SPECIAL ISSUE 51 JULY 17 JIM SCHOFIELD

SHAPEJOURNAL

HOLIST COSMOLOGY

WHY HOLISM / A NECESSARY PREMISE / THE HOLISITIC PROPOGATION OF FIELDS
GETTING AN INTERATIVE FORM FROM DATA / GRAVITY AND THE SUBSTRATE

Words **Jim Schofield**
Design **Mick Schofield**
Cover **NASA**

www.e-journal.org.uk/shape

Holist Cosmology

Special Issue 51 / July 2017

Preface

A Holisitic Methodology

Welcome to the 51st Special Issue of the SHAPE Journal.

I am an experienced professional physicist, mathematician and software designer, who has also long sought to be a Marxist Philosopher. And, of late (mostly in the last decade), I have, finally, been making substantial progress, wherein this long, demanding and diverse background has finally come together into what I call: A Holist Approach to Science & Philosophy!

But, it isn't merely a statement of either a long-standing, or even a current position. Indeed, it has actually taken a lifetime of both serious researches in my various specialist subjects, and via achievements both in those and in Marxist Philosophy, has finally achieved a wholly new interpretation of the ill-famed Double Slit Experiments in Sub Atomic Physics. While, in addition, it has also led to related contributions on The Red Shift in Cosmology, and a crucial Theory of Emergences in Philosophy.

There certainly was no force-fitting of these diverse areas into an a priori stance, by any means.

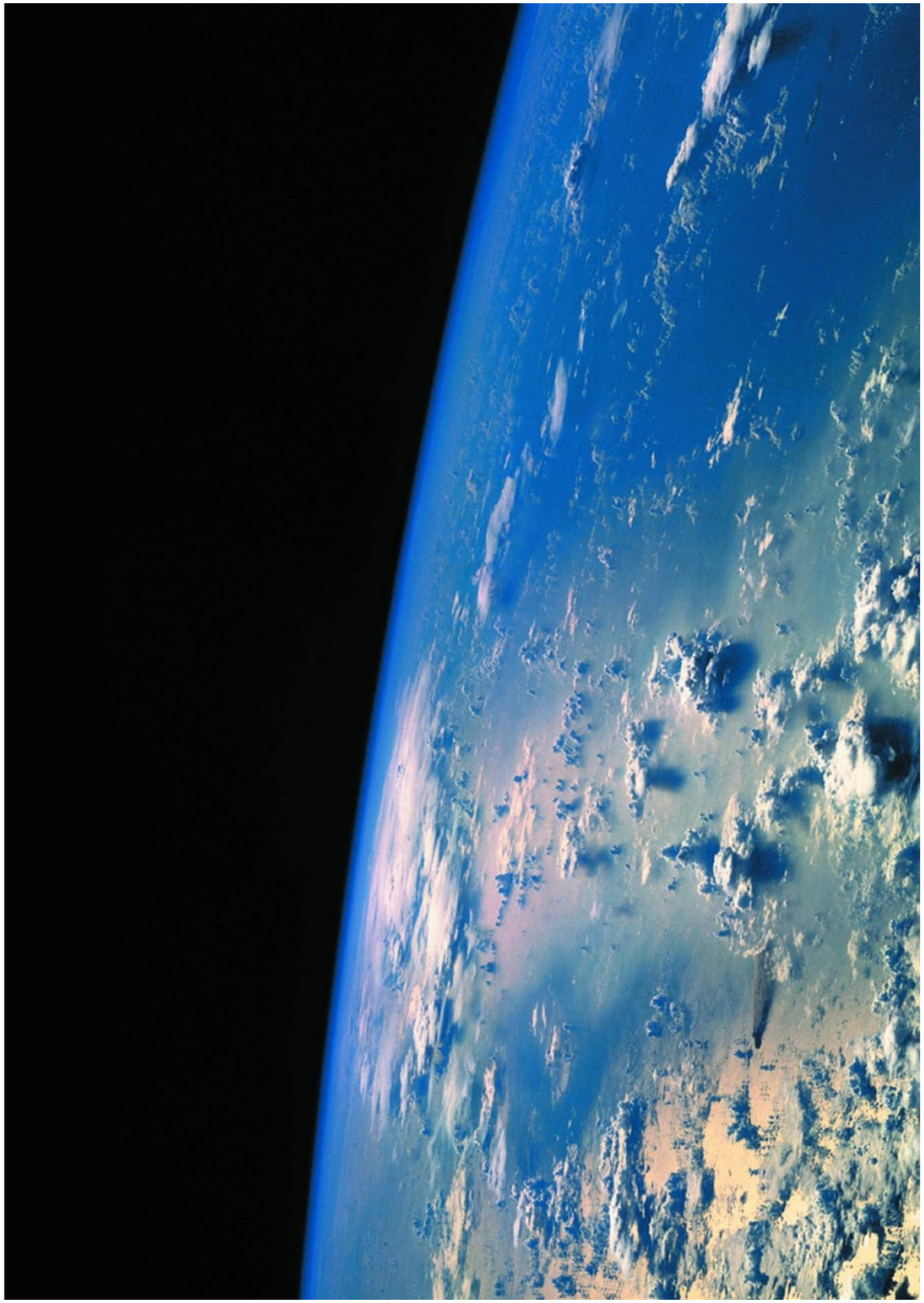
Indeed, high-level researches, in a very wide range of areas, were absolutely crucial in enabling the delivery of a comprehensive extension of his original "Marxist stance", of a professional,active in a wide range of areas of study - not usually available to a single individual.

Needless to say, for a physicist, current work is concentrated upon a demolishing of the now universally-adopted consensus - The Copenhagen Interpretation of Quantum Theory – particularly in the more way-out areas such as Quantum Entanglement, and even Quantization of Electron Orbits in Atoms.

An important part of the arrived-at remit, for this series of papers, was partly-established by the tackling of a complete redesign of Stanley Miller's brilliant holistic experiment, concerning early-establishing-processes, prior to the Origin of Life on Earth. The great gains of this achievement are based upon an important set profound contributions in Philosophy, surprisingly not only on Science, but much more generally over a wide variety of other disciplines too.

So, this publication is meant as a basis for those who may consider investigating this amazing and effective alternative approach.

Jim Schofield
July 2017



Why Holism?

It is the only way to tackle real dynamic change...

For a scientist, the answer to such a question is more than a little surprising. For, somehow, we must wrest Physics from its current, dead-end, pluralist state, and embrace fully its opposite, alternative stance of Holism, in order to transcend the many impasses that have been built up over several millennia!

For, if this is not successfully undertaken, and very urgently, then Theoretical Physics will be undoubtedly doomed!

And, at base, this means the demoting the prime objective of arriving at descriptive and useable Equations.

For these, currently, only have a relatively-minor accompanying holist-explanatory-narrative, due to historical reasons, and hence, we must change the situation into a complete reversal of priorities – one with Explanation now as the primary objective, and with descriptive Equations most definately seen as supporting, secondary achievements!

We must remove the Equation from its dominant and often "determining" position, and treat it for exactly what it is – a formal-and-approximate description – essential for both structured Prediction and Use, but incapable of delivering any sort of real Explanation!

But, in attempting this changeover, we are presented with a major, yet seemingly intractable, problem, namely,
"How do we deal with complexity?"

The pluralist approach has always been to rigorously farm any to-be-investigated situation, to remove several extra confusing factors, and to constrain others to ultimately reveal a targeted "prime factor"- that had only been glimpsed in unfettered Reality, but seemed to be the most important factor present.

With such a significant modification of the conditions, and with a resultant, evident "prime cause", sticking out like a sore thumb, the next step was considered to be crystal clear - to take sufficient data over a range of conditions, and attempt to turn them into a constant-relation covering all cases represented by that data.

BUT, you can only do this if you subscribe to the Principle of Plurality, because it, alone, affirms that no matter what you do, you can never change a Natural Law: "It is an eternal, unaffected by its context!"

So, the relation you extracted, from your farmed situation, was assumed to be identical to that initially observed, occurring in totally unfettered Reality: you had just found a way of displaying and extracting it!

And, once this was "the truth", you could Analyse complex situations into a set of such Natural Laws, and even follow-them-down in a Reductionist way, with cause-below-cause, to some final, Elementary Particles and their Fundamental Natural Laws.

But, of course, none of this is acceptable to the holist!
For, that stance rejects all eternal Natural Laws, and asserts instead that. "Everything affects everything else!"

So, to remove or constrain anything in a natural situation, changes the context being studied, including each and every involved factor within it, and, of course, especially your targeted one!

So, in spite of seemingly-sound reasoning, we are presented with an impasse immediately!

With our now very long history of assuming and effectively using a pluralist stance, we seem to have NO way of facilitating an investigation, except by

observational knowledge, already in our possession, along with Speculation!

NOTE: The proof of this is shown in the current, consensus Copenhagen stance, in Sub Atomic Physics, for this is now the only way for them to go beyond their Formal Equations: they too indulge in Speculation, but of a very different type.

You have to contrast their Wave/Particle Duality, Superposition, Quantum Entanglement etc. etc., with, for example, James Clerk Maxwell's speculation upon the nature of The Ether (an assumed Universal Substrate), which actually delivered his Electromagnetic Equations direct from his model.

Clearly, Maxwell' was speculating upon known physical ground, with known properties, while the Copenhagenists are inventing things to prop apart their undoubted impasses!

But, clearly, the Copenhagen route to speculation could NOT be a supportable prospect for a holist scientist.
The necessary breakthrough would have to be similar to that achieved by Darwin and Wallace, and, much later by Stanley Miller, for though in those cases, their methods did not seem to be universally developable, the fact that they were remarkably successful, justified their definitely holist stance, but, did not yet constitute a generally applicable methodology.

And, of course, Plurality has indeed delivered a great deal! Though inaccurate, theoretically, it certainly identified the various components in an investigated situation, and with appropriate farming, allows predictions and even productions to be successfully carried out. Therefore, looking back at its long history, Plurality has at least given us sound Knowledge as to what might be involved.

Specialisation:

As you may have guessed, speculation is not reasoning at all. It is used with an often unstated and warping set of assumed premises. But, confronted with everyday complexity, and with what Plurality (incidentally) has given us, we can speculate in a very different way.

We can surmise the components of a real world situation, and then, in attempting an explanation, of what has occurred, be constantly, be on the lookout, holistically, for any consequent contradictions – as always indicated by the emergence of so-called Dichotomous Pairs of possibly applicable concepts.

These crop up all the time in the pluralistic Formal Reasoning usually involved in such attempted explanations, and, when they do, literally, find that they terminate that process of reasoning!

And, it turns out, what to do next is NOT available within that kind of pluralist reasoning. Indeed, the only posssible way-forward is to try each of the two contradictory concepts in turn, to see which one allows a continuation of the reasoning process. [In other words, in such situations we have no alternative to a purely pragmatic, "suck-it-and-see!", in any pluralistic reasoning!]

Now, believe it or not, this is the norm in such reasoning, and pluralists don't even turn a hair, when negotiating such impaasses, witheir pragmatic patches. Clearly the current stance is NOT based upon a single stance , but, it turns out THREE contradictory stances in a "workable amalgam"

The stances are:-
Materialism - Matter is involved
Idealism - Equations are the drivers
Pragmatism - If it works, it is right!

But, this just isn't correct. It only works, in this mix-of-stances-way, because the artificially-farmed situation has been forced into a kind of Stability, where one of two diametrically opposite possible dominances will have been artificially established.

NOTE: Why there should be just two has been recently established, by this theorist, as an extension to his prior Truly Natural Selection Theory of developments in the pre-life Phase on planet Earth.

This is because the original, totally-unfettered natural situation was NOT stable, but contained two diametrically opposite potential stabilities, each around a particular near-to-dominance factor - and, each of which could be achieved by appropriate farming of the natural situation.

Clearly, in the original unfettered situation there will have involved several component factors, each of them acting

in its own way, and hence making any measurements in that state unreliable.

The pluralist farming removed that situation, and replaced it with an artificially maintained stability - thus enabling the extraction of reliable data over the required range, but NOT representing the original unfettered case!

So, all the seeming perplexities of pluralist science are now becoming clear, and should point the way to an alternative approach!

Returning to the discoveries of Friedrich Hegel, concerning the unavoidable impasses in Formal Logic, andthe guaranteed emergence ofDichotomous Pairs halting the continuation of the reasoning, we will stay with his discovered Dialectical methods, and not only consider the interactions of the involved components, but, when necessary, decide to change our assumed premises in order to transcend such impasses.

This sort of speculation is very different indeed!

It should be extended, theoretically, in order to test any theory, by reference to Reality. And, most important of all, we must banish "Postmodernism" – the tactic of keeping everything, even contradictory concepts, and switching pragmatically between them.

^That isn't Science: it is Technology!

Now, I don't want this to sound easy, because it most certainly isn't! Indeed, I have been talking about it, and attempting to come up with a coherent approach in Physics, for 30 years, without much success. But, finally, I went all the way back to Hegel (200 years ago) and, at last, understood what he had achieved, when confronted with the exact same quandary, thugh in his case limited to Thinking and Reasoning alone!!

For, significant gains were made in his remarkable studies into Human Thinking, and the consequent production of real Explanations and, indeed, clearly better Theories. In fact, from what he had discovered, I too had finally been able to also extract from my own 20-year co-operation with Dr. Jacqueline Smith-Autard, on producing Multimedia Aids for use in teaching both Dance Performance and the Creation of Original Choreography.

But, I only finally cracked it when I researched both Analogue and Digital methods of recording and delivering Dance Movement, for subsequent study and analysis by students!

On our very first collaboration we won a British Interactive Video Award, but I only finally unearthed what we had achieved, and WHY, the various replacement technologies turned out to be so inadequate, after a whole series of following productions.

Indeed, they got worse with each succeeding technological update in the available means of recording!

The very features that had enabled a significant breakthrough, in our award winning first effort, had been successively removed in a whole sequence of the replacing technological alternatives. And, this was because; the innovators were not attempting to do what we had achieved.

They had very different objectives, and actually dispensed with the crucial functionality we had found to be invaluable.

