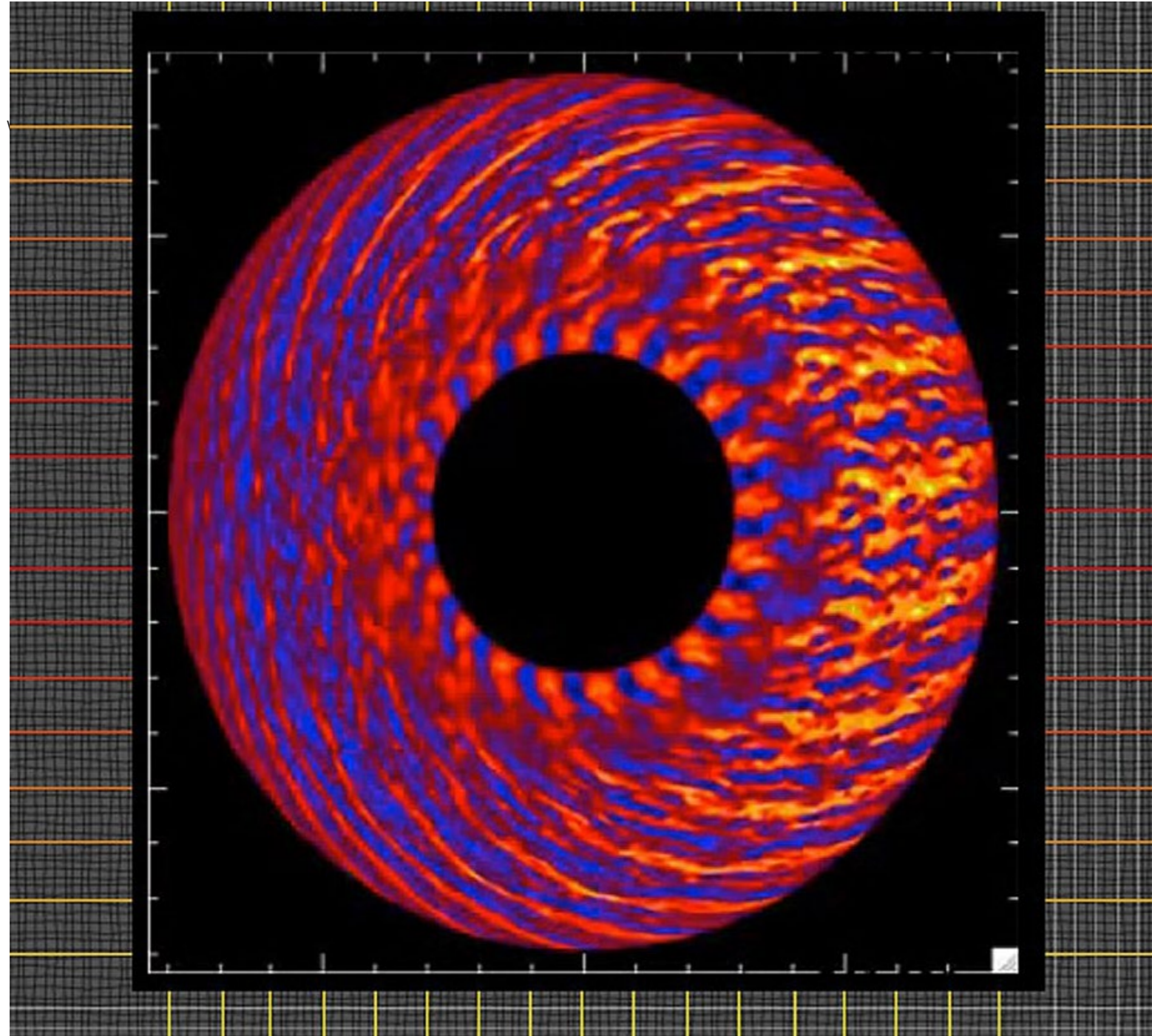


SHAPE JOURNAL

ENTER THE MICROVERSE

MICROVERSE NOT MULTIVERSE / DARK MATTER AND THE SUBSTRATE / FUSION AND PHILOSOPHY - ERIC LERNER
THE ESSENTIAL ANALOGISTIC MODELS OF A DIALECTICALLY HOLIST APPROACH TO MACRO & MICRO REALITY



Enter the Microverse

Special Issue 71 / January 2021

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Microverse not Multiverse

by

Jim Schofield

Welcome to the 71st Special Issue of SHAPE Journal. This edition looks at our latest Physics research and continues this publication's ongoing critique of the Copenhagen Interpretation of Quantum Theory - and the general consensus within this Science, that the dynamic physical Universe we inhabit can be reduced to Mathematics for study.

We have covered many crises in our understanding of Physics and Cosmology over the years - in this work I propose that the solutions to our current Crises in Cosmology are not in the *Multiverse*, as our Mathematician friends currently suggest - but in the Microverse. Substrate Theory now points towards a material Universe below this one, that we cannot currently detect.

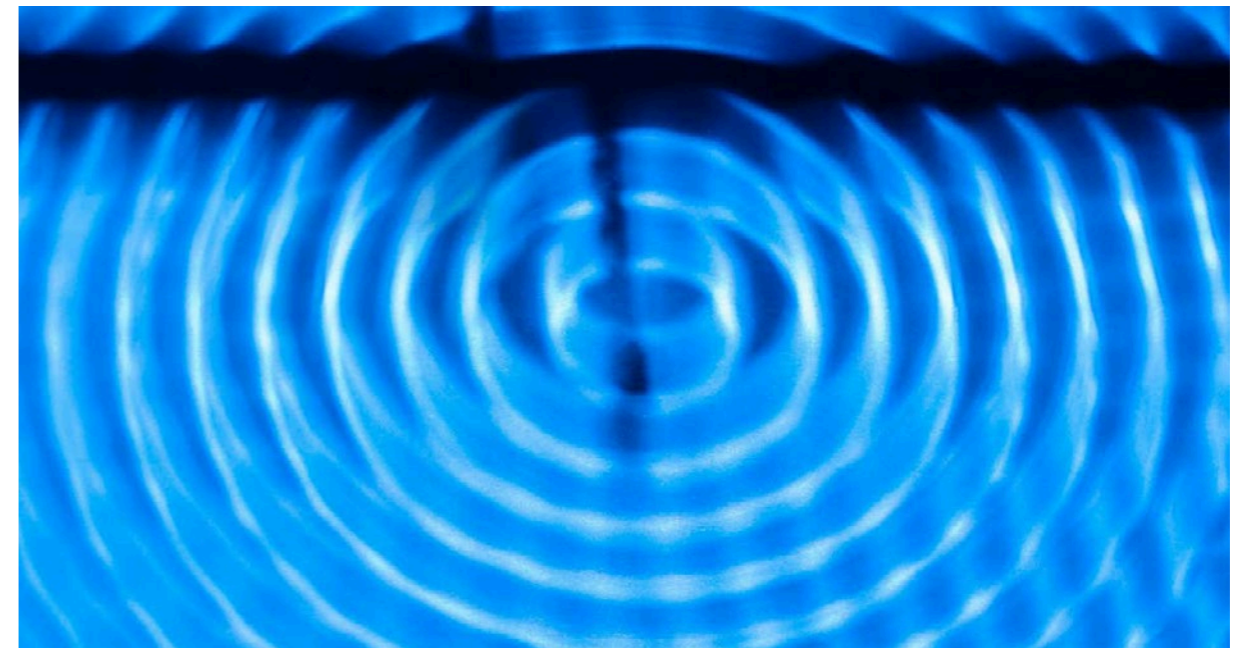
A significant difference between the currently accepted theories in Sub Atomic Physics (and consequently also in Cosmology too), and the further extensive consequences within all of these these fields, of the new and now crucially-imperative Philosophical-Switch away from the well-established yet increasingly inadequate basis in a wholly Pluralist-Idealist philosophy: and its total replacement by the alternative Dialectical Materialist stance. For it is this alone which also opposes the total abandonment of the Universal Substrate permeating the Universe, and of its clearly absolutely necessary re-instatement!

Now, such a Substrate had long been a generally accepted assumption, over many centuries, and had been a significantly useable basis, particularly when dealing with the propagation of Electromagnetic Waves through so-called "Empty Space". But, the impossibility of detecting such a Substrate, composed of ostensibly material particles, had finally caused it to be completely dispensed with, as a real, functioning and investigateable part of our observable Universe.

But, nevertheless, its abandonment, rather than actually simplifying all of our General Sciences, with regard to the True Nature of Reality, instead unavoidably presented scientists with a profound and wholly non-transcendable contradiction, at the very heart of all Physics Theories.

And, as this involved the Propagation of Waves of all kinds, it would then be impossible to explain, through such a valueless idea as Totally Empty Space, while, at exactly the same time, the usual Wave Theories, instead of also being dumped because of such a Context, were, on the contrary, increasingly positioned at the *very heart* of all the new replacement theories, but in an entirely new-and-empty way - begging the unanswerable question: waves in *what*?

The Copenhagen Interpretation of Quantum Theory, actually attempted to "square this circle" by dispensing



with Waves propagating via a Universal Substrate, and instead, substituted that with particulate-like Quanta composed of entirely-disembodied Pure Energy, which would need NO carrying-Substrate. Simultaneously they were still using prior Wave Equations, but amazingly, redefined as dealing only with *Probabilities*, and totally ignoring how they had originally and concretely been derived.

BUT, the consequent contradictions involved, were made even more indigestible, by still, wherever convenient, continuing to use that same Wave Theory, in actual propagation, BUT now, somehow, happening entirely without any affected-and-determining medium being involved.

And, the contradictions were indeed further proliferated, at every single turn!

For example, in Quantum Entanglement, communication at a distance - without a medium to propagate it - was either assumed to be entirely possible, and somehow above the Speed of Light, or alternatively, just not necessary at all!

How could they do both of these "solutions" in such contradictory ways?

So, both Information was assumed to be possibly transmitted across Empty Space: as also was the Richness of Diverse Wave characteristics, such as Frequency and Wavelength, in spite of these being originally related, solely by their assumed Concrete Nature in occupying a Filled Non Empty SPACE. Of course, for any of this to work, something hidden just HAD to be there!

But they had a "much better solution" than this, than the presence of a hidden Substrate! They had the Nothingness of Space, but, remarkably, overall-and-over time composed of self-negating *somethings*, which therefore overall, always delivered absolutely Zero Energy of its own, but merely delivered it, when required by that constantly-varying *something*, oscillating between two non material exact-energetic-opposites, that existed independently of literally everything else and, somehow, delivered EVERYTHING that occurred in Empty Space.

It is an old trick - first suggested with the opposites of Matter and Antimatter - but now we are presented with something more like Energy and Anti-energy, yet both totally disembodied from any Matter at all!

Now, in such a veritable Explanatory-Swamp, it helps (somehow) if Einstein's equalising of Matter and Energy is true, for then the age-old assumption of Energy acting only upon Matter, as distinct components of Reality, and

which is a sound basis for the vast majority of Science, can be dispensed with, in extreme circumstances, where they reveal themselves as being THE SAME THING, but in diverse circumstances acting as independent entities.

Yet, any belief that the true Nature of Reality as is, has been touched upon here, is surely far from the real Truth of the matter! Let me try and explain why.

The propagation of Electromagnetic Radiation, via Quantum Oscillations of NOTHING, cannot be true: for how is the integrity of specific different Frequencies-and-Wavelengths, forever-maintained within a cacophony of multiple diverse, simultaneous and interpenetrating propagations in Outer Space - and over both Billions of Miles and Billions of Years? For with such a quantum oscillation, “non-material medium”, how could such mammoth variations AND distinct directions be maintained at all?

Now, I could go on justifying this position, but frankly I don't need to do so! The underlying support for this Quagmire is clearly evident by now. It is the illegitimate Dominance of Science by Mathematics, as the initially totally Idealist Underlying Determining Basis of the whole superstructure, that is insupportable anyway.

