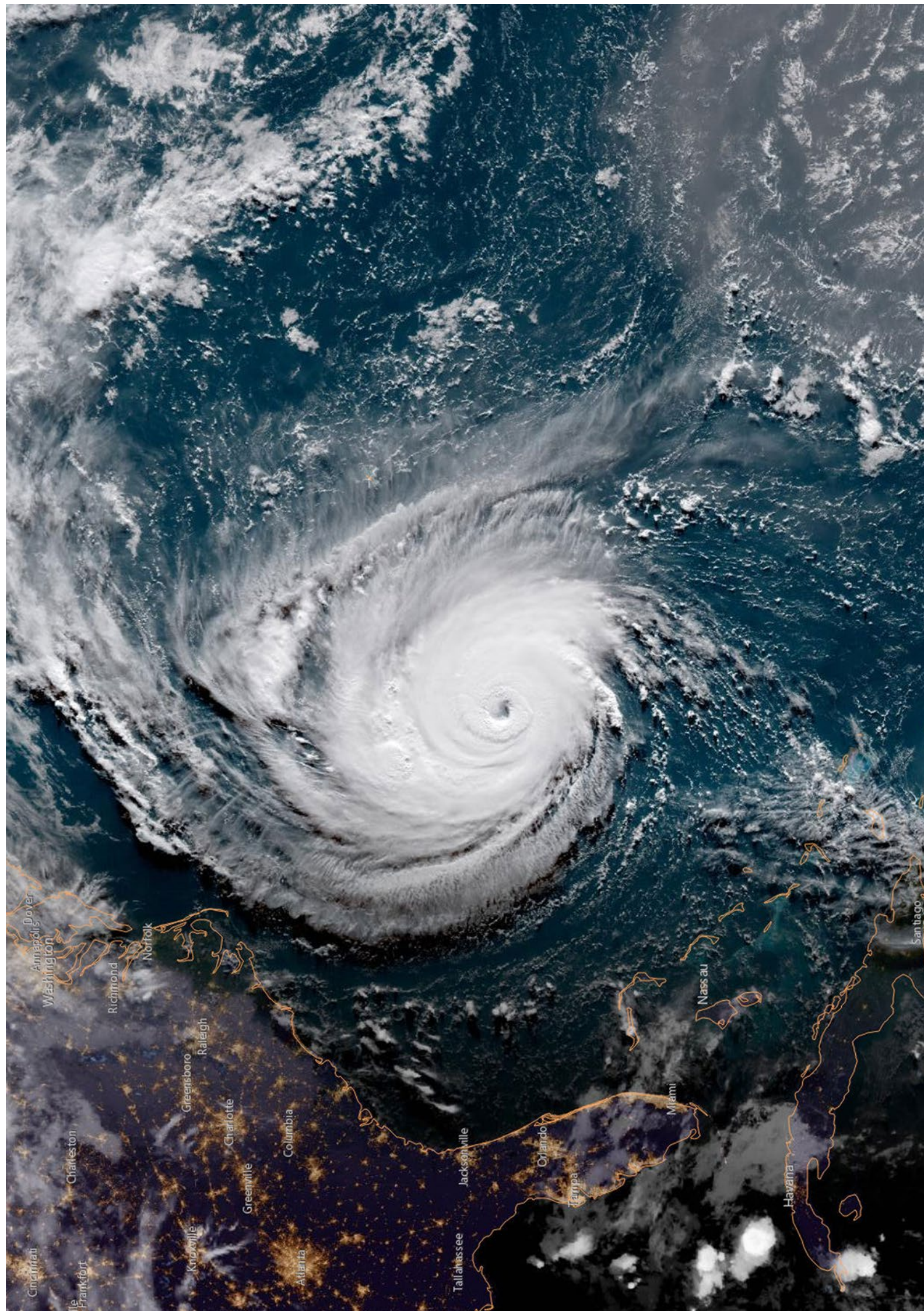
Somehow, contradiction was great deal more than simple Negation. Indeed, it has become increasingly clear that Really Occuring Stabilities were only self-maintaining Balances of already-existing, multiple active Factors, and also even the switching between opposites, which had long been known about! But they were merely linked, non-causally, to some reliable threshold size in a particular parameter.

But, what had to be explained further, was how such oppositions could lead to the appearance of the Wholly New! It seemed an impossible task until the location of the New, in a emergently created Wholly New Level, was considered as its necessary location.

New Balanced Stabilities, entirely out of the dissolution of the Old Stabilities, and the original coming together of the same bottommost contributing factors, was NOT what happened with wholly new Levels!

For, they were NOT re-hashes of old components, but instead mixes including Wholly New Components, and hence could produce systems of such processes. possessing wholly new System-properties.

And, these would produce wholly new features, both at the New Revolutionary Level, and, in addition, react back in new ways upon the very situations that had delivered them



Multi-Factor Situations in Nature

Part I

How are they dealt with?

The whole Pluralist Methodology universally applied in current Science, is actually only feasible in controlled conditions such as laboratories, where the usually required extensive filtering and controls are possible to implement and maintain the illusion of Plurality.

But, in addressing situations like the weather, or indeed any natural situation where the full complement of factors simply must all be included in order to deliver the phenomena investigated, those techniques will certainly not be possible, as well as being entirely inappropriate to the objectives required.

Yet, such situations still have to be dealt with by scientists, so the only method has to be one of the the very different time-based movie-emulation-systems, which are usually constructed to deliver over, both extensive geographical areas involving many different locations, on both land and sea, along with also similarly-timed mid-air measurements at different altitudes for every location also covered on their 'movie map'!