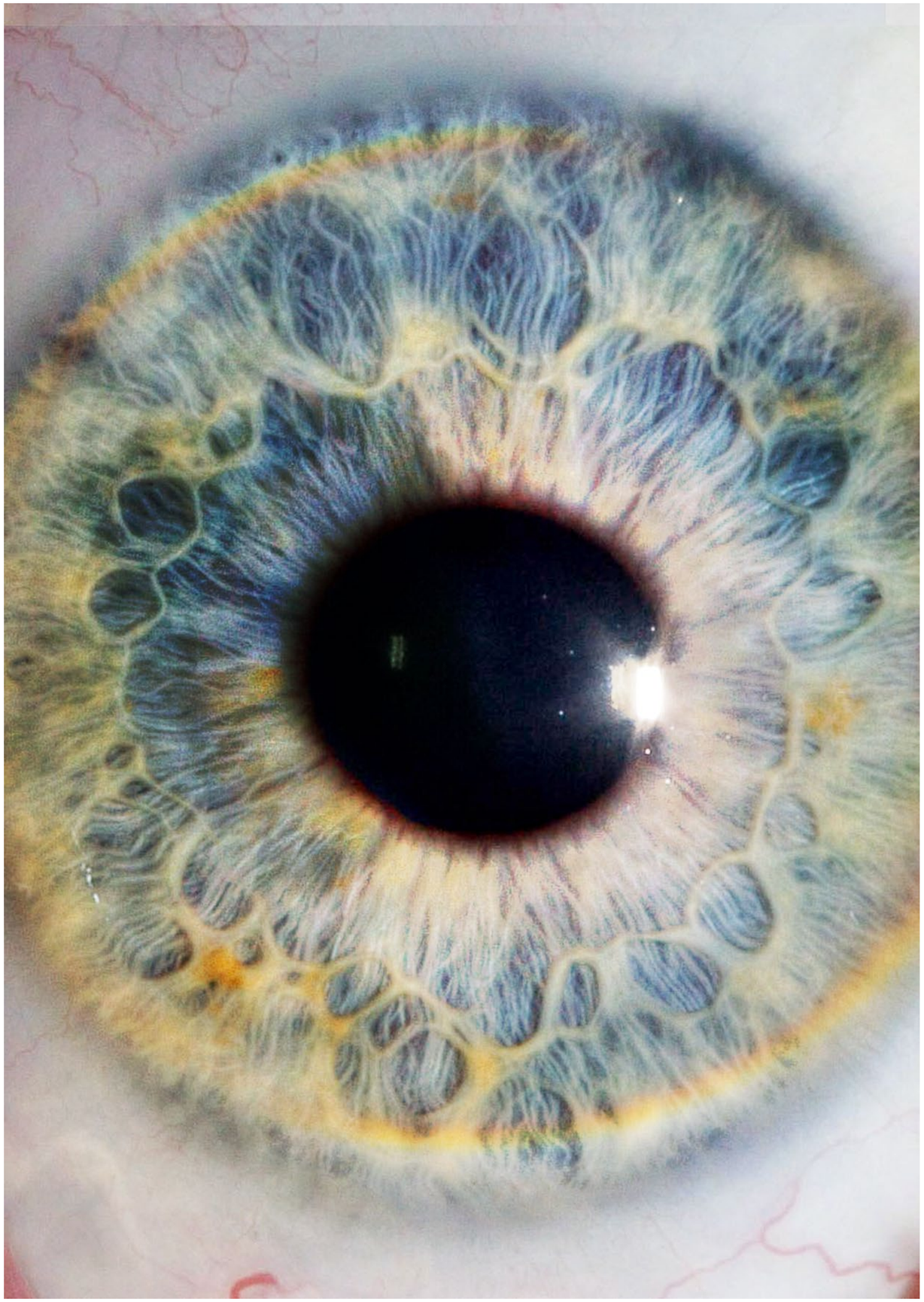
Our objectives were to give immaculate Access, and subtle and powerful Control of Dance Footage, to enable the most intricate and necessary things to be revealed and subsequently employed in both Performances, and in the original Creations of New Pieces.

Indeed. Digital recording and delivery was rubbish for accurately delivering complete and detailed dynamic movement, whereas Analogue recording was unbelievably appropriate!

Research took me, not for the first time, to Continuity and Descreteness.

Analogue recordings were continuous, and had parts of every moment within the 1/25th of a second presented in a Single Frame, and also delivered it from top left to bottom right in a continuous delivery throughout the presentation of that frame.

But, Digital was mode up solely of totally still frames, each one being wholly motionless for the whole of the 1/25th of a second that it was shown. And, simple calculations revealed that over 90% of the movement was not even included in the recording.



And, this clearly meant that it was the observers' own brains that filled in that missing 90%. I, immediately, changed my techniques, because such research had revealed the only way to seriously study recorded movement in Reality objectively, and usefully, was certainly NOT via a meagre series of stills!

Many things were going on simultaneously, and they all affected one another. And, I could not but immediately switch my studies to Seeing, and based upon Ramachandra's brilliant clinical work, I started to consider the Eye/Brain processing of Seen Information.

It caused me to re-interpret how an Analogue frame was processed, as a kind of mini-movie, and, somehow, the Eye/Brain system could effectively decode that sequentially, even though it was all delivered in a single frame – clearly, the frame was built up over the whole 1/25th of a second. So that elements of real movement throughout was then delivered over that frame's duration, so with learned-skills-in-seeing, the Brain could actually capture enough of real movement to construct an adequate delivery method.

Clearly, with a Digital recording that couldn't possibly happen. Instead, the brain would have to invent what happened in the gaps, and with the inadequate experience of the students involved, the "fill-ins" would invariably be wrong!

Perhaps, the most surprising was that for the first time in 50 years I was able to realise what an Emergence really was – and in 2010 I published The Theory of Emergences on SHAPE Journal on the Internet.

But, still, I need a scientific holist methodology, for use in a new breakthrough approach to Science in general.

The Necessary Premise
A Holist Ground and Context for Reality

The Substrate was an early assumption, and it certainly performed well in explaining many phenomena, but it could be neither detected nor studied in itself. Certain phenomena, such as with the propagation of Light across seemingly empty Space, this did infer that there would have to be some sort of *medium* present to facilitate such a transfer of energy.

But, as Science moved inexorably into a "forms-primary" stance, such an invisible and unformulateable ground, just had to go!

20th century Physics denied that there was any kind of Universal Medium or Substrate! And thereby, terminated any attempted explanation as to what both caused and then facilitated these evident phenomena.

Everyone, it seemed was wholly satisfied with useable equations alone. Real understanding was becoming surplus to requirements.

That isn't Theoretical Physics: it is mere Technology!

Though the majority of scientists swiftly proceeded with their ever-increasing catalogue of formulae, many anomalies were constantly cropping up, and what is even more important, the explanatory side of this important Science, dwindled into an inessential (merely excusing) narrative, and was then banned altogether as speculation.

However, a minority of the Physics community was still not convinced, especially as the anomalies in the Copenhagen Interpretation of Quantum Theory continued to proliferate, and they insisted that there has to be such a Substrate.

And, as soon as such a substrate is assumed – so that nowhere is there the alternative Perfect Vacuum, Everything Changes!

All the assumed Fields, from Electrical to Higgs', must be effects upon a Universal Substrate.

So, clearly, conceptions of the actual nature of that substrate become of paramount importance, in order to explain the phenomena acting both within it, and indeed, upon it.

NOTICE: The alternative was that there was only completely Empty Space, so no attention whatsoever was given to such a myth as a Substrate, and their vast store of formulae was all they really needed.

Such a stance could only go one way – the formula became the nitty-gritty of Reality and all further studies would have to start with those as the primary objectives. Naturally, our descriptive Form is only ever a consequence, and never the prime cause, so the new mathematical physicists thereafter felt free to speculate about what grand abstractions could be conceived of as a purely "Formal Ground".

I read many papers describing various disembodied fields that are, it seems, the "real causes" of all presumed "forces", but, what are they? What could be the substrate, and how do observed phenomena interact with it?

To answer such questions, let us investigate a common phenomenon, and attempt to explain it!

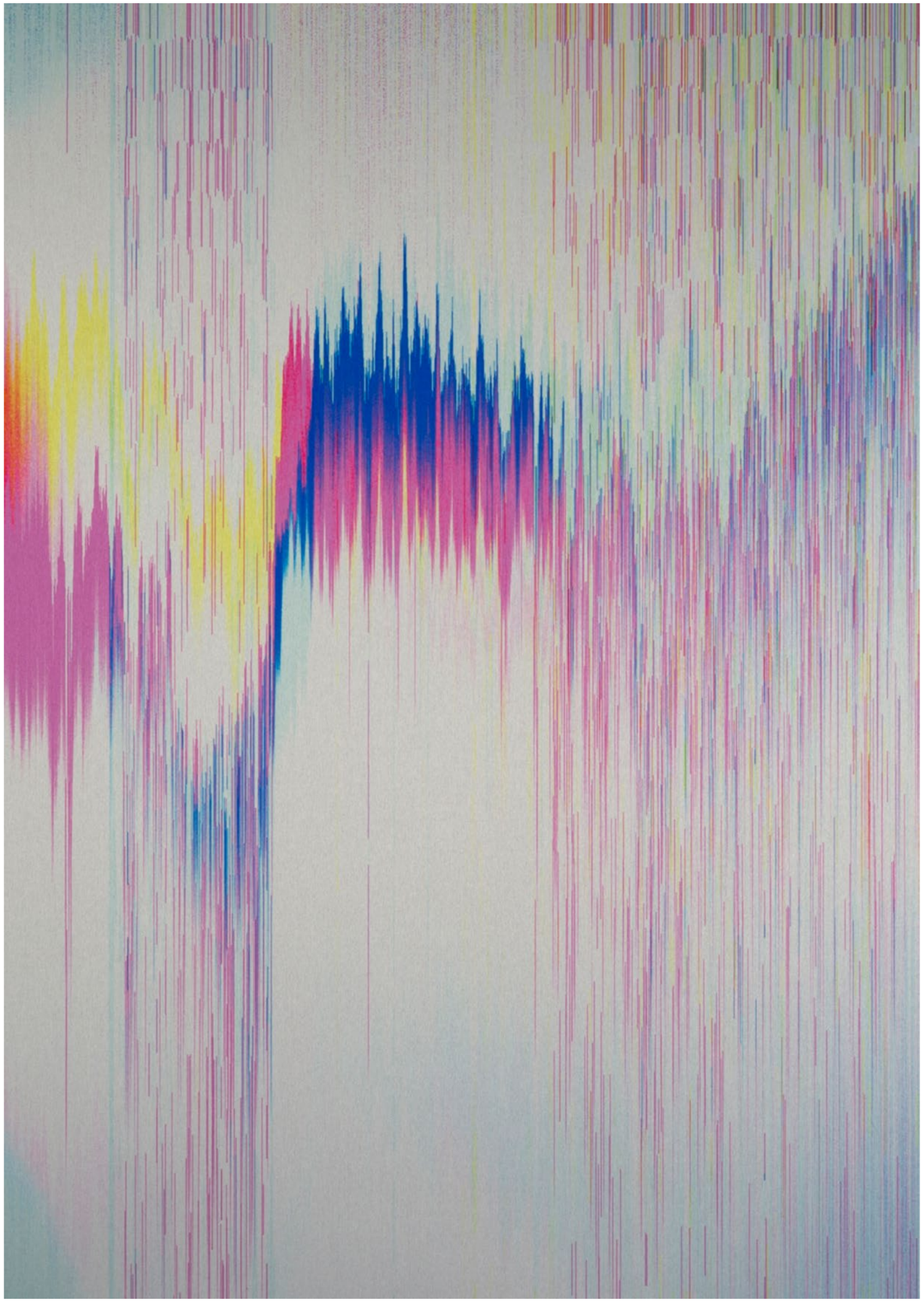
The initial assumption could be that a given particle, with some physical properties, such as charge, must have some sort of effect upon the substrate, even though we cannot get direct evidence of any such an effect.

This is surely the nub of the two alternate views, yet explanations are impossible with the formal stance, yet are possible, but hidden, on the alternative physical stance.

Now, deciding between these two may seem impossible to judge, until we define what the units of such a substrate could be. To make them (as yet) undetectable, all those involved in this research had to conceive of impossible-to-detect substrate units. And, to give them their undetectability they were conceived of as having both positive and negative charged sub-particles within every type of substrate particle, which were also composed as one of matter and the other of anti matter.

One resultant design – the neutritron (initially termed the positronium by its discoverers in Fermilab), would indeed be totally undetectable. Yet, with its two sub-particles mutually orbiting one another, it could actually hold energy internally in promoted versions of its orbit, and release such energy by demoting it.

So, considering just such a candidate Substrate Particle, it was unavoidable that the structure of this, and any other possible substrate units, be first theoretically



devised consistent with both the above suggested form and all known phenomena. If experimental evidence, from the past, along new tailor-made experiments are used to rigorously test such possible forms, they could be either confirmed or proved inadequate. So that is what was done in considering the effect of a charged particle upon the substrate units surrounding it.

Starting immediately next to that “source” the particle must be reacted to by the immediately adjacent substrate units to somehow establish changesbin them and to further propage similar effects in the units ever further away from that particle as initiator.

Notice the key fact is that the “causing” particle is NOT providing the energy for these changes: they are instead the natural response of a complex dual-particle substrate unit in a system, which then can influence other such units in a kind of Field Propagation.

The discovered Inverse Square Law of charge fields and Gravity Fields, makes it clear that it is the successive surface areas of spherical shells of changed substrate units around the initiator, which make this the only possible Law as the surface area of a sphere is 4ϖr2, so that the response of the units will be successively reduced with each succeeding shell.

Notice that the substrate units have organised themselves into this concentric shell environment, in response to the presence of the particle. And this will continue to be the case until such threshold is passed, which terminates further effects in the substrate.

Some theoretical research has already been undertaken by this theorist (J. Schofield), and it has made clear that the substrate must be composed of more than one unit (in addition to the forementioned neutritron).

But, the problem was that, after having very successfully cleared up all the anomalies of the Double Slit Experiments, which was achieved using that single neutritron unit alone, attempts to explain electrical fields with that unit proved to be impossible.

Yet, the gains achieved by the neutritron could not be discarded, so what had proved appropriate in its design must be applied again, but this time attempting to produce an electrical field, by means of other undetectable units!

Why should there be only one type of particle in the substrate?

Now the implications of such a set of assumptions could only be that the substrate would also include these different particles. Well, that seemed reasonable, if the type that could be defined could produce an electrical field, but when not so activated, still in other circumstnces be wholly undetectable, and as before supplying the energy that the field required solely from the substrate.

The conclusion was that the particles required would consist of two mirror-image forms, which, in equal numbers, and moving randomly would “in-sum” cancel out all properties again, but instead of within a single particle, it would be across all areas of the substrate.

Now, this alternate statistical cancelling-out of properties, overall, allowed them to be extant within particular particles, but cancelled in sum.

Now, this might seem to be a long shot at explaining electric fields, until you conceive of these normally randomly moving mirror-image particles aggregating around the “causing” electrically charged particle. In a system based upon their magnetic dipole effects, with radially orientated units making up concentric shells around the “cause”.

Now, before going on to these new particles, it is necessary to stress the problems solved by the neutritron, in the Double Slit phenomena, included not only Wave/Particle Duality, but also Electromagnetic Propagation through “empty space - and to cap it all it also explained both Pair Annihilations and Pair Productions too!

The objective for our new units was becoming clear – it was, of course, to give them a magnetic dipole effect, so the joint particles would again be made up of two sub particles of different sizes and opposite charges. In sum, over collections of these particles, all the properties would cancel out, if moving about randomly, but gathered together and statically oriented around a charged particle, they would deliver an Electric field (or to be more accurate, give exactly the same properties an ideal electric field was supposed to have).

These first efforts did begin to explain phenomena, but, of course, Copenhagenist theorists have been surmising

all sorts of fields (even the Higgs' Field to explain the existence of matter, which it certainly did not achieve!). It seems to me that the basic new assumptions are on the right track, but as with all new theories, in any new area, the best we could expect is that our models will better reflect Reality – will contain more Objective Content than the theories that they replace.

I always, in a discussion such as this refer to James Clerk Maxwell's Theory of the Ether – with its interacting vortices and "electrical particles" that was never confirmed, physically, yet, nevertheless, delivered his Electromagnetic Equations into our hands.

Maxwell's Theory clearly had superior Objective Content to its predecessor.

NOTE: It is interesting that Maxwell's model, having relatively static, but rotating, vortices, which were associated with relatively free-moving "electrical particles", for, these ideas have resonated with the initial steps in a wholly new model – with relatively stationary neutritrons and free moving "magnetons".

More of these ideas will be dealt with later.