So why is this the case? It is because, Mathematics is totally UNTENABLE in such circumstances, as ALL Mathematics is surely Pluralist, and has been so, from its inception many millenia ago. But the invalid Universal adoption of the Principle of Plurality, which alone allowed the Construction of the Intellectual Discipline of Mathematics, AND its consequent Rationality, is NOT applicable in any of the Sciences, nor even in General Reasoning. It is only applicable in Systems where the qualitative relations, and hence the Laws-of-Change involved, are permanently FIXED, as they most certainly are in the relating of Pure Forms, which is the bottommost basis of all Mathematics.

For in Mathematics things CANNOT change qualitatively, and cannot Evolve in Nature: they can only Sum and Complicate in myriad ways - which is not the same thing at all.

Now, if that were not bad enough, the Plurality of Mathematics also means that it can never wholly describe Reality-as-is, for that both changes qualitatively, and

actually evolves, whereas all Mathematical Formulae are forever FIXED in quality. So, Mathematics is not only Pluralist but also Idealist - its Ideal Forms cannot change, and the perpetual importation of FIXED Equations from Mathematics as Laws of Nature is TOTALLY ILLEGITIMATE.

Now, this mistake is no small thing.

In order to construct something, which could be called “Science”, the now empowered Rationality of both the Ancient Greeks, and literally everyone else since, has had to make that subject also entirely pluralist by severely restricting all the components involved in so-called “scientific investigations”, and then maintaining that same limited context throughout, to ensure that the Law involved would be FIXED, and in Theory to assume that such a Pluralist Law would be correct, no matter what context it was supposed to apply in.

For that also was wrong!

Indeed, what has since been claimed to be The Science of Physics for millennia, has always been a mere Technology of a severely restricted, and hence distorted Physics. And, because the original purely explanatory tradition was always historically holistic, and was sometimes successfully used holistically, as the appropriate Theory, it was now doomed, in the end, as with an ever increasing inaccuracy, with respect to the supposedly related experimentation, for it was evidently increasingly different in Practice and in Theory.

Yet, it was the holistic Theory that was always blamed for the differences! So that ultimately the Pluralist Technology was taken to deliver the real truth, and Mathematics was promoted from being a mere formal reflected descriptor, to becoming the determinant of the “actual naturally FIXED physical Law”.

Let us consider the importance of this for *all* the Sciences;

For well over two millennia the Sciences have all been distorted in this way, and the Holist Laws of earlier times were quite wrongly replaced by the severely limited Pluralist versions. And, in addition, literally all of the Rationality in Science was irrevocably distorted by the assumed Pluralist Rationality, as it also used in all General Reasoning involved in Discussion and Argument - as they were damaged by Pluralist Reasoning also.

Just listen to any politician for evidence of what that sounds like!

Now, the writer of this paper has been a professionally-qualified and active Physicist, all his adult life, and from my first introduction to the Copenhagen Stance in Sub Atomic Physics six decades ago, I intuitively knew it was wrong. For having originally been an exceptionally able Mathematician, I had increasingly rejected that Discipline as providing any sort of Key to Understanding Reality-as-is, because it never ever dealt with “Why?” things behaved in the way that they did: it was, at best, a mere descriptor of Forms involved as purely Fixed Things - changes and causes were wholly outside of its remit, so properly-addressed Science just had to be the Primary area of study for any attempt at really Understanding anything!

And, many of my teachers of Science at my School had thought of and taught that subject in the same way. So I was disgusted at my Lecturers and even Professors in my Physics Degree Course, with their clear abandonment of Physical Explanations for purely formal mathematical equations. And instead of Nature being the judge and final arbiter of all Physics Theories, they were, instead, increasingly devised and justified only by the Rules of Mathematical Rationality, which were ONLY about Pure Form AND accompanied by an increasing distrust of experimental data. Indeed, most “supposed extensions to theory” were developed on the Page or on the Blackboard, using only the increasingly dominant Rules of Mathematics. And, the differences between Theory and Experimental Data were increasingly put down to poor experimental technique by the involved students.

But, a Science increasingly dominated by such Fixed Rules, and consequent Eternal Laws, defined, therefore, solely pluralistically over many years, could never be relied upon, especially in circumstances wherein Real Holistic Development was unavoidably involved. And, particularly in the now dominant areas of Sub Atomic Physics, the discoveries produced in exceptionally constrained Experiments, based in mammoth and exceptionally restricted circumstances, such as those delivered by the Large Hadron Collider (the LHC) in Switzerland, which imposed a significant distortion upon what could be done there. And primarily, the extractions achieved did NOT deliver conducive and revealing additions to theory, but on the contrary, were converted into totally Pluralistic developments using only the Rules

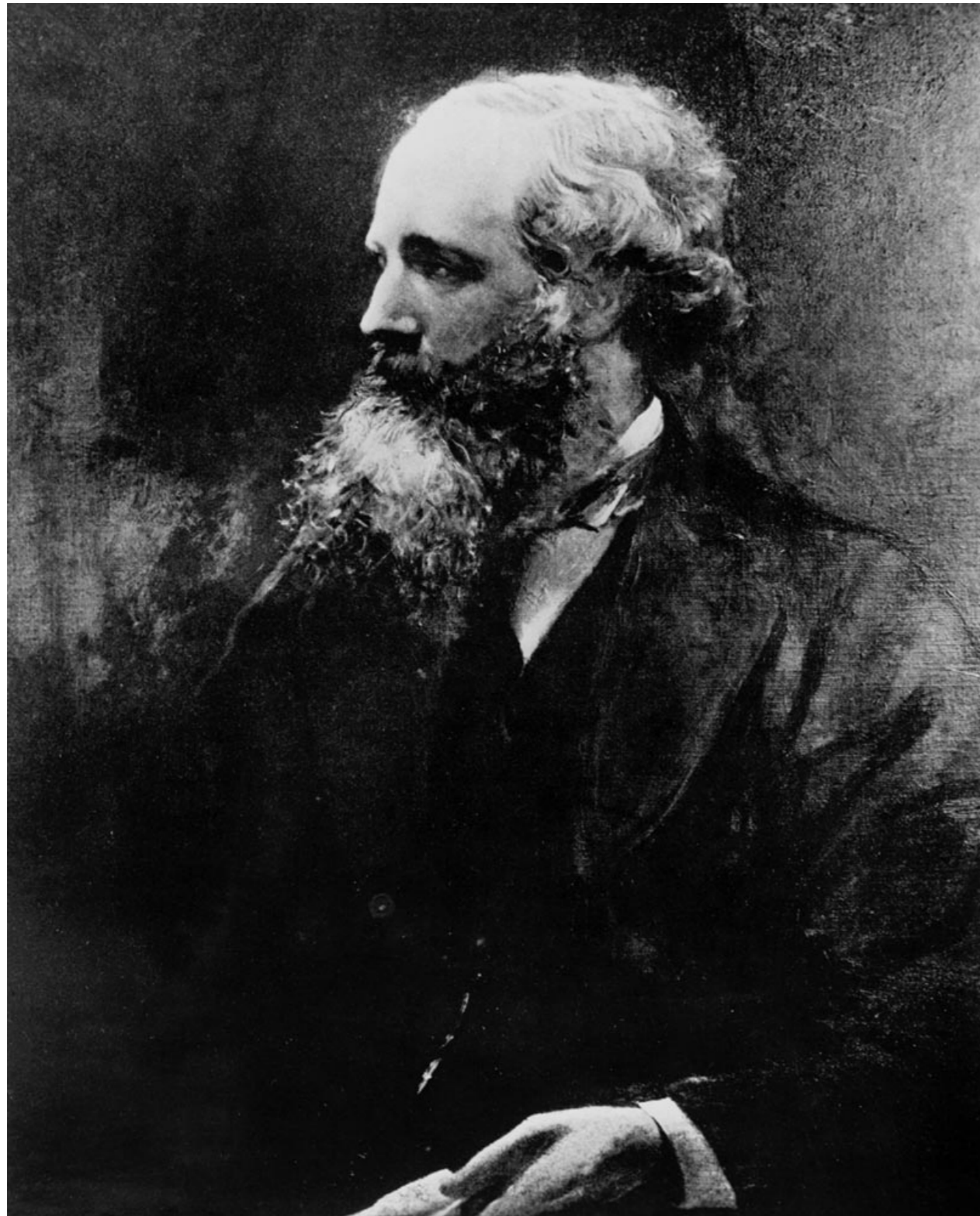
of Mathematics, as if they were the fixed and determining Laws of Nature! And such so produced “Theory”, could only deliver solutions within Mathematical Rationality, and NEVER any newly revealed Holistic Laws of Nature.

The proof that this is actually the case, is emphasized by the whole supposed series of “Educational Videos”, put out by Institutions like Stanford University, which are not even consistent pieces of Pluralist Mathematics, but “achieve their aims” solely by both significant curtailments of such, coupled with blatant, purely-formal tricks, where “Morsels of Truth” are shoe-horned into truncated pluralist relations by theorists, such as Leonard Susskind, who mangle what they call Physics Theory, into pragmatically useable, but useless explanations, of what now constitutes Modern Physics.

Now, of course it is no such thing, and an alternative approach, which attempts to put Physics upon a sound, materialist and holist footing, has occupied this dissenting physicist for the last 60 years, but which has only recently finally come to fruition, in the last decade, with his 2019 Critique of the Copenhagen Stance, based upon a lifetimes' successful inter-disciplinary research, across a truly wide range of disciplines, and a consequent alternative approach to reasoning - Dialectics.

But crucially, in addition, the majorly significant philosophical gains, and successful re-establishment of the role of an everywhere present but directly undetectable Universal Substrate, composed of wholly New Sub Atomic material Particles, composed of mutually-orbiting pairs of electromagnetically opposite particles, which both made them undetectable, while also enabling the carrying of single quanta of energy via internal orbits.

But, of course, what was also imperative, and had never been previously achieved, was the Extension of Dialectical Materialism to Science. For, without that revolutionary Qualitative Change, no fully comprehensive Theory could be achieved in the Sciences. For, instead of Pluralist Laws, Qualitative Change and a fully Holist set of Theories would have to replace the current Pluralist Mess!



JAMES CLERK MAXWELL

Burying Copenhagen

This was a truly major task (effectively doing a comprehensive job upon Physics), just such as Karl Marx was forced to do with Capitalist Economics: for remember, to complete that alone had taken him the rest of his life!

But, nevertheless, the touchstones, at least, were now increasingly obvious: for, to begin with, it was clearly necessary to integrate what achieveables had already been made in Physics, by the prior solving of some of the Key Problems involved in Empty Space, by in addition, correlating what was certain about it, with the abandonment of the previously universally-assumed presence of an Interstellar enabling Medium - called The Ether - which had also been vital, for James Clerk Maxwell, in devising his magnificent work upon Electricity and Magnetism, and by having to in addition take on its then universally insisted-upon demise, due to the Michelson-Morley Experiments, and thereafter by having-to re-stress its actually clear propensity to propagate Electromagnetic Radiation throughout the Universe, and also, of course, by successfully addressing the seemingly contradictory discovery of the Discrete Quantum, and its evident role in actually carrying such Radiation- yet doing-so, in spite of that Radiation's also evident continuous and extended Wave-Like qualities too.

These discoveries didn't actually hang together very well at all, did they?

And, frankly, they never could do so, considering the two-millennia-long dominance of Plurality in Science, so that it had absolutely no hope of ever dealing with relations that actually legitimately-morphed into clearly qualitatively-different versions, that were, therefore, always impossible to ever explain using Eternally Fixed Laws: the Dynamics of Evolving Relations were absolutely nowhere understood. Pluralist Science was like building Life out of Lego!

And even Marx's hard-won Dynamics as-evident-in his Development of Capitalist Economics, were, though, never reducible to fully revealed varying-and-underlying Holistic Laws: for they were only at their revealed best, in the dramatically short and clearly varying Macro Interludes, such as occur within Social Revolutions.

So, even the Master himself, didn't reveal the causal dynamics at more Micro Levels.