Only after a vast amount of such data, and a consequent movie has been constructed for a given period, and usually over several years, may it be possible to deliver perhaps several alternative predicting movies, along with what factors and where they need to be measured, which might explain the differences between them, is a real weather prediction finally attempted!

Meanwhile, new data will currently be incoming from the same places, in order to judge just how closely or divergently the emulation and Reality are matching one another! And, if they are diverging perhaps switching to a better matching 'movie' (or dynamic model, if you like) from elsewhere, in either Time, or in Area studied, or even both! Clearly, they will be both using prior sequences, AND, at the same time, creating a new current-prediction-movie.

Now, a vital part of such a prediction process, has to be movies constructed from actually observed situations in the past, which will NOT include the past Prediction movies. Indeed, there will also be some of the past produced Prediction movies in a separate sequence, for comparison purposes.

And, a control arrangement, for rolling forward or backwards in time, to enable comparisons between actually recorded and Prediction movies, that will enable intelligent conclusions to be arrived at! Specialists, who study such parallel movies, all the time, actually do the predicting, based upon their long-assembled stock of appropriate movies.

There will also be synchronised values of particular variables from the past simultaneously available, as well as current, and immediately recent values, of the current situation.

Now, apart from these, always on-going systems, for immediate forecasting, they should also be available movies of past calamities, Typhoons, Hurricanes etc., with associated figures for measured variables to facilitate the recognition of the possibilities of new special calamities, so that when arising again, they can be recognised!

Now, this used to be the task of the Meteorological Department of Government, but clearly less comprehensive private companies were cheaper, and won the contracts instead, so predictably the wealth required to cover all possible requirements for all those who depended on the weather, such as fishermen and rescue workers, was considered unnecessary for broadcast weather forecasting, so the televised content declined to just suit forecasting for the public over the airwaves, so the comprehensive methods and maps of the M.O. were no longer available, and the quality of the system

has declined markedly, and pretty female and attractive male presenters have been turned to, in order to keep the viewers happy!

The reason for choosing this particular case, is because it reflects Real World situations, which pluralistic methods never can. So, instead of the usual selected, filtered and then tightly controlled means of the Science Laboratory, we must, in Holist Science, tackle complex, multi-factor Reality as it actually is, and actually develops!

Now, though intensely more difficult, there is a philosophic Stance that is ideal, and has now been intensely studied for over a century. It is the Dialectical Materialist approach first applied to History, and then profoundly to a major analysis of Capitalist Economics by Karl Marx.

Now, most particularly in his own specialist area of History, Marx had always wanted to tackle Social Revolutions as perhaps the most important developments that occurred in Societies - and even monitor a Revolution's ebbs and flows, its failures and successes.

So, he wanted to reveal the trajectories of Qualitative Changes, within such an event as a major top level version of lesser qualitative changes occurring at much lower levels in a system. He desired to reveal Qualitative Changes, whenever and however, they occurred, and what prevented them from occurring most of the time.

And, slowly, these questions began to become clearer, though so also did the reasons for long periods of Stability between the very widely-spaced cataclisms.

They were not the pluralist stabilities usually assumed, but Holistic Balanced and normally self-maintaining Stabilities, which were also ultimately the reasons for cataclysmic Change, when they were irretrievably undermined.

Part II

How are they more generally developed?

The uses of the Pluralist techniques of Simulation and Emulation as described with regards to weather forecasting are products developed by assuming the situations involved to be wholly pluralistic, even as the evidence mounts to the contrary.

Clearly, we must now assume instead a Holist World, and this behaves very differently indeed as situations change *Qualitatively*, and a mere switch to another quite different mode is usually only known about from prior situations of a similar nature, where observers could never explain the change, but had noticed the passing of a key Threshold Value in a particularly significant variable, so when that threshold value was again transcended, the same qualitative change was instituted - without ever really knowing *Why?*

But the Holistic Approach can actually address precisely that, though it involves a great deal more investigations within the much more difficult, real Holistic World, in order to both reveal and grasp exactly what is really going on!

For, several different things are always happening simultaneously with literally all natural situations in a Real Holist World, and they relate to, and affect, one another in various significant ways.

The easiest way to initially conceive of this, is to take the case of multiple chemical processes all happening together in the same place, as a general initial model.

For they will unavoidably compete with one another if they need the same resources. And hence the relative abundances of certain naturally-occurring-resources would differentially benefit those processes making use of that particular resource.

So, a range of processes with differing quantities involved in each one would result, with those requiring the most abundantly available, becoming the dominating process

- with a particular one becoming visibly dominant, and effectively hiding all the others due to its largest volume of its resulting product!

Indeed, a pluralist seeing such a result might well consider that it was the *only* process occurring, or even a summed resultant effect!

But those would both be totally incorrect, for the presence of the others would even affect-and-modify the clearly evident dominant process.

However, the pluralists, believing all processes to be fixed, merely removed most of the other processes and considered what they had left was the fixed dominant process, or merely a sum of many fixed processes.