So, dumping the Ether (because it could not be detected) meant also throwing away its Objective Content, and merely keeping his equations, as the essences of the situation!

Such actions make crystal clear some of the basic assumptions of the scientists involved in this decision. To dump the analogies that enabled the devising of the equations, yet keeping those equations, tells us exactly where they stood.

The simplest explanation is that it was a purely pragmatic decision, and partly, at least, that was true. But, the more revealing reason is that they considered the equations had actually captured the essence of what was being studied – "as all equations do!"

It made Natural Laws the drivers of Reality; it was a step in the direction, which ultimately led to Copenhagen!

Now clearly, I do not trust only my ideas and theories: I have always searched for colleagues with similar objectives to my own.

So, I have become aware of several serious scientists with similar stances but different solutions. And, needless to say, several have shown up the weaknesses in my contributions and have given me new areas to both address and integrate.

Many years ago I read about David Bohm, and read his book Chance and Causality in Modern Physics, and am aware that neo-Bohmians still exist, But, my first real contact was with Mohan Tambe (of Bangalore in India), and his concern about fields in an existing Universal Substrate, for he made it clear that my current ideas were inadequate in the areas he was tackling. Following first contact we kept up a furious interchange for most of early 2013.

Somewhat later I came across Glenn Borchardt (of Berkeley, California) with his idea of a multi-layered substrate, which he used to explain Gravity as a "push force" – implemented solely by impacts of the substrate particles along with relative sheltering regions caused by larger substrate aggregations.

Recently my colleague Dr. Peter Mothersole told me about Wallace Thornhill (from Melbourne, Australia), whose ideas, in some areas are very close to my own, though in others, very different.

Clearly, we all have the same motive force, we are sure that Copenhagen Interpretation is idealist nonsense, so the opponents of that stance are involved in searching for a physical, explanatory way of dealing with the avalanche of crucial anomalies that inexorably followed the discovery of the Quantum.

So, it is my intention to study these potential colleagues, for their various solutions.

Now, it isn't at all likely that anyone has yet alighted upon a comprehensive and consistent set of answers, but as James Clerk Maxwell proved with his famous analogistic model of The Ether, partial models are quite valid steps forward.

I am personally convinced that a complete revolution in approach, methods and theories is required, which will involve a root and branch transformation of the assumed premises of Theoretical Physics, AND, crucially the consistent philosophic basis must be Non-Pluralist, Non-Idealist, and Non-Pragmatist!

Indeed, a long period of philosophical studies has led me to pursue the Holist stance of scientists like Darwin, Wallace and Miller.

If I differ with a potential ally, I will not be surprised. For my own current contributions, though productive, DO NOT cover several extremely crucial areas, such as fields. Also, we are not part of an extensive and burgeoning community of co-workers: so we are to a major extent isolated, and our own training, not to mention the beliefs of the majority of physicists are locked into the Copenhagen approach.

In order to transcend the multiple impasses, fixed into the current consensus position, we will have to break entirely new ground. And, of course, it has been done in the past.

Charles Darwin's Origin of Species was sat upon by him for over 20 years, because he knew that his methods did not conform to the consensus alternative. While Stanley Miller's Experiment in looking for evidence for the Origin of Life, though it did manage to produce amino acids – crucial components in living matter, was taken to be a dead end, as no one, not even Miller, knew how to take things further. Amazingly, the generally-agreed approaches and assumptions if other scientists were incapable of seeing how such gains could be built upon.

Even very recently, the French physicist Yves Couder, with his brilliant series of "Walker" Experiments, in spite of re-writing experimental methods completely, and working in a holistic, additive way (which I have termed "Constructivist Experimentation", and by so doing, managed to achieve quantized orbits at the macro level, without any quanta involved at all. He has had his achievements dishonestly claimed by Copenhagenist scientists, rather the giving credit to a completely unique holist approach.

All three were, and are, threatened with drowning in an ocean of conservative and pluralistic views.

But, sadly and very importantly, it isn't just Copenhagen that stands in the way of transcending the impasses now emerging on all sides.

Indeed, since the very inception of observation and explanation of Reality historically, Science has been imbued with at least three completely contradictory stances!

From the Hunter/Gatherer period of Mankind's development there was the concept of Pragmatism, and in spite of other very different approaches, the old reliable stance of, "If it works, it is right", has remained as strong as ever.

And then, from Euclidian Geometry via Formal Logic and the Principle of Plurality, this became increasingly established as the only basis for Evidence and Cause.

Finally, and via Equations, there was, ushered in, the Idealist conception of Reality - that it is due entirely to being driven by eternal Natural Laws. But of course, no matter how apt, Abstractions cannot drive Concrete Reality!

From the first, Greek mathematicians and "Natural Scientists", along with the central tenet of Plurality, dominated Science, and even true Experimental Science, when it began to become important in the Renaissance, did not change that assumption!

To make the essential breakthrough, ALL these contradictory stances just had to be addressed at the same time.

For, they all coexist in current Science due to the long-standing Principle of Pragmatism, to allow it – namely, "If it works it is right, And if it doesn't work, switch to one that does!"

With such a catch-all view, you allow them all to remain and be used when they seem to work!!"

NOTE: It is, of course the major tenet of Post Modernism, which prefers to "keep everything" rather that attempt a distortingly incorrect "consistency"! But, in a small way, the prodigious, yet more freuitful, task has now begun!

Quite apart from the necessarily purely scientific investigations, this theorist has also turned to the significant gains of the philosopher GWF Hegel, and his equally remarkable student, Karl Marx, to primarily criticise current scientific assumptions, and substitute a better (more real) philosophical base, via new premises.

It amounts to a truly holist approach (like Darwin and Miller) but, hopefully systemified into a coherent, consistent and comprehensive system.

I had, of course, to commence in my own area of professional qualifications: being a physicist, I decided to make an assault upon the ill-famed Double Slit Experiments.

Now, I must admit that my focussed approach was at that time by no means clear, but, by the time I had removed ALL the anomalies of Copenhagen Interpretation of those experiments, I was clearly on my way!.

Immediately, the gains of that successful work reflected revealingly upon several other Key Areas such as The Propagation of Electromagnetic Energy through so-called Empty Space, and even the strange phenomena of Pair Productions and Pair Annihilations

These definitely constituted a start, but the real problem just had to be FIELDS!

Let us proceed!

Now, many of the major opponents of that, currently consensus position – The Copenhagen Interpretation of Quantum Theory, are what might, with justice, be called "classicists", for they desire a return to the pre-Copenhagen approach. But, the thing they regret most, in the consensus approach, is the total abandonment of physical Explanation, and the reliance solely upon the purely Formal Equations of the Copenhagen stance. And also, and for very good reasons, they abhor the mathematical/idealist tenor of the whole of that stance. But, they also refused to recognise the contradictions inherant in the classical approach. But, they did depend, greatly, upon Explanation, which was significantly different philosophically. To dump the main jewel of the old amalgam, for a pure, abstract and bloodless formalism, was, to them, the major crime! They demanded to know "Why?" – literally everywhere, whereas the Copenhagenist could answer that question NOWHERE - "Obeys this equation" is certainly NOT and explanation: at best it is only a description.

There is also another stance appearing among these radical opponents to the current "wisdom", which is much less frequent, and these, who follow their opposing stance, for purely philosophical reasons, are the Marxists! Now, this might cause the other "radicals" to be discontented, but that, though understandable, would be unfortunate.

For, after the debacle of Lysenko, which was deemed by those who couldn't possibly know, to be closer to Marxist/Materialist approach than Darwin's writings, caused the credit to that discipline to justifiably wane, and many scientists, who did know the necessary Science, correctly interpreted the supposedly "Marxist" view as "the tail wagging the dog!"

But, of course, that position had never been Marxist, but a crude and wrongly simplified version of it. It was a debased form reflecting the deterioration of the "state-approved" version of Marxism in the Soviet Union in the 1920s and 1930s, under the Stalinist beauracy. Neither Marx nor Engels would have supported such rubbish, and neither would Lenin. The transformation in so-called "Theory" was due to the transformation of the Soviet regime under Stalin, and the seeming loss of true Dialectical Materialism, for something much easier to assert! And, it is surely up to today's Marxists to redress the balance and address the problems, not only correctly, but in a better way than any other standpoint could possibly achieve.

I have been in the Marxist Movement for well over 50 years, and, in spite of joining the Communist Party, I had to tackle Marx's work literally alone, when it came to his philosophic stance and method.

You will notice that I rarely quote Marx, or any of the other great contributors: it is my job as a Marxist, to contribute daily to the Marxist position, and particularly in my professional areas of Physics and Mathematics, but, uniquely, with a philosophical basis for developments in all the sciences.

And, after a long gestation period, new Marxist contributions are now being made, at least by this theorist! But, others are beginning to get involved, if only slowly.

Let us also see why the Non-Marxists' (among the modern-day critics), in their return to classicism may be misguided.

From its inception in Ancient Greece the Mathematical and Scientific approach had, as already mentioned, three conflicting components. So, let us look at them once more and see what pitfalls would be un avoidable in such an amalgam.

First, and foremost, was the prevailing stance of Pragmatism, which was, with justice, well entrenched. It is the epitome of a purely knowledged-based system, delivering from successful experience, via suck-it-and-see methods: it wasn't meant to and certainly didn't explain anything, but all sorts of dubious speculation could be attached to it! Yet, it had allowed Mankind to spread across the whole of the Earth, even though their means of life at the time was still as a very unimpressive predator, though hunter-gatherer is the most apt description.

But, what was brand new were the methods used in finding some way of accurately describing Nature, which via observation, took rough forms from evidence all around them, and both simplified and idealised them into recurring forms. And, it was these idealised Forms that were seen as the key extractions, and investigated

in preference to all other available features. Immediately, this was different to the still dominant pragmatic stance, for it seemed as if the Perfect Forms were seen as the partly-hidden causes of what was being studied.

It was a dramatic attempt to understand as well as describe. But it didn't actually do that: it was in fact a more sophisticated and succinct form of description! Indeed, this idealistic approach was carried over into a new general philosophical stance by Plato. And, even included in the first "observational science" by Aristotle. Yet, it turned out to require another couple of millennia, before the crucial Experimental Science was added, and sufficient data collected to look for "natural causative relations".

But, such are never clearly evident in Reality-as-is, and the new scientists took a leaf (or two) out of the mathematicians now very numerous and mature offerings, and physically took to to perfecting the circumstances of an investigation, so that a particular pattern that was involved was made as clear as possible.

From then onwards, all experimental situations were farmed to display such targets as clearly as possiblew. And, when this was achieved, each relation was extracted as a required causing essence!

This wasn't yet what became known as Science, for it did not involve any real explanations. But, it was extremely convenient that the available Forms, from the mathematicians gathered over the preseding millennia already possessed many perfectly useable types in their collections, so the obvious next step was to fit a general perfect form to the particualr data taken from the experiment.

Yes, clearly that data was certainly NOT generally true: change the situation somewhat, and you would get contradictory information. The data was solely true of the particular farmed situation.

This last step deeply embedded Idealism into the general scientific method. But, what was achieved was NOT the relation as it occurred in totally unfettered Reality.

Let us be crystal clear Mankind had found a way of extracting idealised forms from extensively (and appropriately) farmed situations, and the fitting up of them by use of the data collected.

Was this actually delivering a general truth? The answer would need to be "Yes", otherwise, there was still a major problem outstanding, namely, "How do we get the real world (unfarmed) data and its relations?"

To cement these necessary assumptions, the scientists involved devised, or maybe only appropriated, The Principle of Plurality, which may have been around before, but now, at the stage of a rapid increase in experimental science, and the consequent demands of Analysis, it became absolutely essential.

Let us see why!

The principle of Plurality assumed that the observed and measured nature of Reality was wholly determined by multiple, eternal Natural Laws, which simply added together, in various mixes to produce all phenomena. And, in doing this, no such Law was in any way changed!

This was a crucial premise, for, if true, the laws found by the current farming methods, would be exactly the same as those acting in totally unfettered Reality – in Reality-as-is!

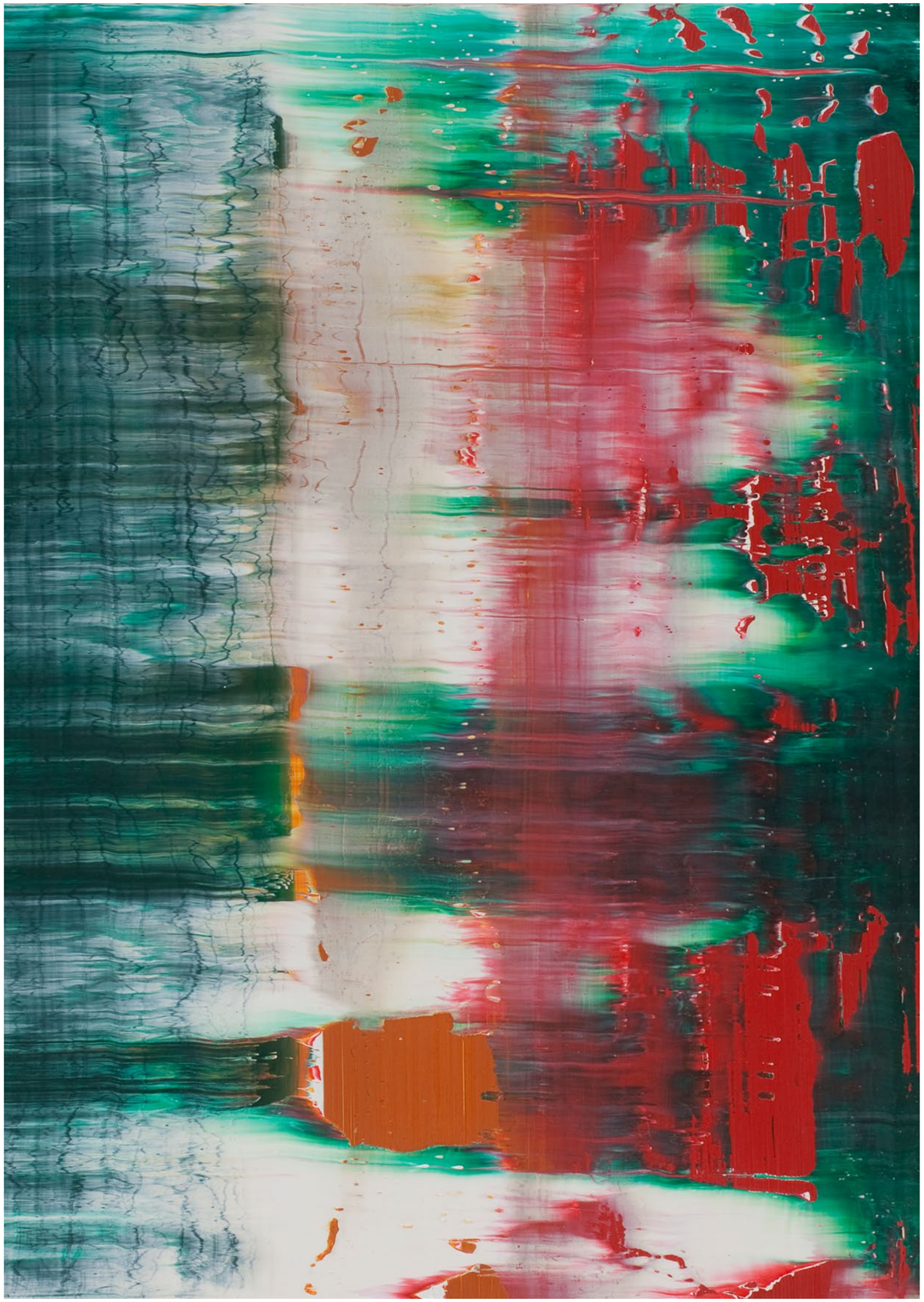
But, if it wasn't true, then the extracted laws from farmed experimental set-ups, would always be different, depending upon the circumstances, in which they were acting. Indeed, the extracted Laws could only hold in exactly the same conditions from which they had been extracted.