If anything, the task in the Sciences was bound to be significantly more difficult than it had been in Economics!

Plurality in the Sciences was a truly major handicap to overcome, and regularly well-hidden beneath the relative ease in successfully delivering Technology, by what turned out to be effective means for that, if not for detailed analysis and theoretical understanding of the Natural Universe.

On the Undetectable Universal Substrate

The many-and-contradictory problems revealed by the more recent discoveries in Modern Physics, certainly have to be the very places to begin finding the necessary Path to Salvation for the discipline, because as Modern Dialectical Approaches have regularly revealed, Contradictions DO NOT Terminate Rationally, as they always do within simple Pluralist Thinking, but, on the contrary, actually always highlight exactly where current fixed assumptions, both reveal their illegitimacy, and can also, at that same point, deliver the precise places wherein to look for the defining alternatives, that can get a great deal closer to the required Truth!

But, they will never straight-forwardly deliver, simultaneously and separately, the whole full extent of that sought-for multi-factor Truth! Indeed, not only is Absolute Truth impossible to achieve, but even the improvements-towards that objective always and unavoidably are flawed too.

For, the very instrument being used, The Human Brain, itself, only a part of that same World, and having only very recently got a little nearer to revealing its objectives. Indeed, the committed Thinking Human Brain, if appropriately re-directed, is, indeed, at the forefront of such developments, yet still, only very rarely achieves any necessary gains! And, when such gains are made, they

are NEVER of the actual substance of Absolute Truth, but, at the very best, a somewhat closer attempt, but it can only ever gel in the form of an Analogistic Model - a General Form covering several related systems.

So, what sort of gains *are* possible, when considering, one at a time, from this currently revealed collection of Pluralist Contradictions?

The actual delivery-properties of such an Empty Space, if that is really its sole content, surely has to be NIL.

For, nothing can never “actively deliver” anything!

Instead, at its very best, it will do nothing to impede something fired through it (a Photon?) using some outside produced initial Energy, but that option can also remove any subsequent qualitative interactions from taking place, apart from collisions with other similarly inert, but energetically propelled bodies! And reducing all the things that definitely could be there, to such collisions, is here clearly untenable in delivering what actually occurs. Unless, the injected body, just as with an Atom, can have some sort of contained orbit within it, thus hiding wave-like features inside, exactly the same as occurs with electrons, inside an atom!

But, of course, such a mere carrier, could never move at the Speed of Light, to deliver, by such a means, the actual Propagation of Radiation! And clearly, the disembodied Propagation of Wave-like Radiation through totally Empty Space also makes no sense at all.

Indeed, in addition, the undetectability of this suggested Universal Substrate, of course, makes it difficult to confidently explain exactly how it could work, involving its proposed individual units. But, it was immediately clear that these units are likely to be both exceptionally small, and possessing themselves of a compound nature, of even smaller componentss, which made the overall-combined-unit to be, as a result, neutral in every way!

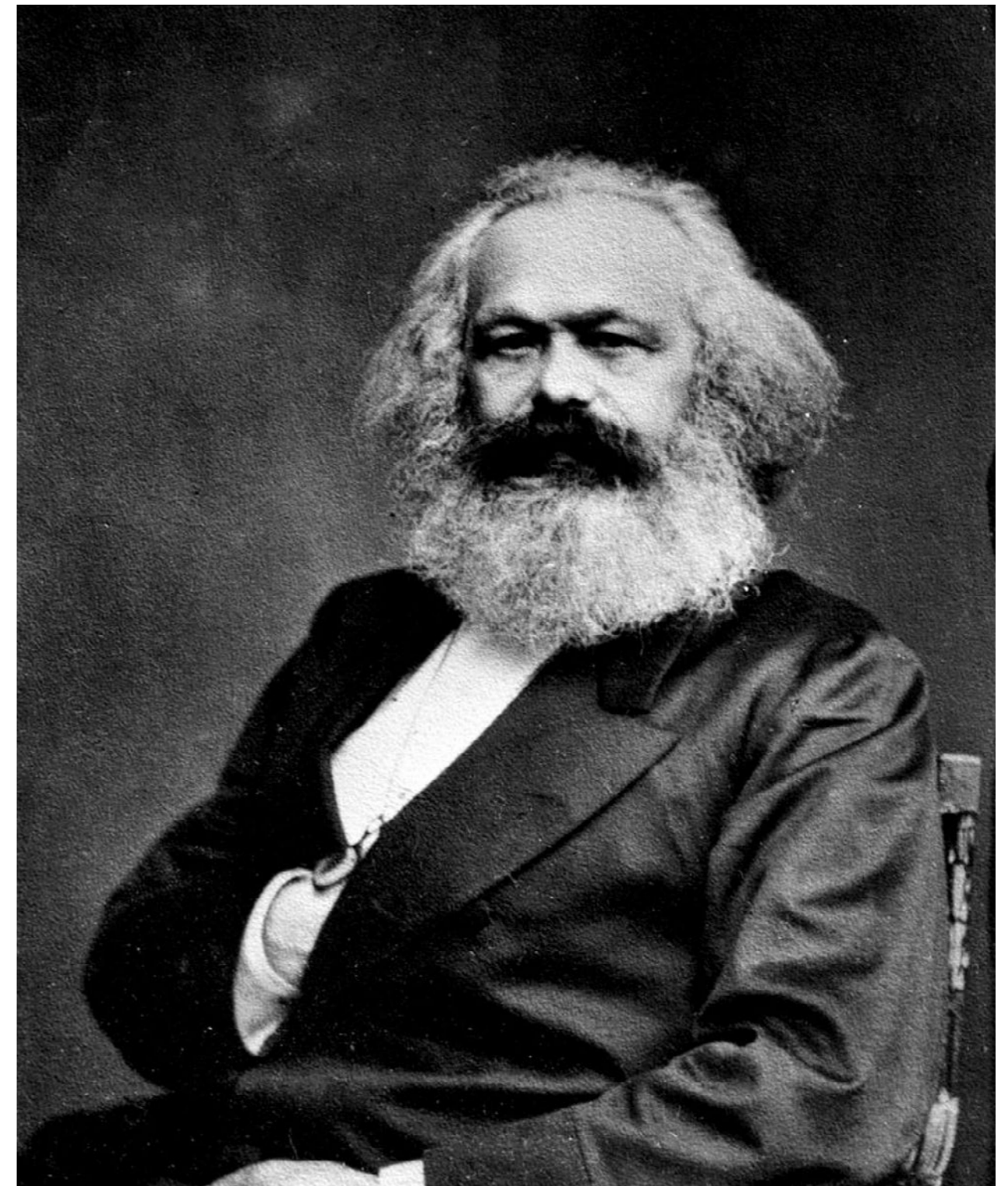
This model of a hidden Microverse put forward by Substrate Theory, at this point, can at the very least be some sort of “place-holder solution”, possible, in an as-yet-undefined Lower Level, beyond the usual Standard Set of Basic Sub Atomic Particles. And, clearly suggesting that the place to start would be the already-observed tiniest entities, such as the Electrons, Positrons and Neutrinos, maybe actually composing into

Mutually-Orbiting Pairs of electrically opposite entities to deliver both small and neutral combined units that might well fit-the-bill in all respects. And, even deliver an explanation of Speed-of-Light propagation.

Substrate Theory starts with the usual idea of the mutual annihilation of an encountering pair of Leptons, consisting of One Ordinary Matter Electron and One Anti Matter Positron, having exactly opposite charges - and which are also said, in different circumstances, to be created solely out of a single quantum of energy in a Photon.

For, in addition, as a mutually orbiting Pair, the said quantum of energy could be stored in that orbit as it is in an atom! What we see as a Photon, is in fact, just an invisible Pair of Leptons, momentarily carrying a quanta of energy.

Indeed, it has been possible, using all the 6 tiniest sub atomic particles, to devise a whole series of bottommost Substrates, delivering all the anomalies of the full range of Double Slit Experiments without any recourse whatsoever to either Wave/Particle Duality, or the positivist and Pluralist nonsense of Copenhagen Physics.



KARL MARX



A Crucial Backstory:

The Essential Analogistic Models of a Dialectically Holist Approach to Macro & Micro Reality

To better understand the sound philosophical basis for these critiques of Physics, we must leave that subject for the time being and address a Marxist conception of change. Though this will not be comprehensively tackled here, these ideas are also crucial in their embodiment in Marxist Political Economy, but the intentions of Professional Revolutionaries will not be fully addressed in this paper!

The problem with ever attempting to address Truly Holistic Reality, as it Really Exists - whether we're Physicists, Evolutionary Biologists or Marxist Revolutionaries - arises out of its unavoidable Qualitative and Transforming Developments, which, though they are usually totally absent in the short term, always, nevertheless become absolutely indispensable within longer periods of time, wherein the persisting (sometimes apparently permanent) Stabilities, finally dissociate to produce the wholly New!

And, crucially, what situations these deliver, when they become dominant, are never actually causally predictable, from overt evidence within the prior delivering periods of apparently-permanent Qualitative Stability. Indeed, when the wholly NEW actually appears, within what are termed Transforming Emergences (or Interludes of Qualitative Change), such are NEVER previously predictable - not only because, beforehand, we cannot know which already identifiable features will cause the changes, nor exactly what they will turn out to be. So, let us be crystal clear what all of this means!

As distinct from strictly Pluralist complications, delivered by mere summation of quantitative changes, and within components currently seemingly endowed only with fixed qualities and relations, the whole system of possibilities changes *radically*, into an overall recasting of the current situation.

Our inability to predict Dialectical Transformations, seems to be a wholly debilitating scenario, and always, therefore, appears to make it totally impossible to intervene in order, somehow, to make interventions or changes in what is actually happening, and, thereby, produce a different desired-end-point, in an already underway and proceeding process of this kind. For, such a situation seems to totally disable any revolutionaries who intervene in Naturally-Occurring Social Emergences, in order to achieve their own preconceived outcomes.

But this is a simplification.

To understand why the possibilities could either totally prohibit successful revolutionary interventions, or in other circumstances, actually allow them, we have to consider the dynamical possibilities of both seemingly permanent Stabilities, on the one hand, and of Emergences, as they occur, on the other - and both the actual ebbs-and-flows close to Interludes of Change in an actually Holist World.

Our World is only "apparently" Pluralist, you see, until its natural potentialities, which previously caused its stable systems, begin instead to increasingly undermine what makes that situation seemingly permanent, and an Emergent Transforming Interlude is, at first, only haltingly, precipitated, which then ushers in a period of both Crises and Qualitative Changes, which, thereafter,

dramatically changes direction, and tightens-up again, into a wholly new persisting period of Balanced Stabilities once again!

Now, this pattern was first found repeatedly in many different Social Revolutions, at very different times in History, by Karl Marx, and he realised that though their contents and contexts were always very different, the described Dynamics were consistent throughout many very different exemplars.

So, he took such a dynamic sequence, as a key-commonality, within All Qualitative Changes, at the many very disparate levels at which they occurred. In order, to fruitfully-enable the general use of such a Dynamic Analogistic Model, that would also be essential in finding differing versions of such "Balanced Stabilities", to put a necessary defining flesh onto such Common Analogistic Bones.

NOTE:

The crucial explanatory feature of this World which had long been well hidden by the wrong turnings in the Greek Intellectual Revolution of the 5th century BC, that unavoidably accompanied its also truly brilliant gains, as embodied in the Mathematical Rationality of Geometry, and then more generally, found to be equally applicable to literally the whole of Mathematics. But also, and wrongly, it was applied in addition to both General Reasoning, and also, in all the then emerging Sciences too. For, that rationality only legitimately applies to Systems which conform to the Principle of Plurality, which only applied to Systems governed by predetermined sets of Fixed Rules or Laws.

To make this work Scientists had to remove qualitative change completely, and ensure a vital conformity to Plurality. In law-finding Experiments, and in their successful Use, practitioners had been forced to significantly both selectively filter-out all but the key contents dramatically, and maintain that appropriately conducive regime throughout both Investigations and the subsequent Use.