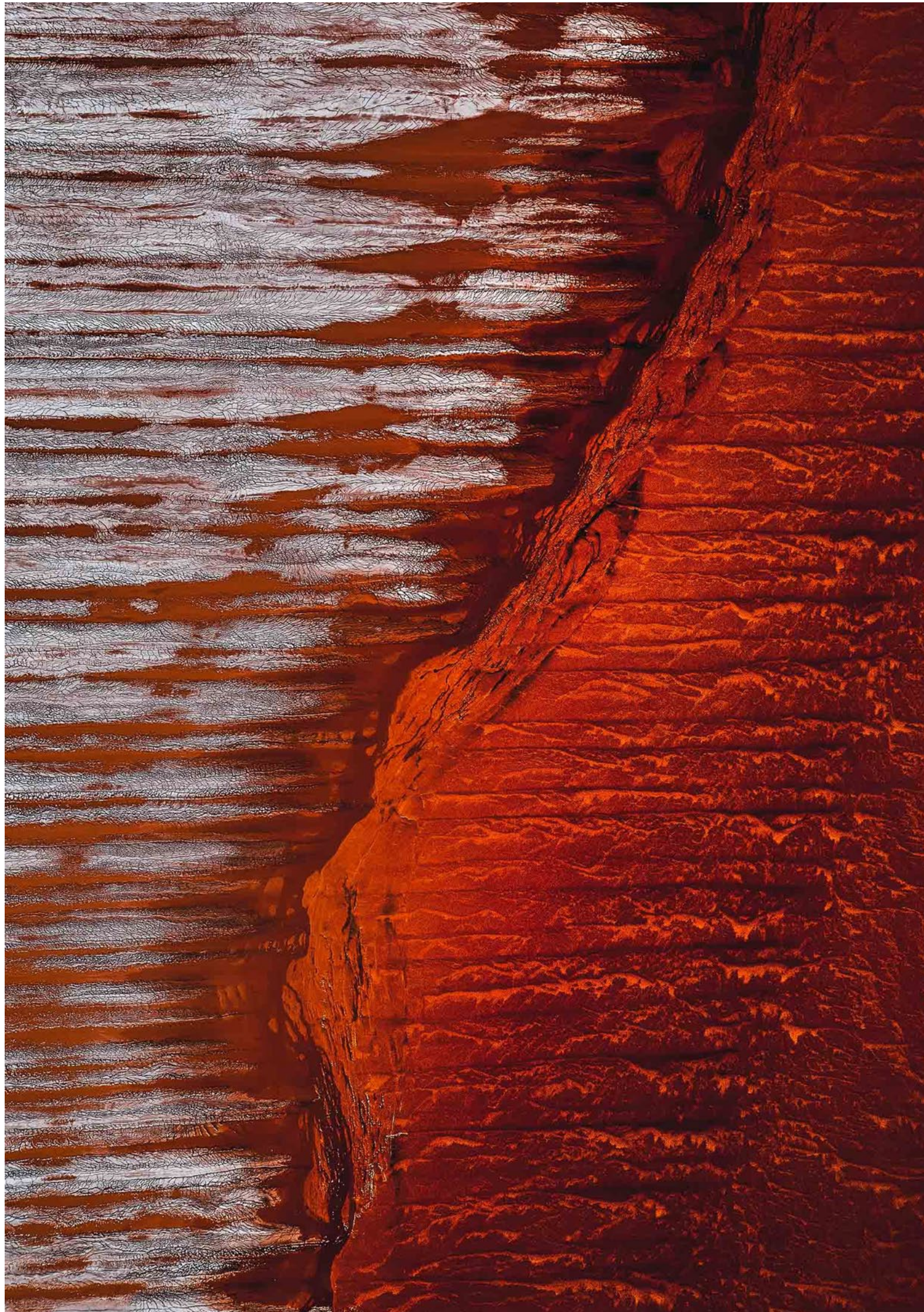
That is how they do Pluralist Science, and it is incorrect!

The dominant process involved is different when alone, to when it is accompanied by others.

But, of course, Plurality doesn't allow any such Qualitative Changes: it assumes multiple simultaneous processes stay fundamentally unchanged qualitatively: they merely sum - and, that is incorrect!

Indeed, competition for the same resource, ends up with the most numerous process dominating its competitors - most of them significantly. But, one will always be second to the dominant one, for it will be opposite-in-its-result, and hence have the most independence from the main dominant one, yet share to a lesser extent its dominance, due to requiring the very same abundant resource.

Indeed this can explain that forementioned pluralist trick of the switch to an alternative outcome, for it is when changes in resources make the sub-dominant take over the role of individual dominance!



In addition, it makes the dominant and its sub-dominant the Opposites that generally determine outcomes across a range of varying circumstances.

It was Hegel's discovery in explaining Dichotomous Pairs of Contradictory Opposites, in literally all of the inconsistencies in Formal Pluralist Logic.

It also was shown to play a significant role in the effects of multiple simultaneous chemical processes in the immediately pre-Life interlude in any consideration of the Origin of Life on Earth, by this theorist: where he termed it Truly Natural Selection, and made it an essential selective process during that phase.

Clearly, if the assumption of Holism is correct in Science, then the whole approach of the current stance and methodology of Science is totally inadequate, and the increasing subscription to Mathematics as the Lingua Franca of Science is also completely wrong as Mathematics is a legitimately Wholly Pluralist Discipline.

Mathematics resides, as such, only in Ideality as a System of Pure Forms alone.

Its relationship to Reality is that it delivers only a partial and distorted Reflection of what exists there, along with an infinity of purely formal extensions, which most certainly do NOT exist in Reality.

Part III

How must Science be Restructured for Holism?

A Necessary Historical Preface

A critique of the development of Intellectual Disciplines requires an account of the period between the Neolithic Revolution and the Greek Intellectual Revolution some ten thousand years later.