And, guess what? That turned out to be exactly the case! What things were being found were never eternal Natural Laws, but relations, that though very similar, were different in different contexts.

Now, unsurprisingly, Plurality was universally adopted by scientists: it became an unstated, but always assumed premise of Experimental Science.

Yet, it isn't true! So why was it so vital to assume it unconditionally?

The reasons are not difficult to understand. The replication of circumstances for use was not difficult, so users could depend upon it, as long as those conditions were rigidly maintained.



The alternative to Plurality is the Principle of Holism, which insists upon the exact opposite, indeed, "Everything affects everything else". And, clearly, this would make Plurality wrong!

ASIDE: These two premises had arisen, almost simultaneously, around 500 BC, originally with Plurality in the Greek civilisation, and Holism in India, developed substantially by The Buddha.

Now, interestingly neither a pluralist stance nor Mathematics were any good at explaining "Why" things behaved as they did. They could describe "What" was involved and, "How" it appeared in suitably conducive circumstances, but the statement, "Obeys this relation!", is NOT a real explanation.

Now, the still dominant Pragmatism, ensured that the pluralist route would be the "right one", for in appropriate circumstances, they, together, allowed both reliable prediction and successful use. Also, in what became extensions to individual results, the found "Natural Eternal Laws", became easily incorporated components in more complex or extended areas.

Yet Holism, on the other hand was significantly better when it came to trying to understand phenomena, so, suprisingly, it too continued to survive, when someone asked the question, "Why?": it could relate general relations acting simultaneously and come up with a reasonable narrative and believeable conclusions.

So, the "Tool Bag" of the scientists involved an amalgam of approaches: one based upon Pragmatism, another based upon Pluralist version of Materialism, a third based upon Idealist Mathematics, and a separate "explanatory narrative" based upon Holism!

So, in requiring a return to "classical" methods the majority of these opponents of Copenhagen were suggesting that prior amalgam of Materialism, Idealism and Pragmetism, flavoured with a dash of Holism, but also a very large slice of Plurality, as the means to overcome the iniquities of the Copengagen Interpretation of Quantum Theory.

But, that was the identical stance to that taken by Einstein against Bohr and Heisenberg at the 1927 Solvay Conference. And, he lost the argument because his alternatives were inadequate too, but were certainly not what was the preference of the majority of physicists at that time. Sadly, many groups of scientists with the same anti-Copenhagen objective, have been trying that same supposed antidote, and have so far always failed to bring it off.

That isn't to say, of course, that many of their criticisms are not valid, they certainly are. But, the post-modernist mixed bag of stances just wont do!

The problem is about Theory, and, particularly, in Science, for you cannot build a comprehensive, coherent and consistent standpoint, with opposing elements fused together by the validation of Pragmatism!

I personally, have been seeking allies in this task for many years, and being a Marxist, I looked to my comrades for help and support.

Sadly, I was always disappointed.

They were deeply involved in what they saw as Real Marxism, and the real fight was seen as being against dissenters to that aim, who they termed Revisionists (who certainly existed, as they do now, in much of academia).

My former comrades were not so rude to me, but did suggest that I ought to be doing something more useful in the Class Struggle.

They were wrong, I'm afraid!

The most vital weapon of all in that struggle is,and has been since Marx, *Theory!*

Winning in the battle against Copenhagen would not only win a sizeable measure of support in the academic community, and that can only be good, but also was, and had been since Lenin, the crucial next step in the Development of Marxism as an all-inclusive philosophical standpoint, ande the required weapon in the politcal struggle too. To win Science to our banner was indeed possible, but not yet.

Marxism, itself, had to finally cast off the shackles of Stalinism in Theory, and begin to ally with the best scientists in the most productive and profound ways! I was originally recruited by academics in my University, when a student, and was interested initially by Marx's standpoint and contributions, but finally won over by

Lenin's Materialism and Empirio Criticism - a polemic against the Science of Henri Poincare and Ernst Mach.

But, it was then, and should be now, today's Marxists that will recruit the forces to succeed.

With no support coming from professed Marxists, I finally turned to the internet and sought anyone with similar ideas, and most of them came from surprising areas of Science: the majority were Engineers.

Now, these scientists are used to making "ideal laws" work by adjustments to given sets of circumstances, to make them deliver what the law suggested should be the case.

And experience, in Modern Physics, proves conclusively that without these engineers, NO "confirmations" of new theories would ever by demonstrated. Indeed, returning to those who bade them to undertake such tasks, literally always resulted in the theorists inventing some new speculative factor, and mathematical dexterity to make things fit!

So, perhaps unsurprisingly, the best of these Engineers were at the heart of most alternatives to Copenhagen.

BUT, and it is a big BUT, their dominant stance is certainly Pragmatism, and that can never be up to the task at hand – for that will have to be primarily Philosophical and Theoretical.

Of my closest contacts, all are engineers. And you can see why! The worship of Ideal Forms as the drivers of concrete Reality, has never washed with engineers. And, even the totally exclusive preoccupation with mathematical theorems and Proofs, seems to them to be about something else. And the reasons are evident! They spend their time struggling with Real World difficulties to try to make the high-flown theories actually work.

The "other-World" speculations of the theorists, both physical and mathematical, are seen as practical objectives rather than the truth: they have to provide a tailor-made artificial context to deliver the only situation in which those theories will work!

Interstingly, though, these engineers have, themselves, developed their own mathematical "frigs" - determined solely by their own pragmatic stance, to help them deliver. Ironically though, these were typical "tools" for engineers, many have been drawn into theoretical Mathematics, and treated in the same abstract way as the rest of that discipline.

NOTE: The writer of this paper is also a mathematician, so can validly make these criticisms, I feel.

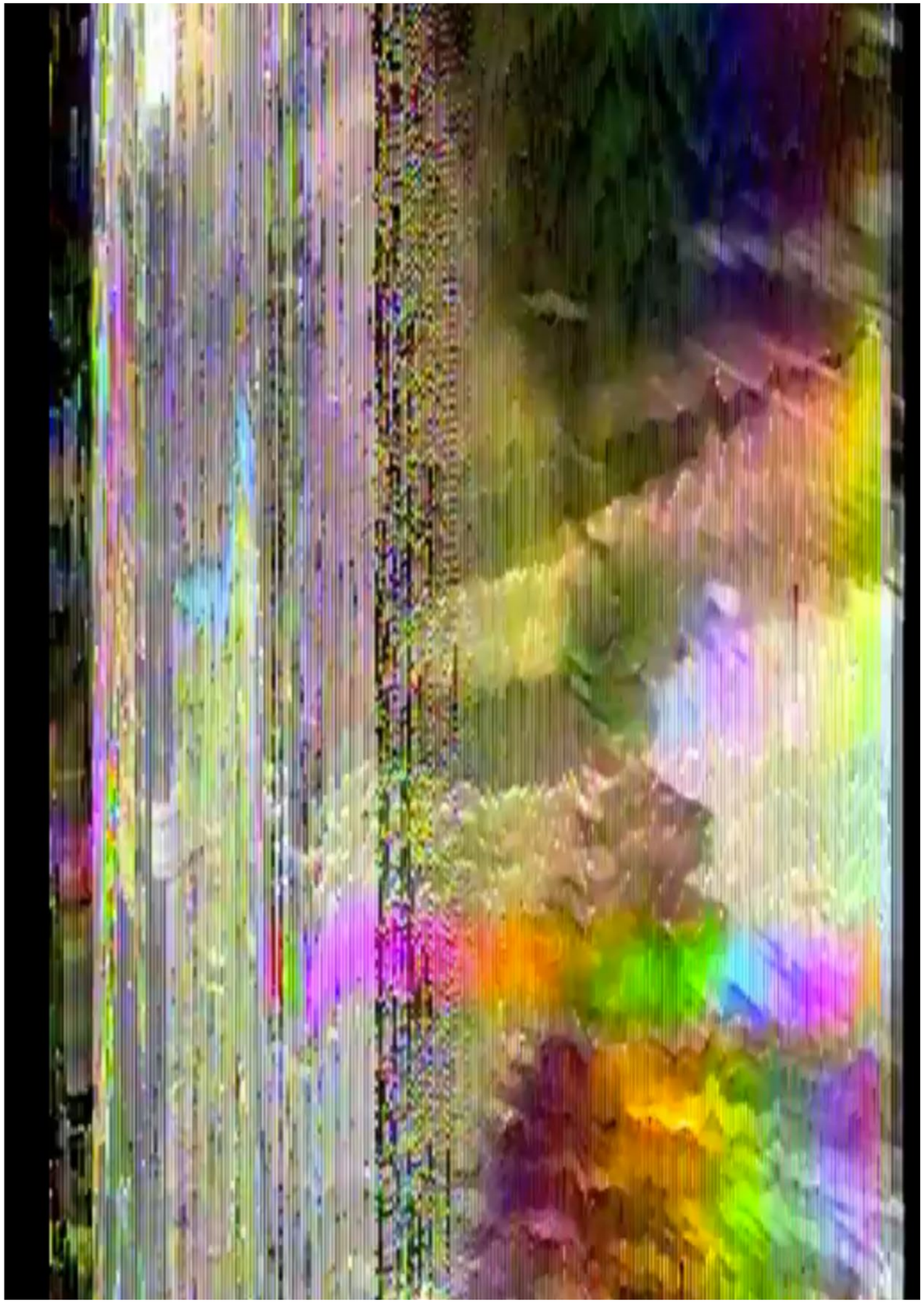
But, in spite of a genuine rejection of the current consensus in Physics, we have to ask if the oppositionists can replace it with something better? The answer has to be "partly"!

For these specialists work at both ends of the scientific process – in observation and experiment as well as delivering the context and actuality for production.
So, they can be relied upon to deliver a constant stream of new data, as fodder for the theoreticians. Indeed, without the technicians, the rest of the monolith would collapse even now. What is generally called Science is almost always Technology!

Now, there is an alternative approach in Science, which is primarily philosophical – and that means no mere post-modernist mish-mash of contradictory premises. There must be a sound, coherent, consistent and comprehensive, monist view that can also successively transcend the inevitable series of impasses of the old amalgam, plus the new idealist theories also, and even the mistakes, flaws and omissions that will also, and unavoidably, occur within the new stance and its theories. But, it must be both consistently materialist and philosophically holist!

Now, the philosophical wherewithall to develop a sound holistic method of investigating concrete Reality, actually exists, and is now 200 years old. It was developed by the brilliant idealist Philosopher, Friedrich Hegel, and came out of his extended and serious research into Thinking about Thought!

He became increasingly aware via his historical studies in this area, that human thinking was never able to alight directly upon the fabled, and sought-for, Absolute Truth, and considered it to be his job to establish both why this was the case, and what precisely allowed the inevitably consequent impasses to be overcome. He noticed that throughout Mankind's known history, each step forward in Thinking, after an exciting and productive honeymoon period of significant advances, inevitably



ground to a halt! An impasse emerged presumeably from the very same breakthough ideas that had also caused the involved progress. To solve such a quandary was so unimaginable, that almost nobody could do it. The impasse didn't seem to have a rational solution. And also, our hard-won premsises had to be sacrosanct... But, that was most certainly incorrect!

Hegel was able to show that what had been achieved was not Absolute Truth, but a position with more Objective Content (parts or aspects of the Truth), which though in the short term led to some important gains, would, and always, finally hit the buffers, in the form of generating Dicotomous Pairs of totally contradictory concepts.

Indeed, when such contradictions emerged, it was always the signal that the previous underlying premises were no longer sufficient, and as they stood would never transcend the impasse.

These impasses occurred, time and again, but were only very rarely transcended. The usual "solution" was to "keep both", and switch between them on the basis of which would deliver a useful outcome, in a given context. Attempts to derive one from the other, also always failed. But, Hegel was able to determine exactly what had to be undertaken to transcend such an impasse.

The common premises, for both arms of the dichotomy, had to be revealed, and rigorously criticised. No simple rejection would do, for the effective use of one or the other arm proved that they contained something of Reality. The solution had to keep that while dissolving the contradiction rationally. Clearly Hegel's objective was to correct the flaws in Formal Logic: he wanted tomake it always work!

Without such a method, Mankind would perpetually "bypass" such dichotomies with a purely pragmatic switch approach", and hence would leave innumerable lines of reasoning prematurely terminated, or, at least rationally punctured. Human Thinking got more and more like a bush, with innumerable dead-end twigs. A vertable thicket, full of rationally terminal contradictions was the result.

NOTE: An "expert" is someone with a comprehensive knowledge of the bush, and who knows where to go, pragmatically, for a useable result!

And, Hegel finally began to make such transcendencies in his chosen areas. He would use the Dichotomous Pairs to identify their common premises, then criticise and change those premises until the dichotomy was dissolved. The method was termed Dialectics!

And yet, the achievement still had another vital step to be taken. As Hegel formulated it, it was solely about Human Thinking, but his student Karl Marx also realised that it was crucially also about how we thought about concrete Reality. He transformed the method by bringing the whole of Hegel's great contribution, wholesale into a Materialist standpoint!

With this move, the wherewithall for a significantly superior stance was available across the board in ALL human disciplines and areas of study. And, also crucially, in the very nature of natural development itself. Not only in how we thought about it, but in how it actually happened! It wasn't just a breakthrough in reasoning, but a discovery of the true nature of reality too!

Now, this reveals my approach for demolishing Copenhagen! I, of course, agree with my "return-to-classicism" colleagues on the necessity to condemn the idealist/mathematical current stance, and the essential return to materialist explanation of phenomena. So, many of their admirable arguments are mine too.

But, am not just a physicist, for most of my adult life I have been a serious philosopher too, and in the line of development of Hegel and Marx, so I am also and necessarily directed towards a trenchant criticism of Plurality, which is still believed in even among most of my anti-Copenhagen colleagues. But my chosen alternative engenders a stance uncommon in Science, and that is Holism – indeed in the construction of a holistic explanatory approach as primary! And, crucially I am also against Pragmatism – "If it works, it is right!".

Now, these two positions were an intrinsic part of the classical scientific stance, and even facilitate many explanations, but because of pluralistic consequences in Analysis and Reductionism, the impasses are not transcended.

Most obviously, scientific experimental practice, and its interpretation is imbued with these incorrect stances. And, I know, that if they too are not superceded, Copenhagen will NOT be vanquished.

It was Einstein and later Bohm's chink in their alternative position: they depended too much upon crucial premises, which were a significant part and even cause of our present day difficulties!

In addition, commencing from my chosen (in my opinion superior stance), of commencing from the gains of both Hegel and Marx, I must seek out and reveal Dichotomous Pairs, and unearth their causes in mistaken premises, and then develop sounder alternatives to those, so the the contradictory impasses are transcended. A tall order, but without that crucial remit NO solution will be found!

Now, premises can only be seen intellectually, so abstractions and concepts must be involved.