This meant that only Fixed Laws were extracted, and thereafter used, which NEVER reflected material Reality-as-is, and crucially also never addressed the simultaneous multi-factor nature of evolving Reality-as-is, and hence omitted the Real Nature of its determining

inter-relations between them!

Indeed, the path traversed by Vladimir Lenin, during his leadership of the Bolsheviks, during the Russian Revolution, involved a whole series of phases of the Revolution, within which, it was possible for a consummate Marxist, like Lenin, to discern and analyse innumerable such interludes, most of which didn't last very long - during which it was imperative to "Get it Right!"

Let me describe just a couple.

By April 1917, Lenin was still esconced in Switzerland, for his safety from the supporters of the Czar, but the Bolshevik Party in Russia were supporting the War along with the Provisional Government. influenced mainly by the Mensheviks, and the Peasant dominated Social Revolutionary Party. Lenin knew he had to get back, and along with a Campaign within Russia, to allow him to return, he also began negotiations with the Germans to facilitate his safe passage. The argument, which convinced the Germans, was Lenin's evident policy of Revolution, which the Germans considered would help them, so they agreed to let him come through Germany, in a sealed train!

On arrival at the Finland Station in Petrograd, he immediately gave an impassioned speech to his welcoming crowd, in which he rejected the stance of his Party in supporting the War, and argued for an alliance with the peasants with the Slogan:

Bread, Peace and Land!

He immediately wrote and distributed his April Theses - elaborating this change in stance. and quickly won the Party to the new position.

Indeed, by July, the balance of forces had changed, and armrd-to-the-teeth fighters from Kronstad, arrived at the Bolshevik Party's Headquarters, demannding that Lenin lead them to the Winter Palace to arrest the Provisional Government. But it was far too soon! Everyone at Headquarters knew this, and argued that the Fighters be sent back to their Barracks. But Lenin disagreed! He argued that it would be precisely such men as these who would be needed when the best time came, but to turn them back NOW would undermine their fervour, and their trust in the Party as working in their interests!



He decided that the Party had to accede to their request, and Trotsky was chosen to lead them.

It was indeed too soon! And all were arrested and Trotsky put in jail. And in the reaction to that event, Lenin had to go in hiding in Finland - but, he had still been right!

When the time did come, in October, the Workers, Soldiers and Peasants knew who to trust and the Provisional Government were arrested. And the All Russian Congress of Soviets took the power, and Lenin declared from the rostrum - "We shall now construct the Socialist Order!"

Of Contexts and Variability

Now, in spite of the above social examples, from an extreme, indeed, a Revolutionary situation, the content, so far, has NOT YET even attempted to reveal Exactly Why these different phases, and, more generally, the Full Revelation of all the reasons for such a differing, and, so far, merely described, but but never yet explained trajectory. The time is well overdue for an initial, though necessarily comprehensible start to be made in Explaining Holistic Science!

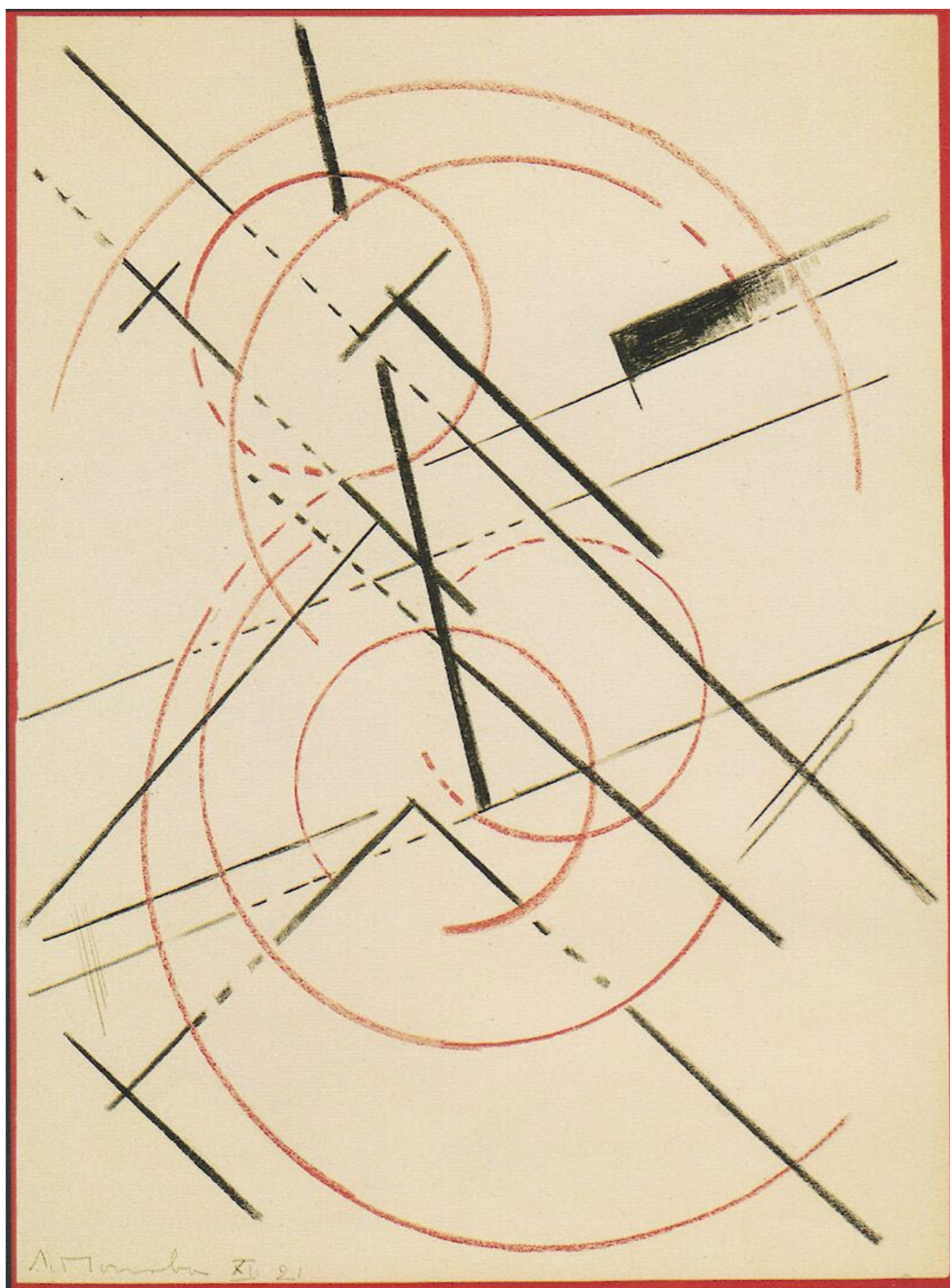
The key, as has already been indicated, involves the natural simultaneous actions of multiple, very different, yet combined effects - all of them contributed primarily by an individual contribution, but significantly modified, both individually, but also in combination, by influences of eveything else simultaeously present. And, none of these contributing influences will be the same as the usual Fixed Pluralis Laws (as illustrated by the extracted Pluralist situations. And, also, mostly NOT mere quantitative summations of sets of those unchanging Laws.

Effectively, the whole consequent belief in Fixed Laws is also totally torpedoed, because the multiplicity and variability of such amalgamations also ensures the Key Tenet of Holism - that things and their composited effects are constantly varying!

Another demonstration of the misleading nature of Plurality, has to be that the overall effect of multiple contributions - delivering together in the results, some sort of overall average of the many contributions, which might, itself, be relatively constant, or maybe it WONT!

For, the pluralist assumption of fixed laws, doesn't even hold up in such seeming staightforward summations!

And the Key queation must be, "Why?"



LIUBOV POPOVA

And the main reason for this anomaly arises out of simultaneous processes involving OPPOSITE, or cancelling effects, which lead to varying overall changes over time, AND hence, changes in the relative success rates of the many different simultaneous processes.

Indeed, many years ago, in pre-Life researches into The Origin of Life on Earth, the roles of diametrically OPPOSITE chemical processes, could over time in both Continuing Flows and Repeated Cycles, gradually selectively-eliminate contributions to the resultant overall compositions, so that The Contexts involved were never totally fixed either.

NOTE:

Indeed, the above case is just one of many undermining examples that together have the effect of forcing us to eliminate the Pluralist approach, as being both multiply and variously misleading!

The Holistic Alternative

Now, even long before the Greek Intellectual Revolution, the majority of Mankind had settled upon a somewhat different simplified and pragmatic view of "Reality", that certainly, in most short-term circumstances, seemed to "have the legs" to make that "observed Reality" appear to be somewhat comprehensible, by virtue of its "apparent-constancy"!

Most things, and the inter-relationships between them, seemed to be permanently FIXED! There were, of course, circumstances when this certainly wasn't the case, BUT, used as a workable approximation, most of the time, that assumption was clearly the most helpful one available to them. They could discount the anomalies, and, instead cling to the "seemingly-dependable" majority.

And, if the circumstances could be "held-on-to-as-unchanging", certain previously confounding cases could, nevertheless, be brought into-the-fold, and were also similarly simplified too.

But, it was generally a wholly inadequate method!

This was only finally fully realised and addressed, in a significantly better and occasionally useful way, via the

Intellectual Revolution in Ancient Greece, which, in its development of a consistent Mathematical Rationality - had, for the first time, established in Euclidian Geometry, and, thereafter, also in Mathematics-in-General - a Universally useful Rationality!

The realm that they defined was The Principle of Plurality, and it did indeed hold, and all Relations and even involved Laws were, thereby, considered permanently FIXED! And hence, a wholly new, and vitally important area, concerned exclusively with Number, Forms and Geometry, was shown to have these necessary characteristics, and, consequently, the wholly-reliable Discipline of Mathematics was established and began to be applied to everything that we did.

But, though it "cried-out" to be generally applied both in Science and in General Reasoning, it was wholly-illegitimate to do so, as they certainly DID NOT conform to the Principle of Plurality: their Relations and Laws were certainly NOT permanently FIXED, as they were in Maths. And it is clearly most important to see why that is the case!

For it is to do with the natural and, indeed totally unavoidable multiplicity of Reality-as-is!

But, if a single relation or law could be effectively totally-isolated from all others, Plurality may well hold, but that is rarely the case within Reality-as-is! Indeed, the whole subsequent and necessary regime, as the only valid context for conducting a Scientific Experiment, AND also for a subsequent effective application of the "so-discovered Law", just have-to-be in completely pluralistically controlled conditions, or they wont work at all!

So, the Science, that was thereafter developed, was NOT really a Science of Reality-as-is, but, on the contrary, only of a totally isolated-and-necessarily-pluralist simulation that we could control.

The subject delivered was Pluralist Science ONLY, and told us nothing about how laws come to be, how reality evolves or what might happen next in a truly dynamic situation.

And, such circumstances are NOT what is either found, nor even always completely achievable within material Reality. And, of course, NOT in the Prediction of

subsequent Real World phenomena, and consequently, thereafter, of the actual Dynamic Development of Reality - in other words, in the establishment of Real Science - for those Pluralist Laws will not, and could never, deliver that.

The crucial missing ingredients, in all Pluralist Sciences, are the Overall Laws, which are always the actual, combined results of multiple factors, all acting simultaneously, and hence actually affecting-one-another, and changing them, as well as delivering a changed, combined result: which, in addition will be constantly-varying!

Now, clearly, Pluralist Science can never be about the Development of Reality "left-to-itself". It can only be about artificially-man-directed investigations, with a view to subsequent Reproduction of a desired set of separate processes, in what we term as Production. But, when actually attempting to Understand Reality, and its built-in Processes of Development, and indeed, All Qualitative Change, we simply MUST go beyond mere Production, and on to actual Real Development.