For, that Second Revolution was precipitated by its predecessor, which took what Mankind already had developed and wedded it to what the Neolithic Revolution significantly added, but only in pragmatically acquired achievements and ideas. For over millennia, Mankind had been an intelligent and eminently dextrous pragmatist. This didn't involve *understanding*, but once achieved and remembered, it did equip Mankind to achieve certain powerfully usable techniques.

Long before anything that could be called Science, Man already possessed Technology. They had Fire, and hunting weapons that worked. They already clothed themselves, and built crude but effective shelters, but the Neolithic Revolution had nevertheless transformed Man's relationship to Nature to one of control: via Farming and Animal Husbandry.

Man learned where to do it, how to tend his crops as they grew, and how to both protect and develop new uses for the animals now enclosed in his maintained Fields. They even discovered they could use the animals droppings to fertilise the crops - without any real understanding of *why* this worked. And soon they were building boats and finding new rocks that if heated in very hot fires, turned first into a liquid and then into a new super substance: a Metal.

Practical Knowledge was increasing at an ever faster rate, but unavoidably incessantly pressed for answers to those "Why?" questions which always seemed so elusive.

So the Greek Intellectual Revolution was ultimately inevitable: but how to develop the means to address those questions was not yet available - it needed Science!

The problem for Science has always been that ever since its inception as a part of that Revolution, it was defined following the success that was achieved there in Mathematics, by the invention of:

Simplified Relating Abstractions

...which alone had allowed a consistent and comprehensive discipline to be established.

For, as long as that discipline's purpose was limited to only the study of the relations involved between Pure Forms and absolutely nothing else, the achievement of the Greeks was both brilliant and valid, and created the most significant Intellectual Emergence in the History of Mankind - thus far!

But, those same relations were also quite wrongly carried over into re-defining both Formal Logic and Science, and these were crucially damaging to both!

Now, the reason was that the Simplifying Relating Abstractions, not only delivered the possibility of building Mathematics, as Mankind's First ever Intellectual Discipline, but it also limited the elements and relations involved to having only totally fixed natures. And, though that is entirely legitimate in Mathematics, it is NOT so in either Reasoning or Science.

What had been included, at the bottommost level, in all three Disciplines was *The Principle of Plurality*, and, this is only valid if all Qualitative Changes are totally excluded, and everything involved can never change into something different.



But, both Logic and Science cannot be so constrained: both of them are qualitatively changing Disciplines - otherwise there could be no development and certainly No Evolution of any kind!

Now, you may wonder just how the Greeks, with all their obviously profound insight, could make such a huge mistake, but most things did seem to them to be unchanging in their normal mode, and qualitative changes were put down to external, or even supernatural effects! So, the determining Essences of Things were thought to reside in their mostly unchanging natures, and to understand them, these fixed natures had to be first revealed, and then studied.

And, these fixed natures seemed to persist for very long periods, only usually dissociated by cataclysmic Events, so, they were certain they had found the means to understand the “Essences” of Everything - The Eternal Laws of Nature! But they certainly hadn't.

So, let us see how, in time, the established assumptions for Science, radically transformed the way that it was investigated. Initially, Human beings chose to make use of seemingly unchanging things like knappable flint, or dead twigs of wood. And, began to use them to make weapons - enabling them to hunt living animals, which they killed for food, and used their bones, horns and Fur to make clothes and places to live. And such a Hunter/Gatherer lifestyle had predominated for the initial 95% of Mankind's existence as a separate species. And, only in the last 5% of that History did Mankind begin, now as a social animal, living together with large numbers of others of his species, was it taken further as an entirely Social effort. Following the Neolithic Revolution, with extended groups of people living relatively close together, and regularly interacting and sharing with one another, did things begin to accelerate. It was mainly facilitated by the swift development of Language, and the sharing of acquired Knowledge, but it also fostered attempts to further understand and even control their World.

If the Essences of things were surely to be found when things more or less remained the same, the only confusion would be whenever multiple simultaneous factors were causing combined or summed effects: so the first step

was to attempt to remove all except one-of-them, and attempt to study that.

And, though this took time, and required several essential preparatory phases of Observation and Categorisation, not to mention sufficient knowledge and acquired skills to achieve such situations, a method was then developed to reveal the Laws involved, but only ever one at a time.

And, based as it was upon the assumption of Plurality, any extracted Law was assumed to be an Eternal Natural Law - a fixed property: so all such Experiments would only deliver such results, and the Science involved was Pluralist Science, and could never ever deal with real Qualitative Change.

Indeed, though assumed to be a General Law - applicable in all circumstances, it never was, nor could it be employed as such. Indeed, all uses had to take place in the identical circumstances to those in which it had been derived. Every such Law was applicable as such ONLY in specific circumstances. But, it was wrongly assumed to be totally unchanged when occurring simultaneously, along with others.

Now, all Qualitative Changes were necessarily omitted from this Science as wholly inexplicable: they were observed but never explained, and hence the door was always “Open-Wide” to all sorts of speculation and even supernatural interventions.

It is often claimed that literally all the most famous scientists believed in God - but they had no alternative if their Science was essentially pluralist. Too much was left unexplained and inexplicable!

Indeed, if studied with a Holistic stance, the History of Science reveals clearly how its founding premise of Plurality, excluded it from effectively addressing all Qualitative Changes scientifically: for their version of Science was inadequate in addressing such questions of real Development.

Part IV

Holist Science Methodology - Developing Stanley Miller's Effort?

Almost 70 years ago, Stanley Miller undertook his famous Holistic Experiment as an investigation into the possible developments on Planet Earth, prior-to and contributing-towards a scientific effort to investigate the Origin of Life upon this planet. It was indeed a truly a heroic effort, but doomed to failure as it was too early both theoretically, and too *technological* to be able to make any real progress.