Important note: There is still a fly in the ointment. Hegel and many who followed him consider Dialectics as purely an intellectual method – an improvement in reasoning only. Yet the switch to Materialism also changed that idea. The premises to be criticised and replaced were not just ideas, but actually reflect exisiting entities too. The method could be extended to include physical entities which mayhave been omitted or wrongly defined.

In Science, the most crucial premise can be the Ground, or Context, within which the various phenomena occur.

I alighted upon the dumping of the prior attempt at defining a universal substrate, The Ether, as the key turning-point in Modern Physics. So, I commenced with an attempt to re-establish a very different universal substrate – because it now had to do a great deal more than was asked of its previous instantation!

Primarily, it had, of course, to be undetectable, and capable of propagating Electromagnetic energy over vast distances, BUT, for the present, at least, it MUST be composed ONLY of particles that we already know about!

I commenced by attempting to devise an undetectable single particle, entirely out of known and stable sub particles. Evidence from both Pair Productions and Pair Annihilations seemed to suggest that a particle composed of an electron and a positron was worthy of study.

Clearly, picking such diametrically opposite components seemed foolhardy, for such a suggestion always elicited the response –"They will annihilate one another on contact, how could they co-exist in a single, stable particle!". But, what if they didn't ever touch: what if they mutually orbited one another?

With this relationship, a joint particle of these two, would indeed have NO overall Charge, NO Magnetic Effects, and NO matter effects either as one component was ordinary matter, while the other was antimatter!

Yet, such a particle could internally carry electromagnetic energy in the same way as the aton – via the promotion of its internal orbit!

And, remarkably, such a joint particle had been fleetingly observed in the High Energy Tevatron at Fermilab, and named as a positronium! BUT, the researchers using that accelerator found the positronium to be unstable!

Now, even my proposed version would be unstable in that environment, but what about in the supposed to be totally Empty Space? I assumed it would be stable in such and other conducive circumstances, so I renamed a stable version the neutritron

The question was, "How could such neutral particles form any kind of substrate? They have No inter unit attraction!"

Well, further theoretical research has revealed that such a statement as the above is not entirely true! I found that though totally neutral with respect to one another at quite small separations, their neutrality also allowed very extreme proximities to occur, and THERE the situation became very different indeed. In extremely close proximity these particles would indeed suffer electromagnetic interactions – via indvidual sub particles from different neutritrons getting very close indeed to one another.

What actually occurred was no constant electrical force, but one varing swiftly between attraction and repulsion. It occurred as long as the particles wremained extremely close. Outside a certain penumbra the particles would have no effect upon one another, but within that tiny region, they would be alternately attracted and repelled in a sinusoidal fashion: they would oscillate in-place!

Interestingly, I analysed exactly what the ongoing effects would be within this penumbra, and they were identical

with the form of James Clerk Maxwell's Electromagnetic Equations, which, by the way, he predicated upon his conception of the nature of a universal substrate, then termed The Ether. Oh, and those same equations are still used everywhere to this day, in spite of the complete demise of the concept of the Ether.

Maxwell's result was of two sinusoidal oscillations, one electrical and the other magnetic, were exactly what I was able to establish as happening in the penumbras around neutritrons.

Now, taking these, admittedly theoretical, gains into our discussion about how such entities, could, somehow, form a "connected" substrate - it would, now, suddenly, became possible, but it would be formed in a different way to solids, liquids and sases. For, no constant forces would be involved, and no permanent electrical bands would be happening. Once within the penumbra around an individual neutritron, another identical particle, would be likely to oscillate under varying attractive and repulsive effects – thus producing a new kind of extended association. I decided to term it a Paving, because of the gaps between all units in the structure.

Now, the first remarkable property of such a Paving is that its units could hold-or-release quanta of energy, via the promotion and demotion of their internal orbits. Therefore, propagation could be possible in such a substrate via bucket-brigade transfers from unit-to-unit, using quanta, (as happens with atoms), and, in such a means, the Speed of Light would becomes the inter-unit transfer speed. That was, most certainly, a significant addition to the effects made possible by such a substrate!

And, of course, it also explained how disturbances, perhaps caused by a moving charged particle, could be propagated.

The Double Slit Experiments using these suggestions is moved away from the inventions of the Copenhagen stance, into addressing Wave/Particle Duality appearances, as explicable, in purely physical terms, involving the particle-as-cause, along with the waves propagated-via-a-Paving.

Significantly, with this alternative, ALL the anomalies of the of the prior theory were clearly removed by this new theory. Yes! All of them!

Even the almost magical vanishing of wave-like patterns when measurements were attempted in Double Slit Experiments were simply and physically explained!

Clearly, whether this new theory is totally correct or not, these ideas are certainly worth persuing! They certainly have more Objective Content!

NOTE: Remember, James Clerk Maxwell's model of The Ether, involving as yet undetected vortices and "electrical particles" manged to produce his still essential Electromagnetic Equations. Even though no evidence whatsoever of Maxwell's assumption were ever achieved his model MUST have had enough Objective Content within it to actually deliver valid equations. So, with similar confidence, and for the same sort of reasons, we should proceed with the proposed Neutritron Paving as far as we can productively take it.

And, with Hegel's remarkable method as basis, we will naturally expect that at some point, the efficacy of our current premises, will themselves also run out of steam. It will, as usual, be indicated by the emergence of Dichotomous Pairs of concepts, and the imperative requirement to make significant changes to our then current premises, to allow the transcendence of such contradictions.

Clearly, this powerful method militates against the all-backs-to-the-wall desperate defending of previous gains, that seems to be the ever resorted to stance in Modern Sub Atomic Physics, and replaces such ego-centric criteria with an openness to new and better ideas, and regular checks on rarely revealed premises! It also allows speculative models (as with Maxwell's version of The Ether), as long as they have more Objective Content than those that they replace!

Indeed, the next impasse is already upon us. For, in spite of the significant gains made possible by the concept of a Neutritron Paving, it has already failed to explain Fields: It, as defined thus far, can in no way, deliver active force-delivering Fields of any kind.

So, our definition of a universal substrate cannot be taken as sufficient: there has to be other possible "components" around in a more complex substrate that can deliver such things, Clearly, the neutritron, being neutral in all respects, is not going to be able to do it: it will need a particle (or more likely particles) that can deliver what is

required. Our first move must be to extend the premises, with respect to components of the Universal Substrate! But, they too would have to be undetectable (as was the neutritron) YET allow the presence of a source for forces to be generated. Initially, such particles seemed impossible.

How could there be active, forcing particles that also cannot be detected? Somehow, they have to be as similarly masked as the Neutritron, but carrying the wherewithall to deliver a punch.

The current solution is to have two mirror-image gas-like particles in constant random movement. And, these will carry detectable properties in individual particles, yet be totally maskable by the mirror image, second type of particle. These two, occurring in equal numbers, would then give NO overall charge, or magnatic effect, or even detectable matter effects.

These have been devised (initially in the work of Mohan Tambe, and later by this theorist), but still require a great deal of further work to deliver a fully comprehensive theory.

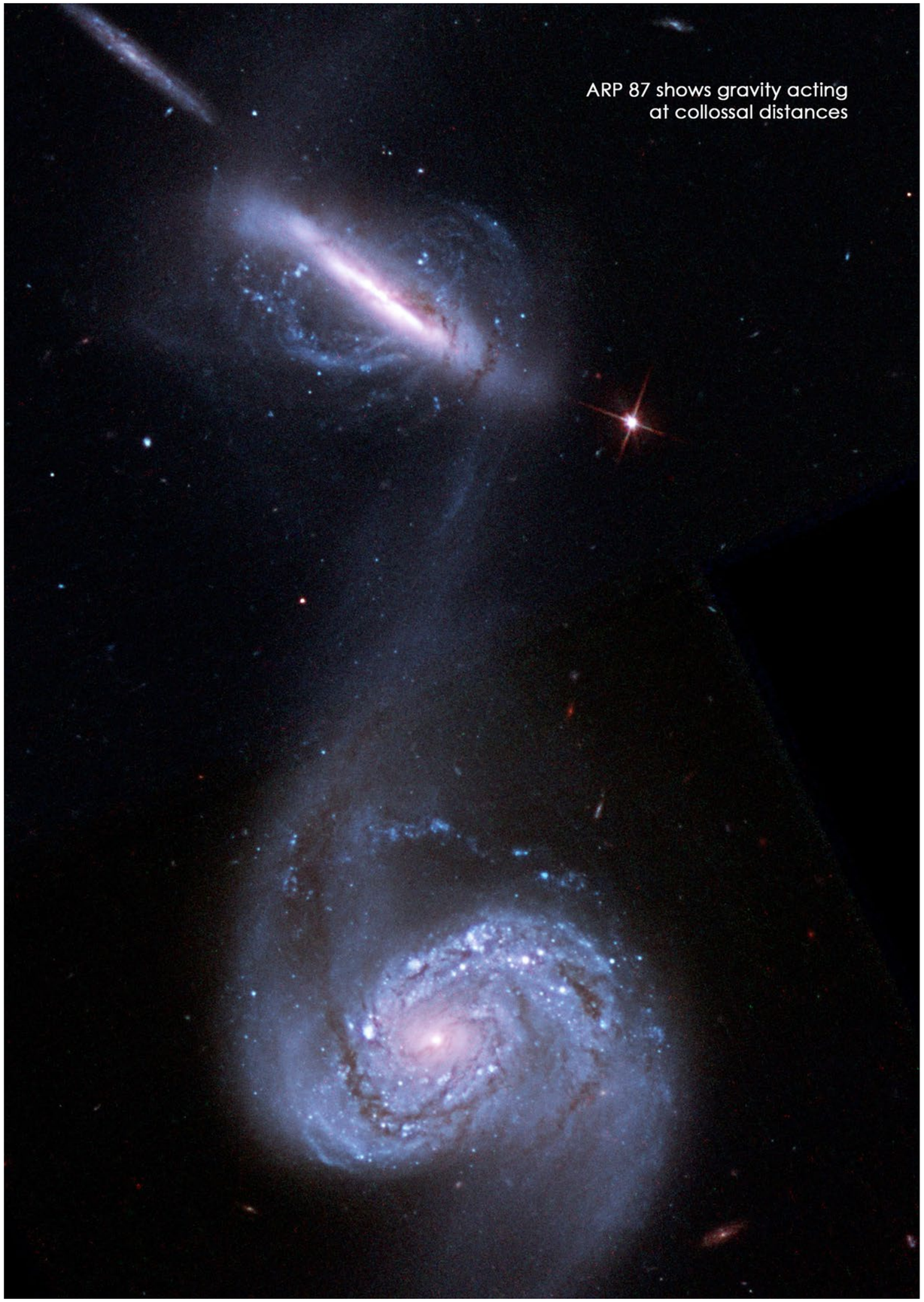
Nevertheless, the fact that they are free-moving and have the required properties, allow them to gather around, say, a charged particle in aligned sequences outwards from a first shell surrounding the causing particle.

Now, for the biggy!

To complete the rout, we must explain exactly why the Copenhagen formulae actually deliver the exact overall results, which we observe, but clearly, completely without any Wave/Particle Duality, Superposition. Quantum Entanglement and the rest!

Also, the quantisation of electron orbits within all atoms, as well as those involved in Yves Couder's Walker Experiments must be fully described and explained.

All these are, indeed, underway, and most are getting towards a full and successful non-Copenhagen definition.



The Holistic Propagation of Fields

There is a consensus set of assumptions about fields that betray major flaws in our key premises with regard to Science as a whole.

We, incorrectly, believe that natural phenomena are actually caused by Natural Laws, which are, in turn, accurately embodied in certain equations that, as a whole remarkably, cover all possible cases that could occur.
But, it just isn't true!

Elsewhere, this researcher has proved, beyond any reasonable doubt, that our trusted equations are incorrect - for they cover only the exactly selected-for, and then significantly purposely-farmed situations, from which we were able to extract them.

And, even more serious, is the establishment of these equations as the presumed sole-drivers of all Reality. They are certainly not that, and to believe that they are reveals an undeniably idealist standpoint – entirely inappropriate when dealing with concrete Reality!

You may wonder how such a stance could ever have possibly happened, but such Laws, in appropriate contexts, are used everyday in production with undoubted success, so Pragmatism is most probably the main justification!

Yet, even that latter point is easily dealt with. The laws work, because they are ONLY used within exactly the same farmed conditions, from which they were originally extracted.

But, it is the assumption that they are the eternal Natural Laws applicable in all conditions, and, when even when used in subsequent theoretical developments, that is even worse, and significantly and profoundly misleading!

In order to cope with complex Reality, Mankind farmed experimental contexts, to more easily display targeted relations.

But then, to avoid the difficulties that this kind of farming always caused, they decided upon a Principle that made our assumptions appear to hold up as valid!

It was, of course, the defining and justifying Principle of Plurality. But, Reality at large is certainly its exact opposite – that is, it conforms, much more closely to the opposing Principle of Holism.

Plurality, as a basic rule, allowed all our assumptions to hold, logically, but it isn't true: it allows only simplified and idealised abstract forms to be achieved, which can only be used in carefully tailored and maintained artificial contexts, but are never true in totally unfettered Natural Reality.

So, here begineth a very different approach, indeed, which admits of the holistic nature of Reality, and attempts to develop experimental and theoretical means to deal with it.

It is much more difficult than the pluralist approach, but it addresses something far closer to Reality.

NOTE: This work will form part of a major attempt to both define and establish A Holistic Science.

Various complex phenomena have already been tackled successfully - such as the anomalous Double Slit Experiments, resulting in a physical explanation without any recourse to Wave/Particle Duality, with absolutely no Superposition, or any so-called Quantum Entanglement! So, you can see why the more general approach has now to be developed.

But here, we will be concerned exclusively with fields!

Such as why the supposed effects of fields stretch over such colossal distances in Cosmology, for example, where fields like Gravity effect things across the Universe.

This has to be the place to start (as it was historically, with Isaac Newton), because, unusually, in so-called Empty Space, there is sufficient isolation for the extracted pluralist laws to appear to be irrefutable.

So, we will be starting in the very places where the prior pluralist approach rules OK!

But, and it is a very big BUT, how do these gravitational effects get established, and have sufficient energy to actually affect celestial objects of all kinds and sizes, and over truly enormous distances?

For, the causing bodies are totally undiminished by the gravitational forces that they presumably exert! How does the gravitational field get built and how is it even maintained, throughout all changes, and where does the evident, exerted energy come from? We have already said that it doesn't come from the "causing body". Now, Einstein got around this with his suggestion of a distortable Space/Time Continuum – but that is just another purely formal descriptive construct. To explain it physically MUST involve some form of medium or substrate, otherwise the causalities involved are either magic or totally idealist!!

Let us attempt an alternative physical description, and consequent explanation of Reality. Taking any standard field, with an inverse square law, then the size of the field at any point (as we move further and further away from its supposed cause, will dramatically reduce, as the distances get larger and larger. Indeed, every single point, surrounding that source, out to truly vast distances, must be affected, for any interloper into any position, will, without any doubt, be affected in its trajectory by that field, wherever its position.

Now, the deposition of active, useable energy, throughout that vast volume, especially as the presumed source has been in no way diminished, more or less demands that the necessary energy was already there, within the units of a universal substrate, but has been re-directed to become available energy throughout the field, by the mere presence of the presumed source. Both the energy invlved, and the action caused, must be down entirely to the substrate! Somehow, a message must have been generated, within the local substrate all-around that "presumed source", which naturally propagated-a-change in substrate structure, outwards, from that "source" and in all directions.