And, as distinct from Production, where maintaining unchanging Contexts are at the very heart of individual contributions, the Natural Occurrences in Development MUST, on the contrary, involve the constantly-varying-Contexts of Reality-as-is, wherein it is very unlikely, if not actually impossible, to rigidly maintain Contexts, as exactly the same, so the Natural Trajectory of Reality-as-is, instead delivers ever-changing-contexts, so that the tenet of "always the same outcome" is neither the Objective nor the norm at all! We can NEVER explain Natural Development, in terms of FIXED Contexts.

Indeed, any given process, within Reality-as-is, will always become, at least, slightly different, and with multiple simultaneous processes, it would be closer to the actual sequence of processes and consequences will literally every single time, always be at least somewhat different. So, instead of, as in production, when it is properly executed, the same things happen each-and-every time that the process is carried out: yet in Reality-as-is, the process, along with its Context, will be constantly changing - and with many of them all acting simultaneously, there will, at some juncture, be a significant-and-unexpected change!

And, remarkably, the methods of Dialectics alone can

enable the phases involved in Qualitative Changes to at least begin to be addressed.

The Dialectical Phases of Stability & Change

Now, as distinct from Plurality, with its permanent Stabilities and consequently totally Fixed Laws, the Holist Alternative, via Dialectics, has to deliver Reality-as-is, which though based upon an underlying constant variability, still delivers temporary Phases of Stability, separated by sort Revolutionary Interludes of Change: and which deliver these both simultaneously, and at many different Levels, in an extended hierarchy, which actually invariably perform usually, at very Different Tempos, yet can, and sometimes do, drive vertical avalanches throughout All The Levels of Reality, in truly significant overall Cataclysms!

Indeed, a wholly New Dialectical Study of both Stabilities-within-Change, and Changes-within-Stability, turn out to be absolutely crucial, in explaining everything that is going on! And, as has already been mentioned and occasionally developed to some extent elsewhere in these writings.

But, the absolutely necessary developments, that still have yet to be made, will inevitably require yet another Intellectual Revolution, far bigger, and even more significant than its Greek predecessor, as literally all of the current Intellectual Disciplines are clearly saturated with Plurality, making the currently available means both wholly inadequate to the tasks, as well as also delivering misleading theoretical and philosophical results in literally all areas of current study.

Perhaps unsurprisingly(?), the yawning gap, that has elapsed, since the Ancient Greek Intellectual Revolution, some two and a half thousand years ago, and which should have been extensively resolved, by the significant contributions, first, by Hegel, and, thereafter, and more profoundly by Karl Marx, could not, in fact, deliver that Change!

And, the reason for this was that, with only Pluralist Mathematical Rationality available to all Discipline Experts, in each and every one of those Disciplines,

instead went their own way, as the contradictions evident in Pluralist approaches to every single one, had already shattered all the many separate Intellectual Approaches, into innumerable separated-and-local pluralist fragments, and thus isolated all disciplines, from one another theoretically, with only Mathematics as the singly-available possible unifier, thus limiting them all to different and indeed incompatible versions of Pluralist relations, which also condemned the many disparate results to Idealism as well!

There were occasional truly revolutionary breakthroughs, such as those by Darwin and Wallace, in addressing The Evolution of Life on Earth, but such were even more isolated, as, of course, was Marx's great contribution in his Critique of Capitalist Economics - once again attempting to address Real Developments.

But, not only did these fail to revolutionise the whole range of disciplines in Human Understanding, as was very clearly required, but on the contrary, the Pluralist Monolith began to dramatically influence, and even change these achievements, and: for example the Pluralist study of Genetics began to dominate in Biology, while, as the World changed, such incursions began to seem to dismantle Marx's brilliant contributions too!

But, in spite of Marx, just as with the contributions of Darwin, the absolutely necessary, affecting-everything Intellectual Revolution didn't take place, as it had done within the Greek event, centuries before. In fact both of these contributions, though certainly magnificent, still failed to transformingly empower Mankind.

Macro into Micro

One way or another, both of these great contributions were too *Macro* & Descriptive to enable an extension into the *Micro* & Explanatory Levels that were absolutely necessary, to ever equip Mankind with a Generally Applicable Stance and consequent Methodological Approach

The proof of this is clearly evident in the failure to extend Darwin's achievements into the Sub-Cellular processes of inheritance, as well as that of Marx into sciences like Physics. For, both of these absolutely crucial areas remained solidly within the prior Aegis of Plurality,

and the potentially revealing Power of Dialectics was somehow totally lost, before it even found its feet!

Indeed, the social dominance of Pluralistic Production has continued to steer literally all Scientific Disciplines - the effect upon Medicine and Pharmacological treatments, rather than understanding and solving the causes of disease, is THE most evident Exemplar!

Now, I originally realised that something was very wrong in my specialist disciplines of Physics & Mathematics, at only 19 years of age, and because of that very early realisation of an evident and crucial Failure, I was, of course, at that time, wholly inadequate to the task of remedying it myself (it took me many decades to even approach it). Nevertheless, my halting journey to at least a glimpse of a final solution, is certainly worth the airing, for it took me 60 years to finally see my way clear to achieving that end, at least within my professional areas of expertise, and probably well beyond that too.

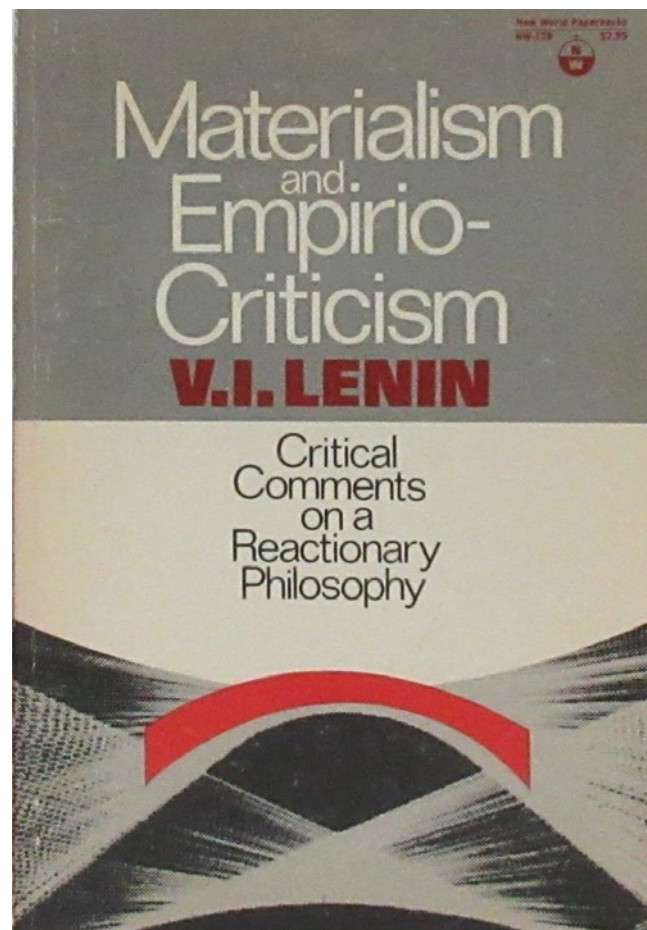
For my trajectory was both very unusual, though in retrospect, probably essential: for I know of no-one else who has traversed such an unlikely path to "salvation".

I started my life in a Victorian Slum District in the first Capitalist City on Earth - Manchester, in what became the Industrial North of England, where I was born at the very outbreak of World War II. My father was an unskilled labourer, and immediately became a Fireman, fighting the fires of the Blitz. And, my mother, a sewing machinist, made uniforms and Utility Clothes for the Co-op Firm of Belmont.

As both my parents were employed in War Work, I started School aged two, in what was called an Elementary School in Armitage Street, West Gorton. There they taught me to both read and write, and aged 11, I was the only pupil to pass-my-scholarship. and advance to a Grammar School in the City Centre. My career there was as remarkable as it was inexplicable, because I was promoted to the "A" Stream, and spent the rest of my school career there - where I was always top-of-the-class, and with pressure from my teachers achieved 10 "O" levels, 5 "A" levels and 2 "S" levels, when the norm was to only take 3. But taking so many subjects, all of which I passed, was better for the school than it was for me, as though I got to University, it was only a Red Brick University in another Northern Industrial Town, and with the minimum Grant. I studied Physics.



E C STONER - my Physics Prof. at the University of Leeds in the late 1950s



MATERIALISM AND EMPIRIO-CRITICISM by V I LENIN - this seminal work of Dialectical Materialism changed my view of Physics

Nevertheless, I did well, in spite of disagreeing with both my lecturers and my fellow students upon the content of our courses. But in a one year excursion into Scientific Russian, I was the only student with a First Class Result. My disagreements with my lecturers, including the World-renowned E. C. Stoner (of Stoner's Sub-Groups fame), ran deep and were never resolved, though I got my Physics degree in the end, it certainly wasn't the best. But I did find some of the Philosophical Answers that I sought elsewhere within "Materialism and Empirio Criticism" by V. I. Lenin, where I did find a much better milieu within Revolutionary Politics (though in retrospect, I never came across a real Marxist in any of those organisations).

So, in a direct contrast to my academic Studies, I also took my love of Painting, and occasionally slipped into the odd class at the local well-respected Art College, and, in addition, even a few Modern English Literature lectures at the University. And, somehow, I also quickly ended up running The Student Art Society, and becoming friendly with Trevor Bell (the then Painting Gregory Fellow at that University). While my political associations got myself and a couple of colleagues onto the Aldermaston March against Nuclear Weapons, and even a regular place on the Communist Party Choir, which sang the whole March through every choir-coducive bridge.

Now, this biographic diversion has a point, I assure you, and it will become clear in my following history, which alone enabled me to continue the development of Dialectical Materialism, which only became possible via that unique trajectory.

For, the usual career progressions were not for me, as the reader by now might have guessed. Starting as a Physics teacher in what was then called a Middle School (for ages 10-13), I quickly switched to teaching both Modern Mathematics and half the School's Biology lessons - both of which I dearly loved. I then got a post in a Grammar School (the one the Attenboroughs had attended), where they were considering also developing the teaching of Modern Mathematics. And though that did not come to pass, I was soon successfully teaching "A" Mathematics. On switching to doing the same in a Further Education College, I continued the researches into Modern Maths, which I had started in the Middle School, and a colleague suggested I use a Computer with something called "The Evaluation of Determinants by Pivotal Condesation", which would save me vast amounts of time and labour,

and the same colleague got a copy of the software to carry out this undertaking. But where could I use it? The College at that time had no computers (this was in the early 1970s), and IT wasn't then during my own education, what it later came to be. So I taught myself the computer language Fortran to understand the acquired software, and approach the Local University, where I had done my Education Certificate Year, and they gave me an afternoon, each week upon their Elliott803 Computer. But it didn't have a Fortran Compiler on their machine! So i had to teach myself Algol, and translate my program from Fortan to Algol. I did that and it worked!

Students from my Further Education College asked to come and watch. I was soon teaching them to program in Algol, and self run their work upon the 803.

To cut a long story short, within a few years I had acquired two obsolescent Elliott 803s from an upgrading local firm, and quickly had them working in the College. Before very long I was Chief Examiner for the region's Examinations Board in Mathematics and Computing.

My college students (all of whom were Gujarati immigrants from Uganda) were producing exceptional work across the board.

There soon developed a Computing Section at the College, providing both in-house courses and half-day Link-Courses for Local Schools, and along with several fellow teachers we started CURE (Computer Users Replacement Equipment) to acquire obsolescent computers that were being replaced, and supplying them working and totally free-of-charge to Schools and Colleges throughout the country.

And the Courses we concentrated upon were very different to the usual offerings. We would help students tackle problems in any area of expertise that would benefit from tailor-made Programs.

I was then approached by a Lecturer at a Polytechnic in a neighbouring city to do a Masters Degree under his guidance to develop a Machine-independant Fortran Compiler, and we commenced, part-time, upon that objective for several Years, but it was simultaneous with all my other endeavours - there simply wasn't enough time! I had finally found my direction, but it definitely required a post in Higher Education to deliver what was possible, so I began to apply to Universities for a post in

a Computer Studies Department, but in spite of many applications and even a few interviews, no posts were forthcoming. So, I widened-the-net and began to apply abroad, and finally after three separate interviews for the same job, I got it! It was as a Lecturer in a Computer Studies Department in Hong Kong - which I accepted.