But, he was certainly on the right lines, for it wasn't the usual kind of Pluralist attempt, because he was well aware that the multiple, simultaneous processes, all happening at once, and self-selecting what could happen, must have been how the actual process got started.

So, perhaps instead of developing his effort, not as a single Experiment, time conceiving it as a whole series of such, with each one suggested by the results of its predecessors, and also designed with a clear set of new objectives, whose main results would be the means by which the design of each following attempt could be devised.

Clearly, Miller's Effort must be the best place to start, now that significant philosophical progress has been made in preparing a General Alternative Holist Approach to Science, and the fact that current Physics, in particular, has recently attained a significantly New Stage.

Miller's effort had been an attempt to deliver Darwin's suggested Warm Little Pool, close-and-connected-to both Sea and Land, and an integral part of both atmospheric, and marine processes and transportations.

But, to make it as independent as possible from his own maybe misguided conceptions, he set his process going in a totally sealed container. But, that meant that he could monitor absolutely Nothing happening within (mainly because any attempt to test what was going on, would certainly interfere too much, and ruin his attempt at ensuring his Experiment's total independence)!

But, modern monitoring technology and methods, built into impervious directing channels, sealed within the apparatus, and communicating the results electronically, would certainly make a new attempt worthwhile.

And, with the intention from the outset of each individual Experiment having, as its primary objective, the total redesign and rebuilding of it in a new Form, with new channels and even an adjusted initial content, as well as new monitors, in those channels, taking, time-based testing and delivering their results electronically.

But, on reflection, and concentrating solely upon all the many multi-factor-processes evidently occurring simultaneously, and thereafter, consequently, upon the unavoidable number of simultaneous outputs being produced, from the very start, and hence presenting many difficult problems, that would never be encountered in Pluralist Science, and must be recognised somehow to enable all those different possible outcomes almost moment-by-moment, to then be theoretically considered.

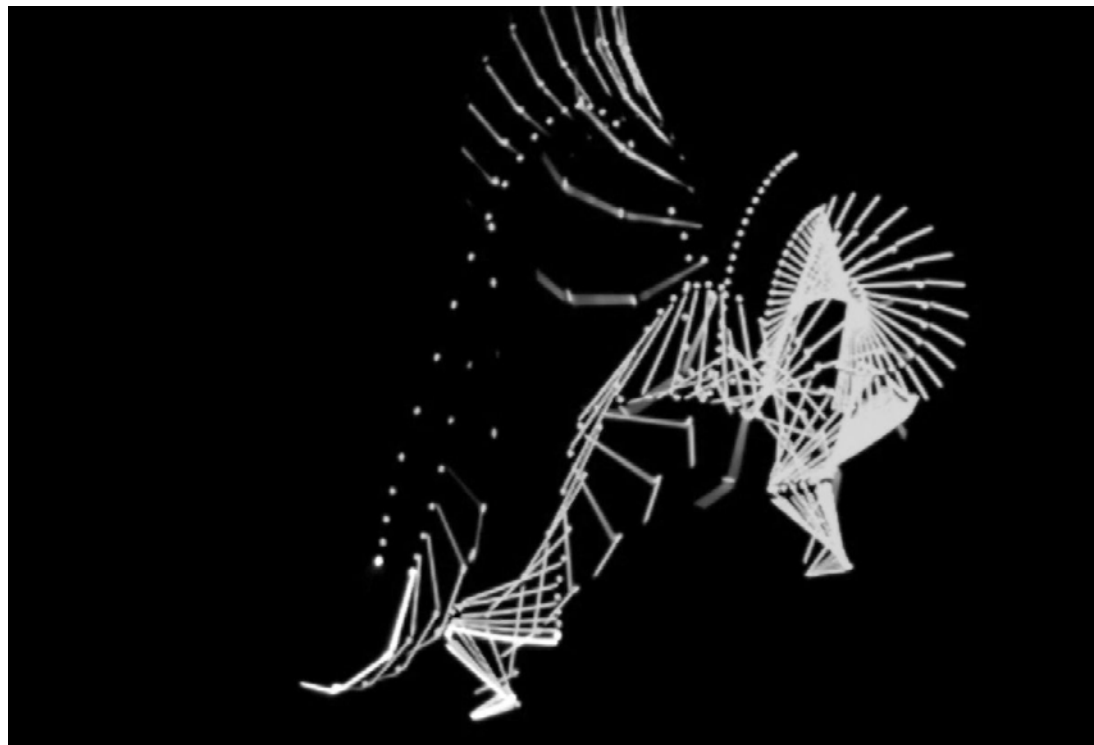
Now, the single significant output of an Amino Acid, in the Pluralist version of this Experiment, was never enough to trace it through to its final emergence, as the many necessary processes to produce that result were totally unknown,

So, in Holist Science, the series of necessary experiments must start with a very short version, to reveal the earliest processes and their products, and, thereafter, when a feasible idea of what had occurred was devised, it would lead to a second longer experiment, which already might well require a redesign of the unreactive flow barriers, and the necessary monitors embedded within them.

Thereafter, subsequent experiments would get successively longer, and require further redesigns of both barriers and monitors.



Ping Lu -o)) (2012 - 2013) - Installation influenced by the Miller-Urey experiment



Analysis of Movement - Butch Rovin

Clearly, the holist approach to such problems would always be a major and relatively long-winded undertaking, for it would also involve a consideration of lateral effects between processes too, but it would reveal a great deal more than Miller's initial effort.