In other words the substrate is, even here, a propagating medium. But, as the effect is distributed to an ever larger volume of surrounding substrate, it, naturally, becomes diminished - geometrically determined by the increasing number of spherical shells of substrate units involved – with the shells' surface areas governed by $4 \prod r2$.

The very same would be true for Electric Fields, as the charge upon the supposed "causing object" is in no way diminished by establishment of the field, or by the actions that the field then causes. It could only be that the substrate, itself, has reacted by its own distortions flowing outwards via the immediately adjacent units of the substrate, which, thereafter, naturally propagate the same changes outwards, but to more and more units, and with less efects, as explained above.

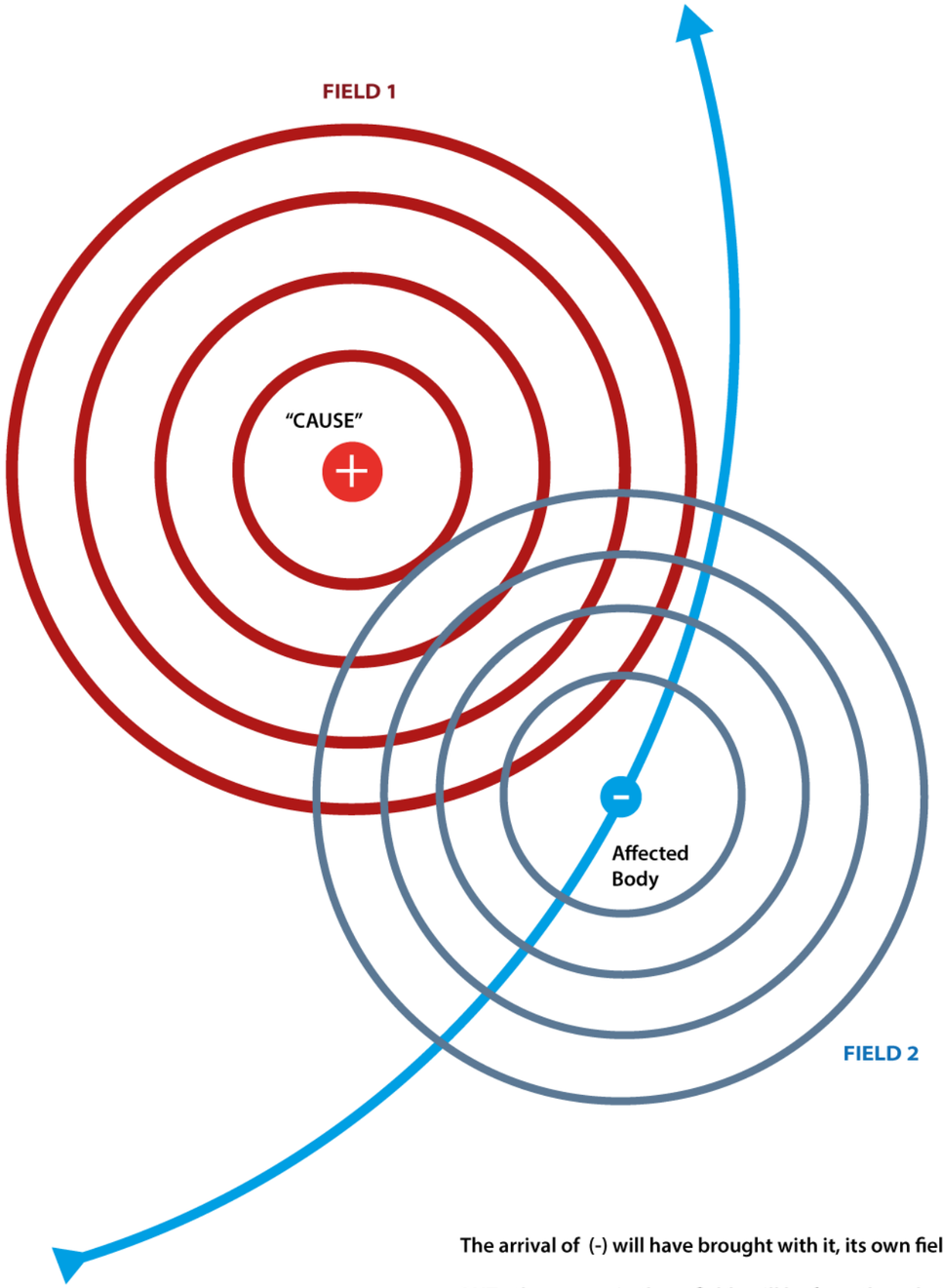
Initially, in this re-organisation, no changes are made to the units, except for their orientations. Thereafter, the once totally-cancelling-effects, in a random, conctantly-moving arrangement, now have become available in statically-aligned, and hence directed ways, simply by the lined-up orientations, of the units involved! The results of these effects, however, from over a general whole volume, must be local to any particular affected body. And, this must be the case for several sound reasons.

Reason one: **Direction**. Somehow, the actual states of the substrate units, across the whole field, in the vicinity of an affected object, is the only way that any affect of sufficient size and direction could be made available. For, different positions (units of a substrate) will have different directions to the "causing" source, and, if all units of a local region are affecting the body, they will together, deliver enough to both indicate direction and provide sufficient force to affect any subsequent trajectory too!

Also, any interloping, affected body will suffer a force, which will redirect it. Remember, no diminution of the supposed-and-initiating source of the effect (that which supposedly generated the field), will occur, so the energy involved can only be supported from local to the position of the affected body, and sufficient to affect it. So, that necessary energy MUST come, not from a single unit of the substrate, but from a significant penumbra of the substrate units surrounding the affected object. [In fact, that object, itself, will have had its own affect upon the substrate, perhaps re-defining that penumbra]

NOTE: It is suggested that, normally, the units of the substrate are not empty of available energy, but always have some situated internally, in the promotion of the contained mutual orbitings (similar to the atom), and that once so diminished by affecting the interloper, they are automatically replenished by the rest of the universal substrate, generally.

The existence of (+) will have caused the units of the substrate to set up FIELD 1



The arrival of (-) will have brought with it, its own field

BUT - the energy in these fields will be from the substrate, NOT the causing charges, and without these causes there would be NO fields.

So how could a neutral substrate be turned into one of active forces once the "causing" bodies are involved?

NOTE: If the distances to the source are colossal, then the above reasoning will no longer be entirely true. All unit cells will indicate the same direction, so no actual orbit will yet have been established – merely a directional deviation. It will be nothing more than that until sufficiently different directional effects, over more points, have been experienced, all with different orientations to that "source".

And, the consequent significance of all this is, indeed, profound!

It cannot be an abstract equation determining its orbit, but this succession of positions. For, such an equation is, quite clearly, both a simplification and an idealisation of data, massaged or fitted to a pure, abstract form, taken from the mathematicians, and tailored to fit farmed data for pragmatic uses. It cannot cause a real world phenomenon: it is a man-made abstraction of a real, concrete phenomenon. The actual cause must be both holistic and concrete, but NOT pluralistic and formal.

In other words, the actual causality is more iterative and real than formal, abstract and "overall"! Any equation will only finally be possible to fit, after sufficient positions have been traversed, and even then it will NOT be absolutely true, as all differing effects upon it will change it further.

NOTE: Perhaps the most significant feature of a real, holistic factor, is that the effect, once produced, introduces something new to the causing situation.

For, we can get Recursion. And, with such, there can be converging changes, which establish a stability, but, there can also be diverging change, which invariably leads to the exact opposite – collapse or even chaos!

This should be related to the work on Mathematical Chaos and Iterative formulae, researched elsewhere with very different purposes to here, where they are actually inverted. For, in these considerations, NO pre-existing, iterative formulae will be available. On the contrary, we will have only the experience of different real positions (due to whatever is causing them) - experience that will define NOT the usual formal equation (for the entire orbit), BUT, instead, a changing iterative form that could allow successive points to be derived from all prior points.

It will be different from the usual types of iterative forms, which are developed from the full orbital equations. Here we are deriving such iterative forms physically "as-we-go".

It will, indeed, be interesting to see how such an "iterative form" is constantly emerging from a succession of real points.

For, we are used to the exact opposite, where a succession of predicted points emerge directly from a single point and repeated applications of a fixed-iterative-formula.

Propagating Fields

We will also have to explain just how such a field could be the concrete result – built up from the presence of a "causing source" For, it could only be some kind of ongoing process! It would not just appear instantly at all the possible affected places.

Getting an Iterative Form From Data Alone
Introduction

I feel that I must preface the following paper with several clarifications.

First, the major objective is to consider deriving an iterative formula directly from a series of actually physically existing and measured positions of an affected body (i.e. its consequent trajectory), as it passes into an established field, (which though evident by its effects, is at present, unknown, that is with respect to its FORM. Indeed, the objective here is the exact opposite to that in Mathematical Chaos, where the plotting of predicted positions is possible from a known situation, field and its already known iterative formula, or even as a frig to solve a difficult equation.

Second, we are aware, as holists, with the problem that circumstances could change, so that if we were to find our iterative form from only a few actually experienced positions, and, thereafter, used that to calculate the rest, we would be leaving out any new influences that will certainly have arisen from new positions.

NOTE: The sought-for iterative equation will certainly not be available after just a few points have been used. Any formula achieved cannot be absolute!

From the outset, we will be merely finding-a-form, which will only cover the data so far, and particularly with a trajectory in a field, early points will only give a simplified version of what is actually causing it.

Indeed, unlike the usual iteration formulae – always derived from a fully defined, straightforward formal equation, used totally unchanged throughout, our form will be regularly corrected for adjustments as we go!

So, though we could do that sequence of predictions, we would check their veracity by continuing to use the growing number of actual positions, and even re-evaluating the emerging iterative form.

Clearly, this two-pronged method simplifies the finding of the actual path, but also is constantly checking, and, if necessary, developing the iterative form.

Such unusual methods are meant as a contribution to developing a holistic experimental method (not alone of course!)

NOTE: A crucial feature of this method, if we can get it to work, will be that it will be the most accurate way of arriving at the actual trajectory involved. Primarily because it is using positional data - exactly as it is, without any simplification or idealisation whatsoever! And, second, because it will not be limited to a single unchanging cause. Like considering only the Sun when dealing with the orbit of the Earth. Other contributions will be immediately included as they come into prominence, actually in the measured data.

Getting an Iterative Form From Data Alone

Let us imagine ourselves as a material body travelling through “space”.

We are aware of a pull upon our original trajectory, but we know nothing about what may be causing it. We can, however, establish all our positions accurately, and intend to discover our consequent path, by studying only our sequence of measured positions as we go.

This may sound odd compared with the usual methods and their assumed premises, but, nevertheless, it has a major advantage.

The data, that we will be using, is what has been caused by whatever is affecting us, and if we are regularly using them, with every new timed position, to find an iterative form to predict our next position, it will definitely always include ALL affecting factors (even wholly new ones as we move into different regions of “space”.

It may seem odd and difficult, but it is a holistic method, as distinct from the usual pluralist methods currently used.

NOTE: Remember that Plurality states that Reality is actually delivered by wholly separable and eternal Natural Laws, and, crucially, fits up simplified and idealised forms from Mathematics to measured points. Let us see what we get!

First, we evaluate our position, call it P1, at which we seem to have suffered some sort of gravitational pull, call it G1, in a particular direction, and call it D1. We know our own mass and speed, but absolutely nothing else.

NOTE: Presumably, as the thing that are affecting us will also be moving, so the pluralists, doing the usual kind of calculations, will have to use some kind of simulation to take into account everything involved.

And, as usual, make a series of further simplifications and even idealisations by using perfect forms from Mathematics. We, on the other hand, are using ONLY actual results!

After a decided-upon time, we arrive at a new position (P2), where we suffer a different gravitational pull (G2), in a direction (D2).

The question arises, not as is usual to assume, as an orbital direction, due to an already known equation, and a tailoring of that to fit the data – BUT, instead, as to how to use only our known and measured values to attempt to find a current iterative form – the prediction of P2 from P1, and the other measurements (notice that any derived form will change all the time: it will not be an eternal (as in Mathematical Chaos).

Now, such a form could then be used to predict P3 and we compare its prediction with its actual measured parameters!

Clearly, this is NOT Mathematical Chaos, and its usual forms and uses of known Iterative Formulae in that context. This is the entire other way round! We don’t use a known iterative form: we are attempting to derive a whole series of them from real concrete data alone! Notice that the usual technique works out ALL subsequent positions from a single initial point and given iterative forms, in that area of Mathematics.

However, our objectives are exactly opposite for very good reasons.

Having, in the past, questioned my mathematical colleagues at length when I was using their methods to plot trajectories using fixed iterative forms, as to what these forms were, I discovered that they were based upon geometrical frigs developed to find alternative roots to required equations by purely approximate (and infinite) methods, that were only terminated at some decided acceptable level of approximation.

So, you have guessed it! The usual iterative techniques, with only a single initial point and an approximate, yet eternal, iterative form, will inevitably “stray”.

Yet, there is one redeeming feature of those usual iterative methods! The calculated next positions that such a method delivers are never adjacent to those calculated-

from-position, so, subsequent applications will zig zag about gradually building a full pathway. In our case, on the contrary, we don't have an already devised iterative formula, but we do know successive actual positions.

That zigzagging about does take the process to very different areas of the overall pathway, and thus effectively takes evidence from very different areas to be used in the overall path, and this is what gives that method a measure of objectivity.

It is a frig, but it does include sufficient Objective Content within it to make it worthwhile! Nevertheless, the constant re-appraisal, of our iterative form, means that it isn't a necessarily approximate method, so every actual ne point is adding everything relevant that is embodied in its changed parameters. Though, it can be used to predict, it is also possible to be entirely self-correcting by this very different approach. If the producing factors are, themselves, changing, then only the new method will reflect that!

Now, such a method is particularly apt with closed pathways – such as orbits, for the regular re-deriving of the iterative formula, can be taken beyond a complete cycle if desired, which would not be possible in non-closed pathways, but completely possible in orbits (or even oscillations).

Now, clearly, the overall objectives of this method are to establish a viable, yet purely holistic, experimental method, which is no longer, compromised by the idealism of perfect forms imported from Mathematics. For, it uses only concretely produced results, so no built-in assumptions are involved. The only questionable part is, of course, how the iterative form is derived, but, as described above, even that can be addressed.

You may wonder why such a method as this is even entertained?

Well, if as we are certain, that Reality is definitely holistic, rather than pluralistic, every development isn't just obeying a supposedly eternal and totally abstract Pure Form, but, on the contrary, has multiple simultaneous causes, relies solely upon the actual measured data, with no "improving" arrangements, and this will guarantee that what we finally get, will include all the factors involved, even if we cannot explain them all!

It is the holist equivalent to Statistics, where the data, taken as a whole, delivers some overall Law, but our alternative is significantly better!

NOTE: Statistics requires stability to work, whereas our method deals with not only changing factors, but their mutually modifying interactions too!

The major problem, with attempting to develop an iterative form out of data alone, is that you have no general forms in mind.

As a physicist, myself, when presented with concrete data, presumably caused by some hidden relation, I use Difference Methods upon that data to reveal something of the sort of order of that "causing" relation. Once the order has been established, a general form can be derived. For example, if the difference method revealed that it must be a quadratic, the most general form would be something like $y = ax2 + bx + c$, and by substituting into this general form sets of values of x and y from the experimental data, I would end up with a set of Simultaneous Equations in a, b and c, which I would solve to get the appropriate values of these three constants, to turn the general form into a particular Equation relating x and y – my actual "determining Law".