That Christmas I and my new wife embarked upon a "Slow Boat to China", and within a year I had been promoted to Senior Lecturer - due largely to a highly successful course I devised and ran upon "Model-Based Application Packages". And as there was NO research in that Institution, I set up a spare bedroom as a lab, wherein I successfully built a music Sequencer/Synthesiser. On return to England, I started applying for posts in Universities, and in the meantime self-built a Computer and wrote a successful "Aid-to-Playing-Chess" program on it which worked! I finally was offered a post in Glasgow at the College of Technology.

So, I was now finally in the right environment, but not yet the ideal post! Very good research was going on in that institution, but nothing for me in that department. Now in the Computer Resources Section, which supplied Computers for the whole Institution, there was a specialist, Rom Burns, in assisting researchers in all departments with their Computer needs, and in particular writing tailor-made programs for their work. That was where the real computer Research was centered, and he showed me around many of his current projects with researchers. It was clear that I was very interested, and he suggested I work for him instead. There was a post going, which I applied for, and got.

Now - finally this long detour was justified!
In the next period I began building computer models, working with

- an engineer computerising his test rig for an Oil Tanker.
- a biologist requiring a Recognition Tree for Water Bears (Tardigrades).
- an eye specialist working on Ciliary Muscles in the Eye (He required the effective removal of Blinks from his data).
- a chemist who needed a different pattern within the dot matrix elements used in a Printer, which was being used in Contrast Sensitivity Testing of the Eye.
- a mathematician, who required a graphical version of the Possibility Spaces for a Model of the Human heart.
- a Nursing Specialist designing a computer-based Care Plan for Hospital Patients in Dundee.

- a supplier who needed the computerisation of a Colour Blindness testing rig
- a chemist who wanted computerisation of a Gas Liquid Chromatograph

And this is only to mention the major research undertakings. At the same time, out in the community, I was Teaching Unemployed Youth to program Computers under the auspices of Youth Training in Bridgton, Glasgow. I think I was finally in the right place!

But, nevertheless, as usual things never remain the same, and I still had two posts to go before I was finally in a position to commence to apply Dialectical Materialism to The Copenhagen Interpretation of Quantum Theory.

For in my next post as Principle Lecturer in charge of Computer Services in Bedford College of Further and Higher Education, I found only ONE researcher who required my services, Jacqueline Smith Autard, who was Teaching Dance Performance and Choreography via recorded footage in Video and on Film, but neither was up to the job, even when her Exemplars were the best exponents in the field. But, they couldn't be everywhere, and these means of recording were inadequate to supplying an alternative. Jackie came to me, to see if I could help, and I had just seen a demonstration of the Laser Disc being used for the Doomsday Project, which enabled superlative computer control of recorded analogue footage, with frame-by-frame delivery. The system we developed utilised the precise discreteness of digital methods, and the dynamic continuity of analogue. We produced The Dance Disc, for which we won British Interactive Video Award in 1989.

Via Zeno and Hegel I began to see the philosophical significance of this research into technology and motion study. The limitations of modelling using Pluralistic methods and a clue as to an alternative. Some 20 years later we had not only developed a superb recorded footage Teaching System for Movement, but also this researcher finally had in his hands the means to comprehensively address Copenhagen, philosophically, via the use of Analogistic Models.





CHERYL GOLDSLEGER

The Fundamental Error of Quantum Mechanics

A Right Criticism,
but the Wrong Solution

There is a Stanford "Continuing Education" lecture by Leonard Susskind, the purpose of which is supposedly to deliver, to a collection of mature-and-interested general auditors, an interesting Introduction to Quantum Mechanics and its Foundations in Theory.

But Susskind's Lecture, from its very outset, instead attempts to ground his criticisms of Classical Physics, solely from a Quantum Mechanical (basically a Copenhagen) standpoint, via what seems initially to be a valid revelation of the fundamental-and-debilitating weaknesses of the former.

He wrongly puts it down to congenital errors, due to actual "inaccuracies-in-measurements", but he does it, by inferring that the blame should be put solely upon the unavoidably inadequate means used in obtaining them, instead of Classical Physics' actually wholly flawed, and totally inadequate mathematical rationality, which ever since its inception in Ancient Greece, was incorrectly and damagingly transferred to ALL the Sciences.

Susskind does not even recognise this problem - but he also, in attaching the errors solely to poorly arranged-for experimental means, thereby delivering the blamed evident inaccuracies of the results obtained.

But in that he is doubly wrong: for his criticisms, which still leave him (and his auditors) totally unaware of the real causes, so, both cannot, in any way, deliver a solution, but also, in that wrong attribution, he

completely hides the real causes, and, therefore, allows his "purely theoretically-perfected" equations to be the ONLY Ultimate Sources of Truth!

He establishes his position by this as totally idealist.

He establishes it NOT via Reality, but through Mathematical Rationality alone.

Theoretical Physicists have always dealt with all experimentally achieved results and consequently theoretically interpreted them via the mistakenly applied Pluralist Rationality, which sees all extracted relations solely as products of Eternally Fixed Natural Laws. That ONLY come out of the consequently formulated and theoretically confirmed Equations. The data so originally achieved will NOT be the Form that is required, but, on the contrary, that imposed upon the situation by just those constraints that ensure its total conformity to Plurality.

We do not directly measure Reality-as-is, but a Reality so constrained as to reveal more clearly only exactly what is purposely sought! But, unless the data-producing experiments required for the usual Pluralist Approach have been "perfectly applied", both in how the experiments were set-up-and-maintained throughout, they will never deliver the exactly aimed-for data, which is necessary, and will instead only produce data certain to differ from what could be either achieved in such sufficiently-rigidly controlled experiments OR taken

directly from prior, “accurate” individual Equations, as all simultaneously-acting Laws are assumed to be wholly independent of one another, and hence arranged to be extracted one-at-a-time - pluralistically! Whereas, in the actual Real Holist World outside, those could, if done correctly, actually reflect Reality-as-it-actually-is.

The problem is that the Rationality of Mathematics, as fully exemplified in Euclidian Geometry, did indeed define a legitimate Rationality - it works flawlessly - but ONLY in constrained areas. This is solely because Form, unlike almost everything else in Reality, does indeed soundly conform to Plurality’s rules: a specific Logic for dealing with a Discipline composed exclusively of separable entires and FIXED relations or Unchanging Laws!

But, the trouble was, that following the universal successes of Pluralist Logic, it was applied to all the sciences, in a way which omitted the richness and dynamism of the material Universe.

In assuming that revealed relations are Eternal Natural Laws, all Real Development is excluded.

And, Susskind, in his Lecture, then proceeds to “Compound the Felony”, by marshalling all his arguments, via the same mistaken Rationality. He correctly demonstrates the inability to predict in literally ALL situations, but instead makes it solely due to measured inaccuracies, whereas the most important of them are all due to the total exclusion of handling All Qualitative Change.

And, he conversely puts down the simple addition of results into more complex situations, as due to the very same reason - rather than the actual reason that classical Pluralist Physics cannot deal with Reality-as-is, and merely substitutes, instead, the additions of multiple Fixed Laws, for the actual totally unknown and unconsidered Real Qualitative Changes that are involved.

He declares that the Double Slit Experiments all totally prove his case, whereas the opposite is true.

Their paradoxes, on the contrary, and much like those of Zeno, expose the fundamental inadequacies of Pluralist Logic.

And, in a significantly ineffectual following section, he then resorts (as is usual for him) to proving his case using Mathematical Equations alone - the very cause of the major failures, to “prove” the opposite!

NOTE:

A whole series of papers dedicated to a major prior series of lectures by Susskind, has also been published in SHAPE Journal, but give-yourself-time, SHAPE has been publishing for 11 years now, delivering 125 issues with perhaps somewhat more than 1000 individual papers available!

Having spent most of my professional life posing these difficult questions, the importance of this now mature philosophical stance in addressing what is wrong with Modern Physics, is also successfully employed across many different disciplines, from Politics to Evolutionary Biology.

The flaws of the dominant Pluralist stance are revealed inadvertently by Susskind himself, for he passionately believes in Pluralistic Theory over-and-above any messy purely Pragmatic Extractions from Reality-as-is.

When presented with “beautiful”, generally consistent-and-coherent elegant Theory, and the messy error-filled “facts” from Nature, he resolutely chooses the Former as “containing the Real Truth”.

However difficult, Holistic Reality must be our final arbiter.

Anything else can only be delusional!





Dark Matter and the Substrate

The inclusion of the idea of Dark Matter, occurring in the form of so-called moving Wimps (or Weakly Interacting Massive Particles) was brought into Cosmology by the supporters of the idea of a Big Bang Origin of the Universe, presumably to “explain” certain anomalies that otherwise don't have any evident causes.

It, along with the concept of an initial mammoth (but short term) *Inflation*, and a following consequent Steady Expansion, was considered necessary, along with Dark Energy too, to rationally explain what astronomical investigations had established by a direct and detailed study of The Heavens, via ever better means of revealing what is clearly there, but forever demanding some sort of explanation, starting from that initial Big Bang!

But though the finally-arrived-at Theory did seem to explain at least some aspects of The Universe, as it is now, it was though never a great success, as the add-ons of Inflation, and Continuing Expansion were totally unexplained, and merely “described” Mathematically.

The Wimps of totally undetectable Matter were considered necessary, as the known entities of that Universe, using ordinary Newtonian Gravitation, along with entities of Ordinary Matter, were, nevertheless, unable to account for all the Gravitational Forms produced.

Now, elsewhere in Theoretical Physics, in the Sub Atomic Realm, the collection of assumptions that constituted the Main Body of Physics Theory, were beginning to both increasingly-and-damagingly fail, and for all those positions, where that failure was totally untenable, the leaders in that field proposed a wholly New Approach to Reality within the Sub Atomic Region of the Subject.

The old approach just didn't work, and finally Niels Bohr and Werner Heisenberg proposed a new one called The Copenhagen Interpretation of Quantum Theory, which replaced Deterministic Laws within this region with Probability Laws, which though they totally abandoned the prior Universally Applied Rationality, could be made to produce usable results - but, at the same time, totally undermined all attempts at rational Explanations in the way that had worked reasonably well for millennia!

So, in this idea too, solutions that turned out to produce as many new problems as solutions, was established as “The Only Way!” But too many crucial areas were never explained: so understanding in these places, came to a total halt!

Clearly, the emergence of these seeming dead ends in wholly different scales of Physics Theory (the Macro and the Micro), had to be revealing, as there surely was something completely wrong with the producing Rationalities, and their underlying assumptions.

Could the reasons for failure be soundly established and a new and better Alternative be created, which allowed a regular transcending of the problems, via a new and better approach?

Slowly, a certain abandonment of the previously conducive means and method, began to demand a major, and even a revolutionary, reassessment of the subject. It had been dumped, for what seemed to be very sound reasons, in spite of its delivery of sound results in many important areas - it was the idea of an invisible Universal Substrate - originally called The Aether! It had been assumed to exist in Empty Space for many years, but when it was attempted to be measured, it couldn't

be found: it seemed to NOT be there! [But crucially, somehow, its functions still remained].

Electromagnetic Waves were still propagated, doing exactly what a Medium, a Substrate would do! Red Shifts were still assumed to act as before, but in the total absence of any kind of a Medium that would explain them.

Was there, a totally undetectable Universal Substrate, legitimately? A whole Microverse that we weren't seeing that could explain all these gaps and anomalies?

What would it have to contain, to produce certain functions, but still be impossible to detect? Could there be Matter there, but could it somehow be masked by the simultaneous presence of Matter/Antimatter actually cancelling each other? Could this also involve their opposite Charges there too, all effectively masked by equal amounts of both Positive/Negative Charges AS WELL AS Matter/Antimatter? A whole Universe rendered invisible by the ultimate "Balanced Stability"?