Clearly, Pluralist Science, and its kind of experiments, were orientated primarily to facilitate subsequent Production, and that they could certainly effectively achieve, simply by re-creating the exact same conditions, as in the experiment which revealed a Law, so it could then be successfully applied in producing the required objective.

Holist Science did not majorly simplify Reality, so as to deliver straight forward production, but instead sought to understand WHY things behaved the way that they did.

In addition, modern Dialectical Holist Science, would in addressing what had probably happened within each experiment, also NOT merely apply eternal Natural Laws as was always the case in pluralist reasoning; but instead would crucially also address Qualitative Changes, which Plurality never could.

The whole dialectical scenario of Crises, Collapses and Wholly New Emergences would also be included too!

But, without a doubt, the most important development in the theories devised to explain phenomena resided in the Dialectical Stance.

For, Plurality could never deal with Dichotomous Pairs of Contradictory concepts whereas Dialectics certainly could. For it was in such real world resolutions that actual Qualitative Change was involved, and ultimately via Emergences all real development and Evolution.

Instead of the lego-like fitting together of Fixed Laws in summation, Dialectics allowed the explanation of all qualitative changes.

Indeed, this researcher was involved in solving a totally intractable problem dialectically: encountered by a Choreographer colleague, who was confronted by just such a Dichotomous Pair in the alternative recording methods of Film and Video.

For Film was composed of discrete stills, while Analogue Video delivered a continuous movie (via interlaced fields), but in such a way that any precision of positions were unavailable.

It was an embodiment of the classic Paradoxes of Zeno of Elea, which he demonstrated in Movement, as due to the contradictory concepts of Discreteness and Continuity. It seemed insoluble to my colleague who needed to use the very best recorded exemplars in the teaching of complex, creative movements - requiring both detail and dynamics.

But, together we solved it using dots overlaid as animations of positions (derived from Film) on top of and synchronised to a easily computer-controlled full-motion video.

Both of these examples point towards new holistic methods of investigation that make use of Pluralist experimentation and technology, but which are sensitive to dynamic change, larger contexts and the limitations of experimental method.

Part V

Assuming an Undetectable Universal Substrate?

What are Quantum Fluctuations?

Perhaps, this may seem an odd question with which to start a paper on Multi-Factor Situations within Reality, but it turns out to be crucial.

For, literally everything that happens everywhere in “Totally Empty Space” is inconceivable without some such usually undetectable, but everywhere present, “substrate”, usually conceived of as consisting of zero-total-energy, which can nevertheless be borrowed-from to do things, as long as it is later paid-back, returning that “entity” back to its natural zero-energy state.

Forgive me, but what kind of Philosophy of Science deals with things in such a way - juggling “zero-states” and virtual energy, along with Infinities, both upwards and downwards?

The answer is simple: it describes the kind of world in which Mathematics is only-and-always correct, and all the findings of Pluralist Science including the Copenhagen Interpretation of Quantum Theory are regarded as legitimate.

It describes only Ideality, and certainly not Reality! Ideality is the alternative reality Mathematics constructs for itself. It may mirror aspects of the material reality in which we physically exist, but only ever in stills and partial snapshots.

None of this ever gets overtly admitted! And this is due to the still extant back-stop - a subscription to Pragmatism - as typified by “If it works, it is right!” For, that has long excused the division of Science into multiple contradictory areas, with the excuse that future discoveries would bridge the gaps-in-knowledge, and reunify everything into a single consistent delivery of the Truth: A mere belief!

Indeed, the reasons for the recurring contradictions were philosophical, residing primarily in the use of those Abstractions necessarily involving the adoption of Plurality! But, those unique abstractions, which by their definitions limits everything involved to a permanently fixed status: and as allows Mathematics to deal only in permanently fixed Pure Forms.

So, as long as the discussions are restricted to such entities and relations, Mathematics has a valid role. But literally everywhere else, such as in Reasoning and Science, the dependability upon Mathematics is incorrect and ultimately distorts our view of the Universe.

So it isn't valid either in “Explanations” or even in “Descriptions”: and worst of all it makes all so defined purportedly mathematical formulations entirely Idealistic too. “NO!”, you may insist, “We use them all the time and *they work perfectly!*”