The fact that I had a perfect general form of a quadratic relation is the classical mathematical, and hence idealist way, to turn my data into a Natural Law (in a wholly pluralist way)!

But, clearly, such means and tailoring shows clearly that ONLY the knowledge of the "perfect" quadratic enabled it to be a useful method, and the simplicity and perfection, of the form used, meant that the result could only be an Idealist solution, and NOT a real solution! But, as my data played an important role, the acquired result, though both simplified and idealised, would nevertheless contain some Objective Content.

Pragmatically, that is precisely what we are doing with these usual pluralist methods! And, the self-applied nail in our own coffin is to, then, "legitimise" the method with the reasoning - "If it works, it must be right!" I'm afraid not!

It only delivers a clever, approximate solution, which does enable successful use of such an Equation, BUT ONLY if used in the exact same circumstances as were set up for the original experiment in which the data was acquired.

Such means are OK for prediction and production, if carried out in the appropriate straightjacket, but are highly misleading when it comes to Theory, especially in dealing with new or extended situations.

In attempting to develop a strictly holistic alternative, we are moving into a wholly new and better level, as it reflects the true nature of Reality as it really is!

Gravity
An intrinsic property of a universal substrate

Problems abound with the classical, concepts and principles of Gravity.

And, this is because though it can force a change in the behaviour of an influenced object, by, for example changing its trajectory, (due presumably towards another "causing object"), neither one of the two interacting bodies involved is, in any way, intrinsically diminished by the loss of the expended energy that was necessary to cause the effects that we quite clearly see.

Now, as with the considerations applied to other kinds of Fields, the conclusions must be as follows: -

1. The required energy must come from the field itself (which infers a physical substrate!)!
2. The Field must be caused to happen by changes in units of the Paving (the currently suggested form of a Universal Substrate) – initially immediately adjacent to the supposed "causing" body. And, the changes must be provided entirely by those Substrate units themselves, in response to the proximity of the supposedly causing body!

Thereafter, such a "field" is built outwards from that first immediate shell of distorted units, which explains why it is effected as the standard Inverse Square Law, for the numbers of units in each succeeding shell will be governed by 4Πr2 – the surface area of a sphere of radius r.

Now this, and many other conclusions about Fields, is undermined by their clearly apparent transparency, with regard to other separately generated fields.

For, several different fields can overlay one another, and this fact has consequences for our conceptions of how such fields are constructed, and put into question what we have so far developed.

YET, simultaneously present Fields could co-exist if they do not have to be "complete" – that is each field having to occupying all the units of the affected substrate, is not an unavoidable premise! Those carrying the field can be only a subset of those present in any affected situation.

It only needs "connectivity outwards from the supposed cause, to gradually propagate that field. Remember that the units of the substrate are very small, and literally colossal numbers surround an object like a particle.

Thus, it only needs a proportion of them, with a continuous sequence of "contacts", back to the "source". Each next shell out from that "source" will allow a propagation of the field. BUT, this means that any unaffected substrate units, in a way, can be affected by another, different field.

Then, the overall effect would be of two fields – seemingly caused by two different "causes" (though really initiators), seemingly occupying the same spaces.

Yet with no apparent source of the energy within such a field, we have to explain how the field affects interlopers and changes their direction.

It must be that the energy was always in the substrate units, but uncoordinated and unable to act upon an interloper, until that volume of the substrate was transformed I to a field.

And, in addition, we have to explain how, and from where that used up energy is replenished – for it must be to leave things the same after the interaction.

Clearly, the rearrangement of the inactive, but energy carrying units into a field, involved a link up of all of them throughout the field, in such a way that they all, locally contribute to any affected object that it encounters.
The area is changed from a neutral one to a re-arranged formation, which can affect the interloper by summing such dispersed energy in a coordinated way.

So, the answer has to be the clear possibility of the units of the substrate being both capable of holding energy internally – and in a similar way to how it occurs in the

atom – in orbiting sub-particles within the unit. The suggested unit of the substrate – the neutritron, has two internal sub particles mutually orbiting one another. One is an electron of ordinary matter and with a negative charge, while the other is a positron of antimatter and a positive charge.

Thus, for any such promotion of orbits to remain, the condition will have to be that all local units are similarly promoted, so no demotion and propagation can happen. That will surely be the state of the substrate without any imposed field.

All units of the substrate must have resident energy, which can be marshalled into a source of Gravitational force. But, when used, in delivering gravitational effects, it will leave a series of units with demoted levels, surrounded by others still promoted, and these holes will be filled first from locally and then successively further afield to re-institute the units, and their Fields, as before.

Thus, the Universal Substrate both supplies all the energy, and implements the effects upon any interloping bodies, which are usually considered to be the "causes"!

Now, I'm afraid that even these ideas are insufficient to explain Gravitation The affecting bodies can be at vast distances away, and still "seem" to be affecting things, where we are, immediately. So, what c\n be said about the delays inevitable in the propagation of such influences? We, usually, conceive of the constantly varying forces pulling an affected body into a different trajectory, or even into an orbit, and we never consider any delays. But, they are bound to happen. Yet to see a continually varying change of direction, and to treat the whole thing as a static problem, but though that isn't true either: both will be moving relative to each other, but also differently relative to further possibly influencing bodies, elsewhere.

Now, we are insisting upon considering the case where the influencing body is simply too far away to deliver such signals immediately.

Yet the effect, even with our incorrect assumptions, will still work if the bodies involved are moving, and hence adjust their adjacent substrate units, which then propagate the changes outwards to every succeeding shell of those substrate units.

Now, this process will take time to change the field everywhere, including the region near the influenced object.

But, it may not invalidate the resultant Cause & Effect. For, if the influenced body is in an orbit, and has been round the loop before, THAT path will be the default, and will be followed once more. Crucial changes can only be from extra influencing objects – not relevant earlier!

In stable arrangements, even though the causes reaching our susceptible body are old, they will do the same as those acting NOW!

NOTE: the argument often put forwards that the delay will swing the influenced body into the wrong place isn't valid, for the next influencing force will have taken the same amount of time to get there and will be CORRECT for its current position.

The affected body will be in the right trajectory, but always and constantly suffering a delay: it should work fine! None of the consequent effects would be undermined: they will act as if the affecting was happening instantaneously, but the arriving effects, in a coherent sequence, would be from an earlier time.

Now, we have, I'm afraid, to change the situation around to consider another important factor.

On a much smaller scale, perhaps with a different kind of field, such things as orbits (like oscillations too) can be seen as similar basically to what we considered above. But, they can also involve Resonance too!

A vibrating source can involve the same vibrations happening in a different recipient object, if the conditions were right!

And, if we are to remain true to a holist approach, the recipient object, when vibrating, will most certainly, in return, send resonance effects back to what had been regarded only as the source!

Perhaps, the same could happen with Gravitation. After all the substrate would be there too, and its movement could send back a return influence of its gravitational effects.

Now, such things as orbits and vibrations are special, because both will go through a repeated cycle of signals out.

Let us restate what will happen, when such effects occur!! It is precisely such reciprocity, which causes a resonant effect. And, this will be so in such cases with no diminution of the "causing bodies", and, at least, a significant proportion of the energy actually amplifying the resonance above the initial activated source. It must come from the substrate itself!

So, it seems, planetary orbits are not merely the interaction of a moving body with a standing field through which it passes, but a resonant interaction of the two bodies mediated and even powered by the connecting substrate.

And here's the biggy! The two propagations will involve delays, yet resonance is very common: it seems that the two vibrations will change to bring the two vibrations into a more exact resonance, in spite of the delays. The cyclic nature of the phenomena will allow this synchronisation to happen.

NOTE: Important work elsewhere, on the macro level, could, in the right conditions, impose quantisation upon the orbit radii involved. Also, the orbit of the electron in an atom, considered with a substrate, having vortices caused by the passage of the electron, and the result again is a self modifying adjustment so that the radii are again quantized.

NOTE: More work has to be carried out concerning the data from Halton Arp (and mentioned also by Professor Meyl). About the suggested budding off of new, sub-galaxies, from the hubs of old, mature galaxies. For he considers that the observed Red Shifts of these new galaxies decrease , and in a seemingly quantised way, as they get older.

So, clearly, if our undetectable Universal Substrate exists absolutely everywhere, within the Universe. So, the rotations of the parent galaxy, and its effects upon that substrate sould again communicate resonant effects with the main galaxies to actually produce the new ones likw the vortices we see with passages through water at the everyday level on Earth.

The budding off of such newly created mini galaxies considered this way might allow a coherent explanation of what was going on.

As the Galaxy itself rotates, and internal entities orbit within, we might be able to crack that one too – especially if the Spiral Arms are NOT paths for continually moving entities, but for the inwards tracks towards the Hubs. For then the Hub would regularly become so crowded as to spin off mini galaxies!

Detailed study of Arp's data seems essential!

Directed Meta-Level Gravity

The construction of a directed gravitational field within the Universal Substrate

Clearly, if we drop the frankly-magical varying-active-and-directed gravitational "field-happening-in-totally-nothing" - somehow subtended across vast volumes of completely Empty Space, we not only have to consider the presence of a Universal Substrate as its necessary means of a propagation, but also such a field's own self-erection within such a Substrate, and delivered solely by the Substrate's own special Units, as responding-and-active parts of that only possible intermediary.

And, it is also clear that such a field is merely only initiated, rather than caused, by the presence and properties of both-of-the-Masses involved. For they are certainly not intrinsically altered in any way by the fields they apparently subtend!

So that, instead, we must have a self-built Substrate-Field, actively constructed by the implicit properties of that Substrate.#, but located outwards from each initiating Mass, by each-and-every Substrate Unit that is involved in both moving-to the initiator, and equipping-itself both with an appropriate(?) energy deposit, plus a crucial directional-indicator pointing back directly towards that initiator.

How else could that field cause movements of the right size and direction to any affected bodies?

We can only assume that particular gravity-field-versions of the Universal Substrate set of Units, or Gravitons, were, in the prior absence of any massive initiator, both just randomly-moving-about (like a gas), and, because of this, also cancelling-out any of their resident properties, so as to be totally-undetectable.

NOTE: the parallel problem of Electromagnetic Fields has also been solved in a very similar way, by involving two exact mirror image units in equal quantities, the Magnetons, which also required detectable properties in order to actively function as they certainly must, but also needed to be undetectable when inactive. Clearly, a similar solution will be necessary for Gravitons also.

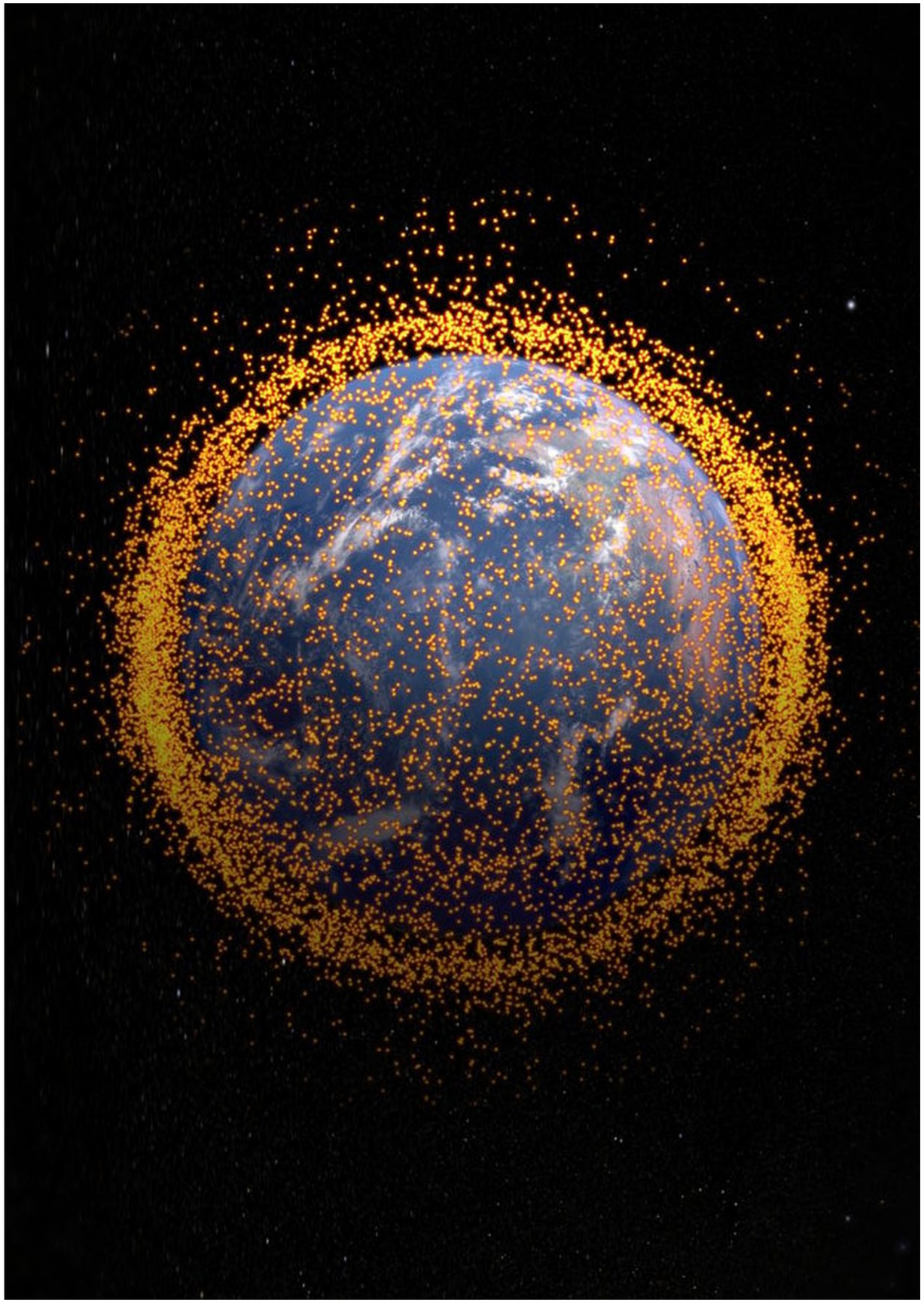
But then, with the arrival of a massive object, into such a Substrate, it would seemingly effectively "capture" those previously randomly-moving Units into a series of static concentric shells surrounding that material object, with all their directional features pointing exclusively towards (and directly-away from it, in a dipole manner), and filled with enough energy (dredged from elsewhere in the substrate) to be available, in an inverse-square-law manner, to deliver a gravitational impulse, when encountering a another material intruder coming into its aegis.

NOTE: the directional element within each Unit must be "dipolar" in a different way to the similar directional elements in electromagnetic Substrate Units (the magnetons). For, it does not have dissimilar opposite directions - such as the magneton's North & South, but here presenting the same effect in both directions.

The reason for this is that the aligning of gravitational substrate units around the initiator, will on the one hand to balance the gravitational mass of the initiator, but also to transmit that same effect outwards via the dipoles of the units of the field.

Clearly, such "gravitational field Units" of the Substrate could, at this stage, only be influenced by the size of the initiating Mass, as no other interacting Mass is yet on the scene, as currently that aspect of any possible future interaction is yet to be addressed.

Clearly, nothing will then happen, until another material entity's own gravitational field, building-out-from-it, as



initiator, encounters the prior gravitational field of the first-considered Mass.