Could a joint particle composed of two such opposite charges and Matter types, mutually orbiting-one-another, and hence also able to handle Quanta of EM Energy too. Could that joint Particle indeed be, so-loosely-connected to one another, to produce an easily dissociated Medium, to, therefore, effectively exist in three different loosely or not-at-all linked substrates, sometimes acting like a Gas, at others like a Liquid, and even as Pseudo-temporary Solid?

Elsewhere this idea has been extensively theoretically investigated - no experiments have taken place to confirm its existence yet, but Substrate Theory is an Analogistic Model of the Microverse which is capable of explaining most, if not all, Quantum phenomena, using simple Physics. The most remarkable outcome was when this model was introduced into the anomalies in the Double Slit Experiments: every single one of them were effectively explained away with a Substrate of these particles.

Now all the usual criticisms were, as usual, piled in to oppose this methodology, but it has many times been used before quite legitimately, by the sound method of finding working analogistic models elsewhere in Reality, which though NOT the actual Truth, still had sufficient sound analogous forms to be extensively usable AND also sufficiently defining in helping to find something

better in the future. James Clerk Maxwell's Use of Vortices and "Electrical Particles", in his theoretical definition of The Aether, enabled him to arrive at his Theories of Electromagnetism, and consequent Electromagnetic Equations WITHOUT them being distorted by Plurality, which would have been the case if they had been derived from experimental results within Experiments straight-jacketed to produce only unchanging and repeatable situations in the then and NOW universally followed Pluralist methodology!

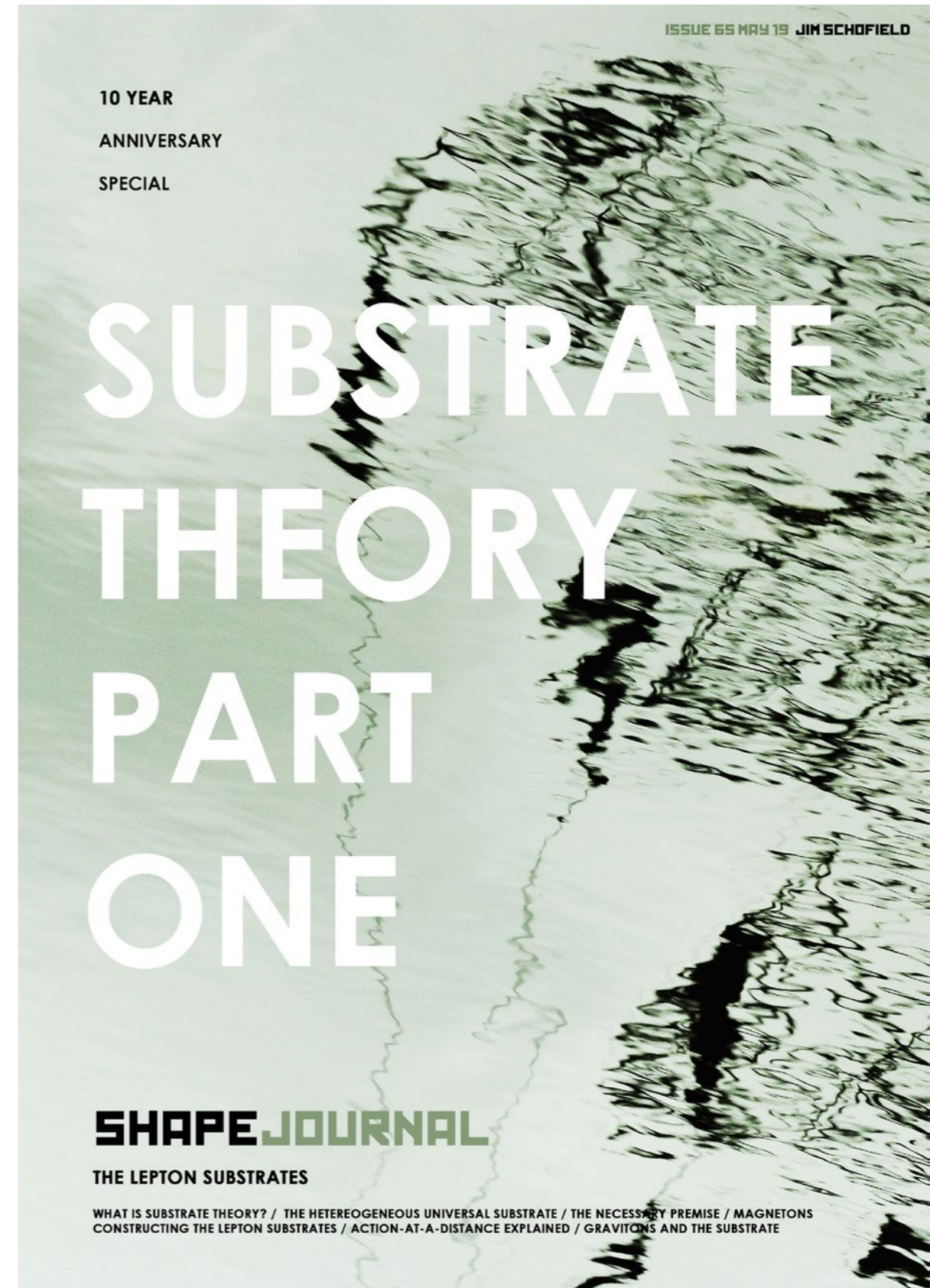
NOTE: Having valuably used Analogistic Models twice, first in both an alternative to Copenhagen, and then, later, in defining Empty Space in Cosmology, and recognised its power in the hands of Maxwell, the time has come to validly promote the method involved as definitely superior to Plurality, which is implicit in almost all the alternatives and wrongly imposed Fixed Natural Laws, where they certainly do not validly exist, because of the falsities that are imposed upon measurement and the consequently derived "supposed Natural Law"!

Whereas *Analogy* takes its overall forms and behaviours directly from Reality-as-is, which will always be a reflection of a natural temporary stability, involving a multiplicity of simultaneous "Natural Laws", rather than an unnatural imposition, which is the best that Plurality - the usual Scientific Method, can ever deliver.

The revelations of this physicist and philosopher is NOWHERE the default theoretical methodology in The Sciences, though I would strongly argue it should be! Instead, Plurality has dominated in the Sciences ever since Mathematics was established as the Lingua Franca of all of the Sciences, in the era pragmatically since the Greek Intellectual Revolution, which established it as the determinator of all Laws.

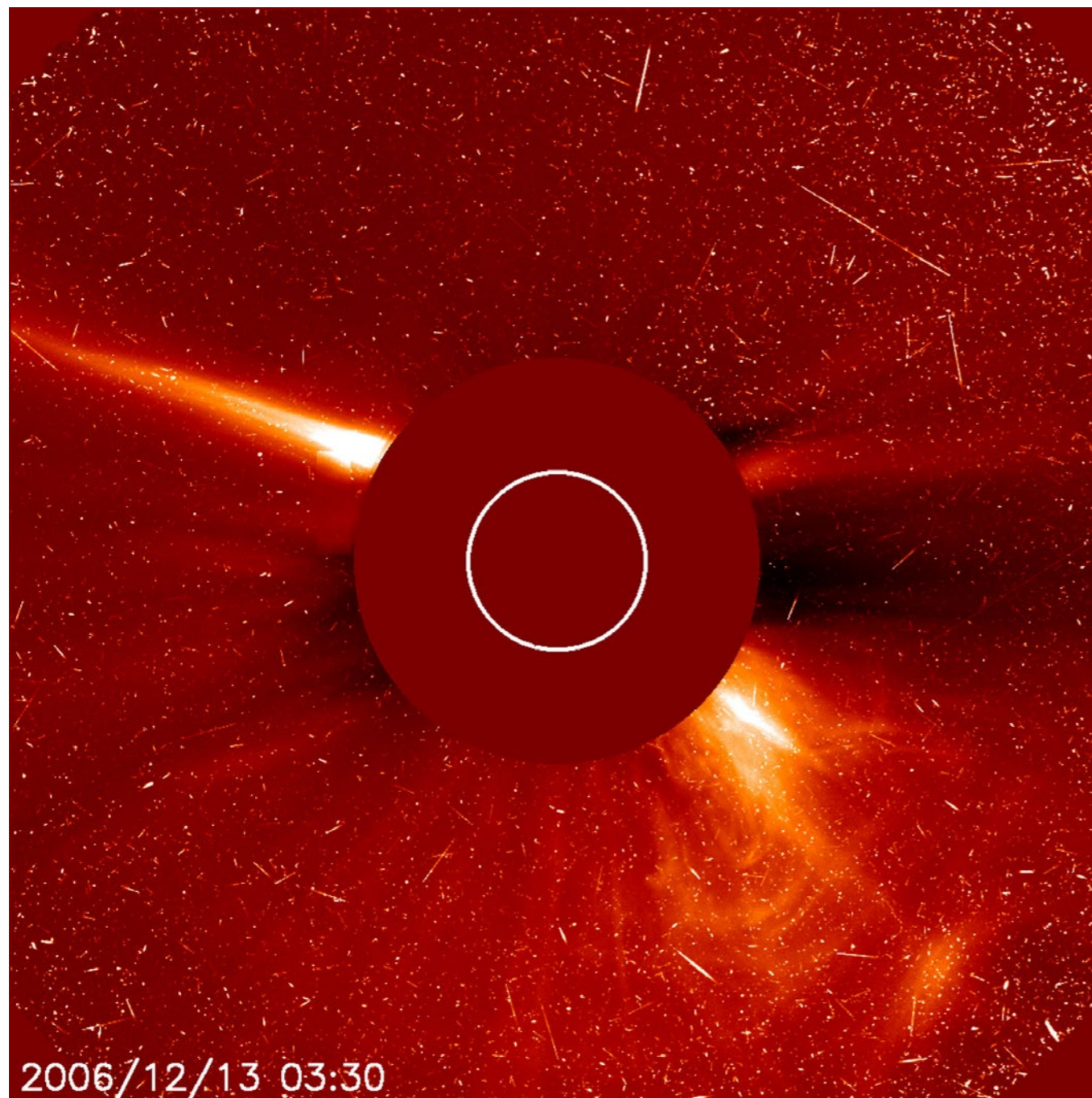
Surprisingly, before Experimental investigations were perfected, in the last few hundred years, science theorists always depended upon Analogy for their efforts at explaining what they observed, but as a Mere Analogue and not a defining Theory of Why, the baby was thrown out with the bathwater, and the real value of Analogy was discarded for restricted forms delivering pluralist situations and productive methodology based upon it.

Could this model help us understand the phenomena we observe as Dark Matter and Dark Energy too?



JIM SCHOFIELD'S SUBSTRATE THEORY

For more on this, Issue 65 of this journal, entitled [The Lepton Substrates](#), is probably the best place to start



Fusion and Philosophy

The Currently Impassible Barrier To Solving Nuclear Fusion
and the Holist Physics of Eric Lerner

I am not an experimental physicist - my talents always lay in Mathematics, Theory, understanding Systems and more recently in Philosophy.

Substrate Theory is a sound alternative model of the Physics of the Microverse, explaining much about our Universe that Pluralist Physics has struggled to deal with. However, it is imperative that experiments are designed to confirm these ideas, and find out more about this hidden world.

I am always on the lookout for promising experimenters and unique research which approaches a more Holistic view of Physics. Yves Couder (who sadly passed away in 2019) was a fantastic experimenter looking at fluid dynamics. His bouncing drop (or Walker) experiments revealed Quantum-like behaviour at the Macro level - and inadvertently demonstrated an analogistic model of a Sub-Atomic medium (using Silicone Oil) - showing how such a Substrate could explain Quantum phenomena.

Another great scientist pointing the way forward in Physics is Eric Lerner, with his Focus Fusion experiments.