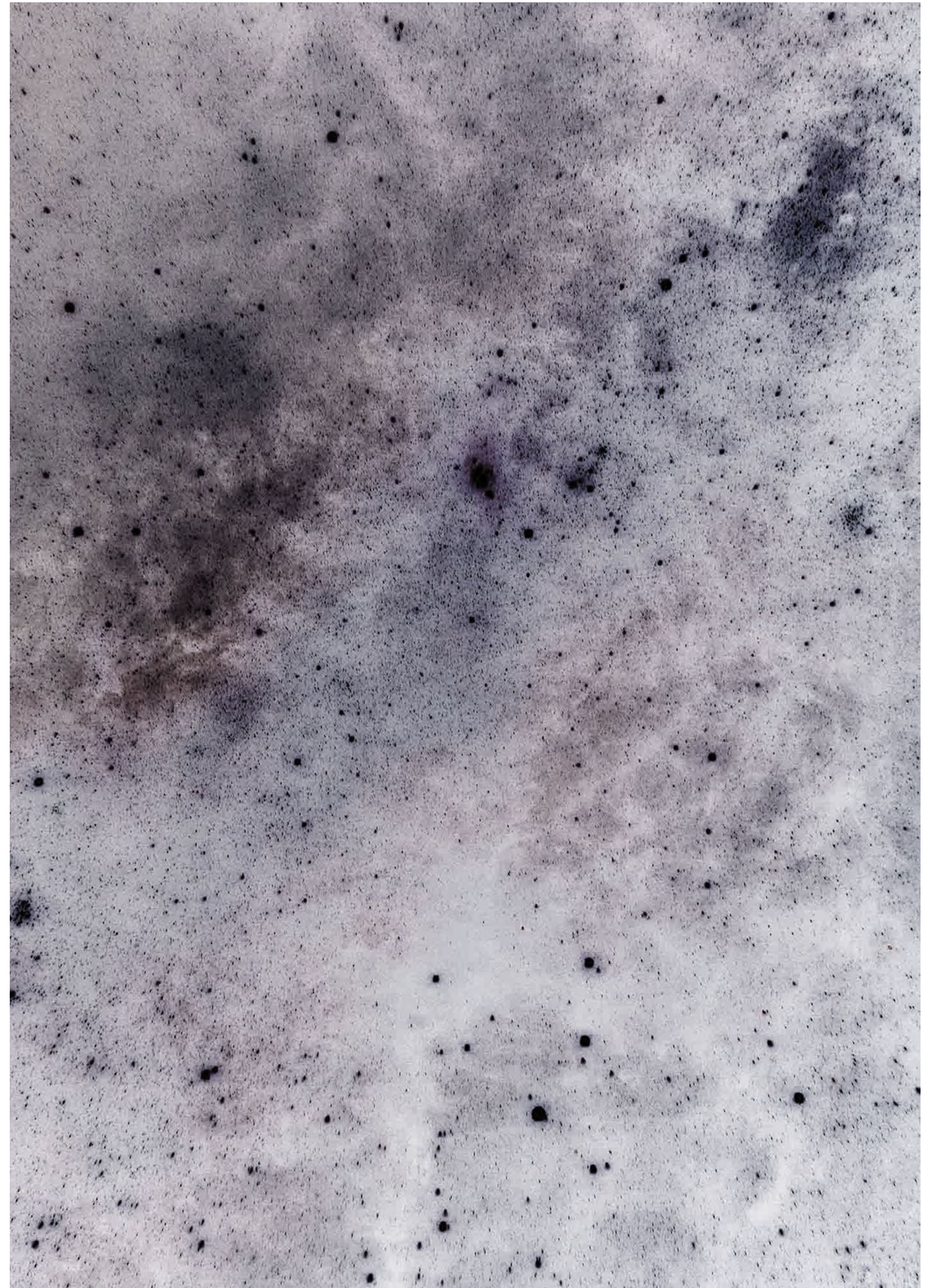
But that isn't true: you only use them as such in situations that are artificially constrained to conform to Plurality! That is the essence of the so-called Scientific Method, used both in the Laboratory and in Production. And it is then assumed that what is thereafter applied is an eternal Natural and General Law.

And it isn't eternal!

Nor is it natural!

And, it could never be called general either!

It is only an effective fit-up to enable comparatively very simple Productions. So for such conditions - ALL Experiments and Productions are only ever carried out in socially-arranged-for conditions - EXCEPT of course in observations of Space, where conditions approximate to conforming to Plurality because stable situation seem to persist there for billions of years.



Stability within Instability

in a Holist World

And all seems well in Space, until the Propagation of Electromagnetic Radiation, Action at a Distance, and even Pair Productions and Pair Annihilations are considered there.

For then they need Quantum Fluctuations to “enable” such things!

Q.E.D.

Now, an extensive alternative holistic Theory has been suggested, and applied to all the anomalies of the full set of Double Slit Experiments, where it dealt with every single one, entirely without any recourse, whatsoever, to the suppositions of The Copemhagen Interpretation of Quantum Theory.

It crucially involved the suggestion of a currently undetectable Universal Substrate, composed exclusively of various kinds of mutually-orbiting pairs of particular sub-components possessing both directly cancelling properties to deliver the undetectability - but also, in addition, sufficient properties of the combinwd particles as Units, as well as those delivered by the various overall possible structures or phases of the Substrate as an extended medium, to effectively deliver the essential seemingly absent properties in the usual descriptions of Empty Space-as-is!

Now the demands made upon this Substrate are truly significant, yet effectively missing in the usual consensus theory. And, they are the very opposite of trivial or non-essential.

I am sure the reader will know the ones that I mean, but they are unlikely to be aware that the assumption of such a Universal Substrate, affords a purely physical explanation for the Quantised Orbits of Electrons in atoms, as well as being the actual repositories for all

kinds of extended Fields not only occupying literally all of the Space in the Universe, but also delivering both the source of the energy required, and its direct use in the physical actions of such Fields.

The profound point simply has to be made, that the importation of Mathematics into Physics is not only illegitimate philosophically, but also totally hides all real and physical explanations by an incorrect and abstract descriptive means, that also illegitimately allows its extension into the false Infinities of Ideality, as their only alternative to Real Physical Explanations.

The false Plurality imported into both Reasoning and Science by the Ancient Greeks - and therefore being limiting them solely to qualitatively fixed entities and relations (as are legitimate in Mathematics), and, by so doing changed the Role of Physics from investigating the Nature of Reality-as-is, to instead investigating only its reflection in the purely abstract and pluralistic World of Ideality - most certainly NOT the same things at all.

When arguing for Holism as against Plurality - in what is surely a World of Holistic interconnectivity - we have to go beyond the foundational holist ideas of The Buddha, to enable a modern and well-informed attempt at explaining the crucial natural appearance of the Wholly-New, which the alternative of Plurality never can.