Lerner, and many other researcher across the globe, are working towards a solution for Nuclear Fusion, as is generally being developed for the Direct Generation of Electricity. Such a study very clearly reveals the disabling limitations in what is elsewhere a more generally applicable way. For, ever since the development of the Atomic and Hydrogen Bombs by the USA, there

has been the objective of using these vast producers Enormous Amounts of Energy, in more useful areas of Human Activity, and increasingly, as the continued use of Carbon-based Fuels are clearly beginning to negatively affect things from Pollution to the existential threat of runaway Climate Change.

And, in my area of Physics, the biggest failures of understanding occur where Qualitative Change is totally unavoidable, while the usually applied Pluralist-Dominated-Theory in that precise area never actually copes with such changes, not least because all Physics Theory is permanently locked into purely mathematical methods, and simply cannot ever cope with situations involving multiple, simultaneous, active factors.

The usual way of doing Physics is to reveal totally pluralist mathematical Equations, and by doing so, "supposedly" accurately describing what actually happens. But they certainly do not do that! For such Equations to work, they can only be applied in Maintained Stable situations - the technology of experiments - as are always considered essential in deriving all laws in Physics. So, such Pluralist Stance Physics is also totally inadequate in delivering a theory for the Processes of Nuclear Fusion.

And the usual route followed has-to-be concerned with Stabilised and maintained-as-such processes only. So, as with all Production Processes currently in use, a complex overall process with a succession of very different Qualitative Phases, can only be achieved by a whole series

of completely-separated individual Processes, each one with its own severely restricted and maintained context, and driven by a Single Pluralist Law, and, thereafter, followed by a sequence of others, each one with different purposes, contexts and its own different particular laws.

And in Nuclear Fusion such an approach can't possibly work, and the reasons for this are significant!

It is nothing like a Production sequence of Processes in a Factory.

For in Fusion the components are the same ones throughout, BUT they change *qualitatively* at each and every stage.

And as far as I can tell, Lerner is the only one of these researchers attempting to address this problem as a Single, Multi-Phase Overall and Integrated Process.

And having also watched many explanatory accounts wedded exclusively to the Universally-adopted Pluralist system, which "seeking some form of Stability" as its basis for investigating Reality, and consequently having to necessarily have to divide up both the investigations, AND the ultimate Implementations, into their wholly separate-and-maintained individual Phases, OR, alternatively, build absolutely Mammoth, combined constructions, that attempt to automate that necessary passage-through a separated sequence, within a complicated and articulated enclosed whole, but, nevertheless with all Parts STILL conforming, individually, to the Pluralist, Stability-first Approach.

So what is different about Lerner's approach in Focus Fusion?

In Nuclear Fusion research they struggle with turbulence in the Plasma, which usually wipes out the chain reactions before they can begin. Stabilizing turbulence in fusion stellarators is the current front line in Fusion research.

But not for Eric Lerner. He does not seek *Stabilities*, for any individual parts of this system! Instead, he welcomes the transitions from one Phase to the next. And always attempts to finally understand Reality "on the fly!"

And, crucially, he designs his system, so that each New Phase is provided with its appropriate place to develop - designing his apparatus so that the action moves

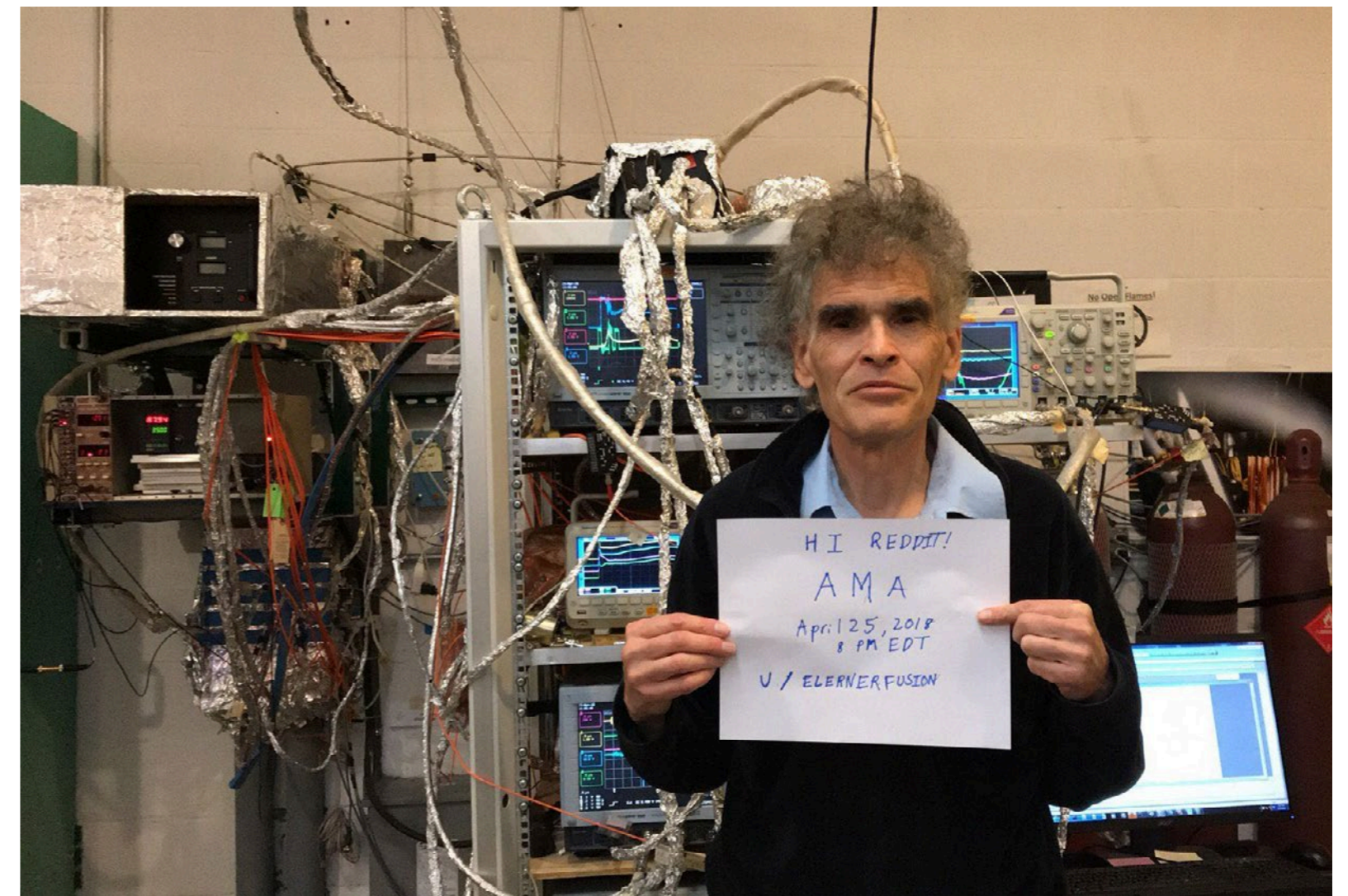
things, automatically, each to its own ideal setting, as the different Phases naturally occur. He uses the careful design of his apparatus, and the everywhere-available natural forces, as well as the expected developments occurring within his apparatus, to deliver the necessary transitions between Phases, and also, of course, exactly to where they will occur.

And he also designs the sequence of Forms involved, so that the natural "Pinch Effects" of the moving Plasma he is using, to naturally further concentrate his "medium", more at each and every Phase, to continually raise its pressure and temperature towards that required for ultimate Fusion.

And, he is doing it with only a four-person-team, and woefully inadequate funding. And his approach is NOT pluralist at all!

He takes Reality as-it-is, and "Rides the Tiger", with increasing skill and understanding.

It is with this sort of experimental approach that we might develop a Holistic Physics and finally enter and understand the real Microverse...



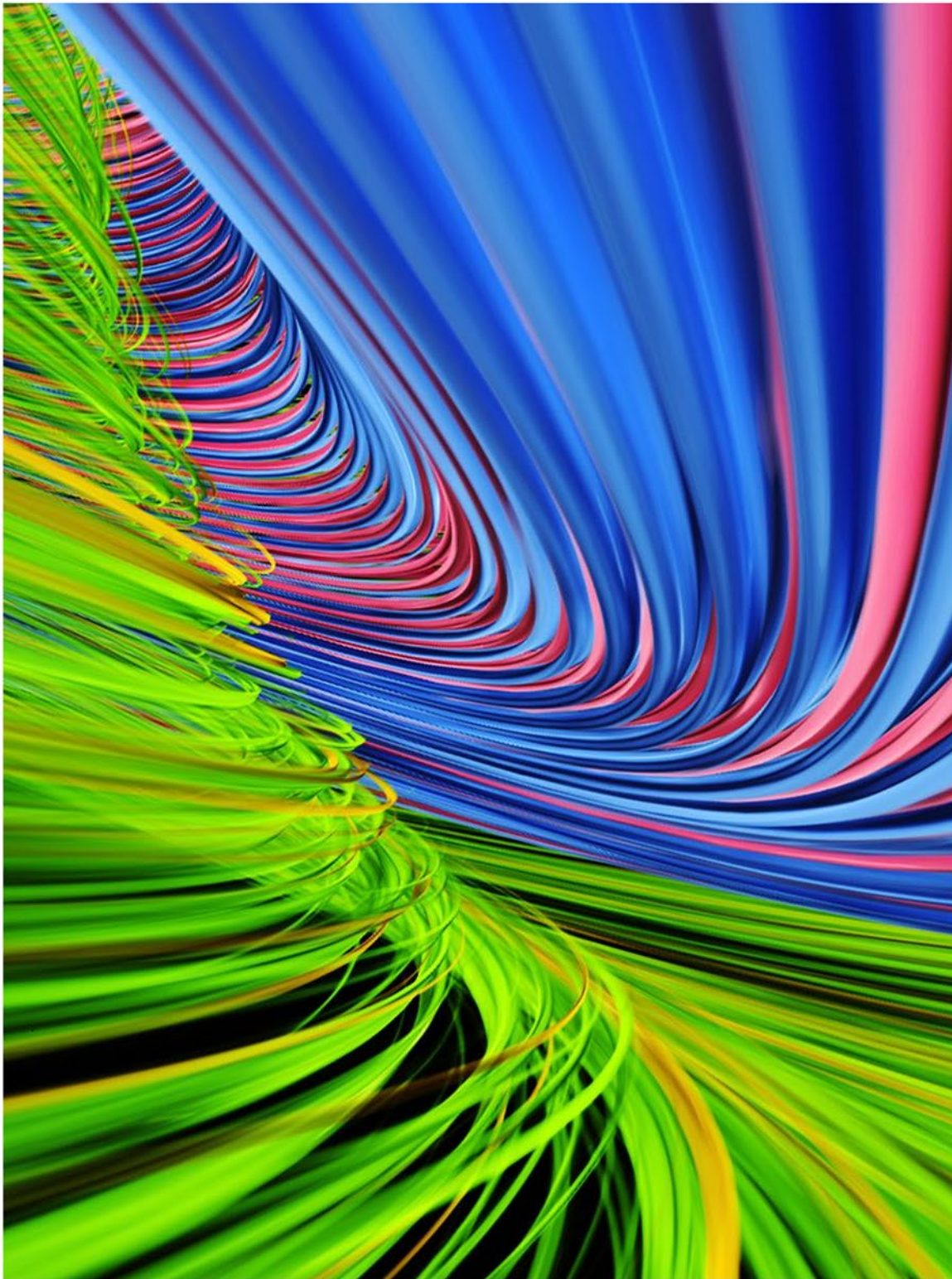
"Governments have spent billions of dollars on fusion with little to no success. You may be wondering why we are so confident we can succeed when the government has failed. There are two reasons for this.

First, we're using the natural instabilities of plasmas to concentrate the energy.

We're using the same processes, like the pinch effect, that occur in solar flares and other astronomical phenomena, but scaling them down to laboratory size. The government-sponsored programmes have been fighting these instabilities. So they have taken a far more difficult route.

Ours is much easier since we are using natural processes, not fighting them".

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