But, the biggest problem is not only the clear temporal dominance literally everywhere in Nature of multiple interludes of obvious and long-persisting Stabilities - for such, most certainly, not only powerfully undermine that objective, but also, do so even in many situations purposely-devised by Man, which you would think would be exempt from such an underlying natural tendency, but, in fact, extends it, into literally all scientific attempts at revealing the true Nature of Reality!

You could even make a strong case for Stability actually being the Norm, and the brief and infrequent Interludes of Qualitative Change being, somehow, imposed from without, and not intrinsic to Reality-as-is.

But, that set of alternatives is most certainly incorrect.

For, systems quite clearly entirely devoid of external interventions, still suffer the same kinds of systemic-collapses, and also consequent wholesale changed-renewals, surely prove it.

Yet, the Origin of Life on Earth, and its many following Revolutionary-Emergences, thereafter, certainly prove, that almost all those revolutions just had to have been totally-internally-caused, out of a Balanced-and-Maintained-Stability, finally being terminally-undermined, by changes entirely internally-caused, and

finally precipitating an unavoisable wholesale collapse. Indeed, both the effective-maintaining of a Stability, and its ultimate terminating-dissolution, can both be achieved by an ever-present, intrinsic *Opposition*.

And, if that doesn't convince the septic, I must mention the consequent and extremely short, entirely constructive creation phase, terminating an Emergence, solely built out of the ruins of both this and all the prior long-lasting Stabilities, by then dissociated.

The pluralist idea of a “Stability” is surely totally incompatible with all such developments - for as invariably fixed situations, they have no means of dissolution, and certainly none for actually causing a wholly different consequent resurrection.

Lego-like constructions can never deliver the wholly NEW!

Fundamentally, at all the Levels in Reality, there has to be both naturally caused associations, and naturally caused dissociations, to ever deliver Qualitative Changes resulting in real Progress.

Let us, instead, carefully consider the modern holist version of a Temporary Stability - the holistically-achieved Balanced Stability. For, such can occur which one of a whole variety of Levels in Reality. And, both in the achieving, and in the dissolution of a Stability, and crucially, as in all Qualitative Change - all the crucial elements simply must include both Oppositions, as well as the possibilities for attractive Unions.



As opposed to the static Stabilities of Plurality, those of Holism can only be achieved by a self-maintaining *Balance of Opposites*, which not only causes it to home-in upon such a balance initially, but which also, when disturbed away from that balance, has that diversion immediately cancelled, due solely to its complex compensating balance of opposites.

But, though conservative, it will remain so, only as long as its immediately containing Level allows it.

Clearly, Reality is composed of a multiplicity of Levels - with the Lower, at some stage, producing the Higher, but with those containing creations, at some point, reacting back upon what originally produced them, and precipitating a Crisis.

So, these are NOT from without, as they were originally produced from the now affected Level itself! Effectively, it is the developments from the wholly New, that ultimately react back upon what caused them.

NOTE: within Life, there is the increasing production of Free Oxygen from Photosynthesis in Plants, which later allowed the first occurrence of Animals, who couldn't exist without it!

It is the presence of both Attraction and Opposition throughout Reality, and its multiplicity of Levels that reciprocally affect one another, which enables its development.

Now, of course, Mankind, as a whole, didn't conceive of the Natural World in this holistic way. For, from their primitive conceptions as Hunter/Gatherers, right through to present day Science, the method has always been to use them, either if naturally stable and unchanging, as such, or, if not, made to be so, by extensive modifications and control to "hold-things-still" and, thereafter, keeping them as such throughout their use! Reality was conceived of Pluralistically, or made to be so, via extensive filtering and control, until Fixed Laws could be clearly displayed, and hence easily extracted, and, thereafter, used with confidence, as long as the required pluralisation of conditions was effectively maintained.

What was developed was what should actually be termed Pluralist Science! It was usually a technologically-useable method, but it didn't ever fully reveal how Reality-as-

is actually worked: it was a purely pragmatic approach, and NOT a Theoretical Explanation, though the best practitioners always also tried to provide, at least a partial explanatory narrative!

But, even they were invariably doomed, in the long run, because they too were wholly pluralist, which assumed all entities, properties and processes were forever Fixed! Indeed, the avowed purpose in a Science like Physics was to reveal the "eternal Natural Laws", which presumably produced everything else.

Indeed, the many unavoidable contradictions and impasses arrived so frequently at such impossible junctures, that they were treated as "ultimate boundaries" between different "sciences", and all beyond that boundary, taken on by specialists in the newly defined field!

But, by the 20th century, and ever deeper investigations into Reality, the contradictions proliferated to such an extent, that Sub Atomic Physicists abandoned Explanation completely, and unashamedly concentrated instead upon Pluralist Mathematics as their only consistent Saviour: as long as some area within Mathematics could be effectively mapped onto observed phenomena, allowing reliable Predictions, Physical Explanations were dispensed with and unsustainable suppositions devised and used instead.

NOTE: Yet the careful farming of conditions to reveal extractable relations was continued as before, yet remarkably in more and more restricted circumstances, so that currently Sub Atomic Physics is almost totally restricted to very High Energy Accelerators and Colliders to alone reveal the Nature of this 'underlying' Reality!

Clearly, this endeavour is doomed to failure, unless the current Revolutionary drive towards a Holistic Science, via the abandonment of the crucial Pluralist wrong turnings of the past, and the embracing of the Dialectical Route to Science, based upon Development and Change in the Marxist tradition.



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