Clearly, when the two material objects are still very far apart, a reasonable "simplification" might be to consider the fields as wholly independent of one another - established around each, but not yet acting upon anything else.

But, the situation, which must be addressed, is when that is no longer the case, and two such bodies, both depending upon their own individual total Masses, will apparently begin to mutually affect each other.

The major question must be, "Will both initiators then produce joint field units, combining effects from both Masses, or will the fields continue to exist, separate-but-interleaved with one another?"

Once again, the reasonable initial simplification must be to assume the latter, because of the implications of the former, for the then clearly much more complicated Gravitational field Substrate Units will be too much to deal with just yet!

Now, with these assumptions, each Mass is affected by the other in proportion to that other Mass's size, and, via the involved, connecting line of field units, is forcibly-directed towards that other - all the time suffering changing effects as the distances between decline. It is concerning the amount of this movement, where each body's own mass also becomes involved.

NOTICE, how the Equations, derived for these processes, hide the actual contributions-and-dynamics, as well as their reasons, in a purely quantitative, simplified and idealised pure mathematical form!

In contrast, what is being attempted here is primarily a Physical Understanding and Explanation!

Also, it is important that because of any prior in-process movements of the two bodies, they may well only be merely re-directed by this gravitational interaction, and will, having passed one another, carry on upon new paths, taking their separate fields with them!

Apart from possible collisions and even merging, the only other possibility, will undoubtedly be the capture of one body by the other, resulting in an orbit of the lesser around the greater, and, a complex interaction of the two fields in some stable situation.

These fields may well, in fact, actually merge, but be then transformed into a two-ways-facing joint-field-unit, transmitting attractive influences back to both masses and causing them to move towards one another.

But, is much-too-soon to address such complexities: we will stay with our simplification as long as it suffices in delivering increased understanding of what is going on. The two "interleaved" fields will change in contained energy to always reflect their varying, current distances apart. Only when these changes are instituted will any consequent field actions occur.

Then, both the masses involved will use the gathered-in energy in its adjacent field units to be pulled towards the other! The changes in both fields will, themselves be modified by the changing positions of the initiating Masses, so propagations of field energies will be changing due to two simultaneous effects:-

1. the using up of field energy to move the affected Masses

2. the moving-in of energy from elsewhere in the Substrate to replenish depleted Units back to the appropriate, currently-required levels

NOTE: In the actual, here-unaddressed situation of merged fields, there would also be a third constant adjustment to even the un-used field energies, to reflect the changing distances away of the initiating Masses.

Of course, such descriptions do not say either "how" or "why" these things happen, for instead of simple "cause-and-result" situation, we have, instead, each seen as both cause-and-result of each other, while the whole thing is actually entirely due to an affected-and-effecting Substrate, actually delivering everything involved.

We can, and indeed do, simplify, by usually taking a relative-to-one-mass standpoint (as most of our experiences are of vastly-differently-sized entities), but the real situation is usually more complicated than that.

The problem, as it was with Electromagnetic Fields, also within the same Universal substrate, is surely Movement. For, it was the Movement of charged, orbiting particles that activated Magnetic Dipole Effects, and, in so doing, also delivered the necessary capabilities of built-in Direction.

So, it looks highly likely that such Movements could also be responsible for similar effects in Gravity: indeed something like a dipole-direction-effect, related to ordinary Gravity - in the same way that Magnetism is related to moving electrical charge effects.

Just as magnetons, when moving, also deliver a Magnetic effect, and when in orbits define an orbital plane with a directed magnetic effect perpendicular to that plane, so, it is here postulated that when gravitons move they too deliver a Meta-Gravity Effect, when in orbits, also defining an orbital plane, with the directed Meta-Gravity Effect perpendicular to that, in the same way!

Lepton Substrates

It is, seemingly, increasingly-likely, that a single-component, homogeneous Universal Substrate will certainly-not deliver the evident phenomena already known for the supposed final-ground of "Empty Space"!

Too many features seem essential, and no single Substrate Unit can deliver them all!. And, the wide range of potential Substrate Units with the necessary qualities to actually deliver what is needed, is so spread-out in sizes, that a Hierarchy of Substrates seems the most likely delivering situation.

What I am moving towards is a sequence of Substrates with the "bottommost" (or least-wide-ranging) one possessing the smallest units, then a substrate on top of this with larger units, and so on with other layers and bigger units as we go!

The following table shows FOUR Levels, each with different functionalities due to the currently involved Units' Natures and Sizes. But, their individuation WILL NOT be as layers one above another, but rather all together, yet separated, by functional and size differences.

They will effectively all exist at the same level, but acting only with their own level partners.

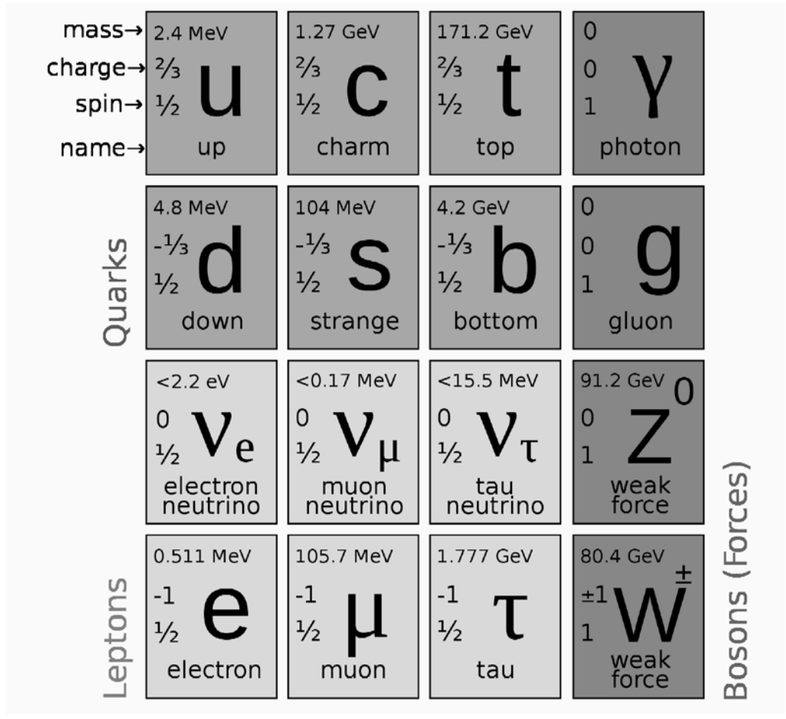
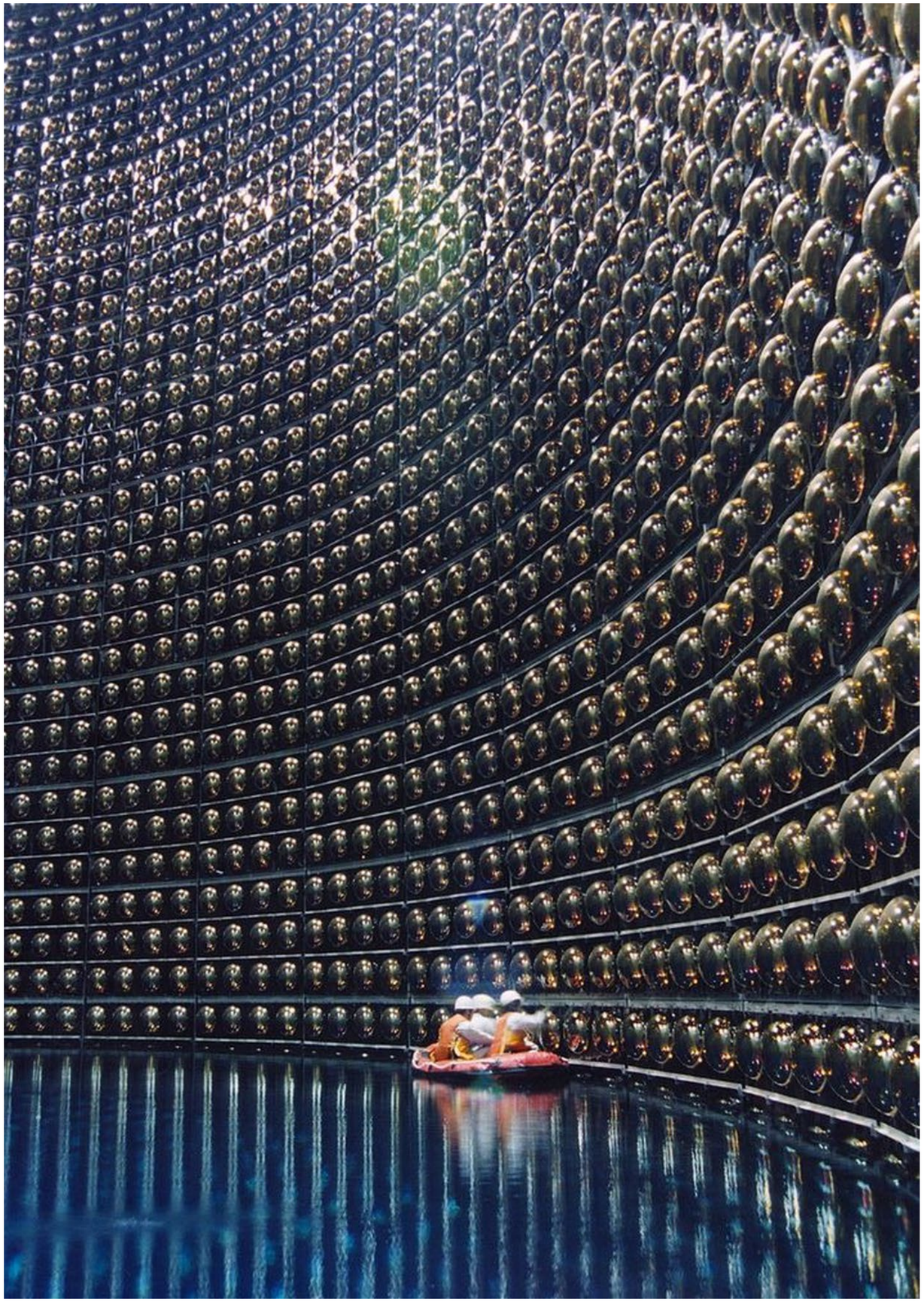


TABLE OF SUBSTRATES

	Level	Likely Units	Size
Substrate A:	**Bottommost**	**Electron Neutrino**	**3 ev**
Substrate B:	**Propagatons**	**Neutritron**	**1 Mev**
Substrate C:	**Gravity**	**Larger Neutrinos**	**18 Mev**
Substrate D:	**Electromagnetic**	**Magnetons**	**1882 Mev**



A very speculative muse on
Neutrinos within a Universal Substrate

Recently reported research on neutrinos, which infers that they can convert, entirely-naturally-and-internally, between muon, tau and electron neutrino-types, surely begs the usual paramount question, when assumed to be positioned in an otherwise, totally “Empty Space” - “What else might possibly be involved?”

And, this qualified physical theorist, having previously managed to remove all the many anomalies from the famed series of Double Slit Experiments, solely by including a real, but currently undetectable, Universal Substrate, was clearly bound to attempt a similar effort, when addressing these latest discoveries concerning supposed neutrino transformations.

But, before commencing upon this interesting investigation, it must be made clear that the original theoretical definition of that Substrate (by this theoretician) was initially considered as entirely composed of only stable positronium particles (neutritrons), though even that certainly simplified idea was sufficient to vanquish all the anomalies in those universely-claimed-to-be “conerstone” Experiments.

Yet, nevertheless, that sole Unit quickly proved inadequate in other important, closely-related phenomena, so this theorist was forced to include other, different components, as other equally-common Units, also contributng to making up such a Substrate, in order to explain these other phenomena - that were clearly also happening within hat same Substrate, but were mainly to do with active Fields - spatially extended, effecting regions within the usually assumed “Empty Space”, actually surrounding causing-entities, such as charged particles.

That work was tackled theoretically, using other Leptons, such as Muons and Taus, along with their appropriate antiparticles, devised to deliver pairs of mirror-image, joint-particles, formed in a similar way to the neutritron, BUT, instead involving sub-particles of dissimilar sizes, and hence necessarily-producing joint-particles with Magnetic Dipole Moments.

These, as populations of equal numbers of two kinds of mirror-umage particles, would cancel-out across those randomly-moving populations, but could also statically align-and-sum their magnetic moments, by moving into into linked concentric shells, gathering around charged particles to deliver the required distributed and active Fields.

This work was, theoretically-at-least, very successful, so, naturally, this theorist generalised his method and objectives to see howmany other Substrate Units there could be, and what they could possibly achieve.

Clearly, the next target phenomenon to be addressed had to be Gravity!
Could other, different joint-particles also deliver this property too?

And, the obvious sub-units, possessing NO intrinsic charges, would surely be the neutrinos - particularly the electron-type, because of their extremely tiny amounts of contained matter, and hence the possibility of forming an entire sub-storey beneath-and-between the other, much-larger and different components!

This is neither the place, and certainly not yet the time, to actually deliver any comprehrnsive theory, but suffice it to say that, in order to “solve” the problem of Fields-in-Space, it had already been necessary to add wholly new additional joint-units to the Substrate.
And, these had to deliver energy in directed ways.

This had made necessary the inclusion of particles with individually-uncancelled features to actually deliver such effects, as well as mirror-image sets-of-such-particles to also cancel those very same properties within randomly moving populations.

Could we devise new joint units that might effectively deliver the necessarily-directed Gravitational Fields in a similar way? Would it be possible to conceive of joint particles composed entirely of neutrinos?

But, of course, there was a truly major problem! Without opposite-charges, the usual, strong electromagnetic inwards attractive force - countered by the outwards centrifugal force - due to carried-in kinetic energy, we could, here, only rely upon Gravity-itself, as the necessary inwards component... Could it work in the sub atomic level, as it clearly does at the cosmic level - with Suns, Planets and Moons?

Let's face it, something, very-closely-related to this, has always been assumed for the earliest phases of Aggregation of Matter to ultimately form Stars and Planets. Though there, the only concern was the amassing of smaller pieces into ever larger entities, and certainly beyond a certain point that would indeed predominate, and occur all the quicker in relatively static cosmic clouds.

But, to estabish Gravitational Fields, within an everywhere-present Universal Substrate, we are looking at quite another possibility, very different indeed from mere aggregating within an otherwise totally Empty Space!

As with our suggested Electromagnetic Fields, a similar static surrounding of any mass-particle, with concentric shells of appropriate Substrate Units, all having contained energy, and thus delivering an inverse-square-law form, would clearly be necessary, AND, perhaps most difficult of all, some "directed-dipole-like" property involved, to line-up directionally-active, gravitational effects! Perhaps, when originally-separate cosmic clouds, as sources of mass-particles, encounter one another, and mix, relatively higher energy particles could indeed be captured, by other particles, in some kind of gravitational orbit, rather than just being absorbed via collision.

And, they would NOT be interacting with the other Substrate Units that have opposite charges as the causes of their unions: they would, instead, exist as a "separate level" - within that produced by the electromagnetic forms - above(?), and maybe smaller, propagation-type levels - below(?)

NOTE: See the previous paper for a suggested table of these possible levels.

Now, if each of these levels were comprised of dual, mutually-orbiting-component Units, then, like the atom, all-of-them would be able to take in energy via the promotion of internal orbits, and likewise release that energy, via their demotions.

All sorts of propagation would be possible - perhaps most-dominantly via the suggested Paving-of-Neutritrons, but supplemented, when necessary, by other means to deliver an overall "Continuity".

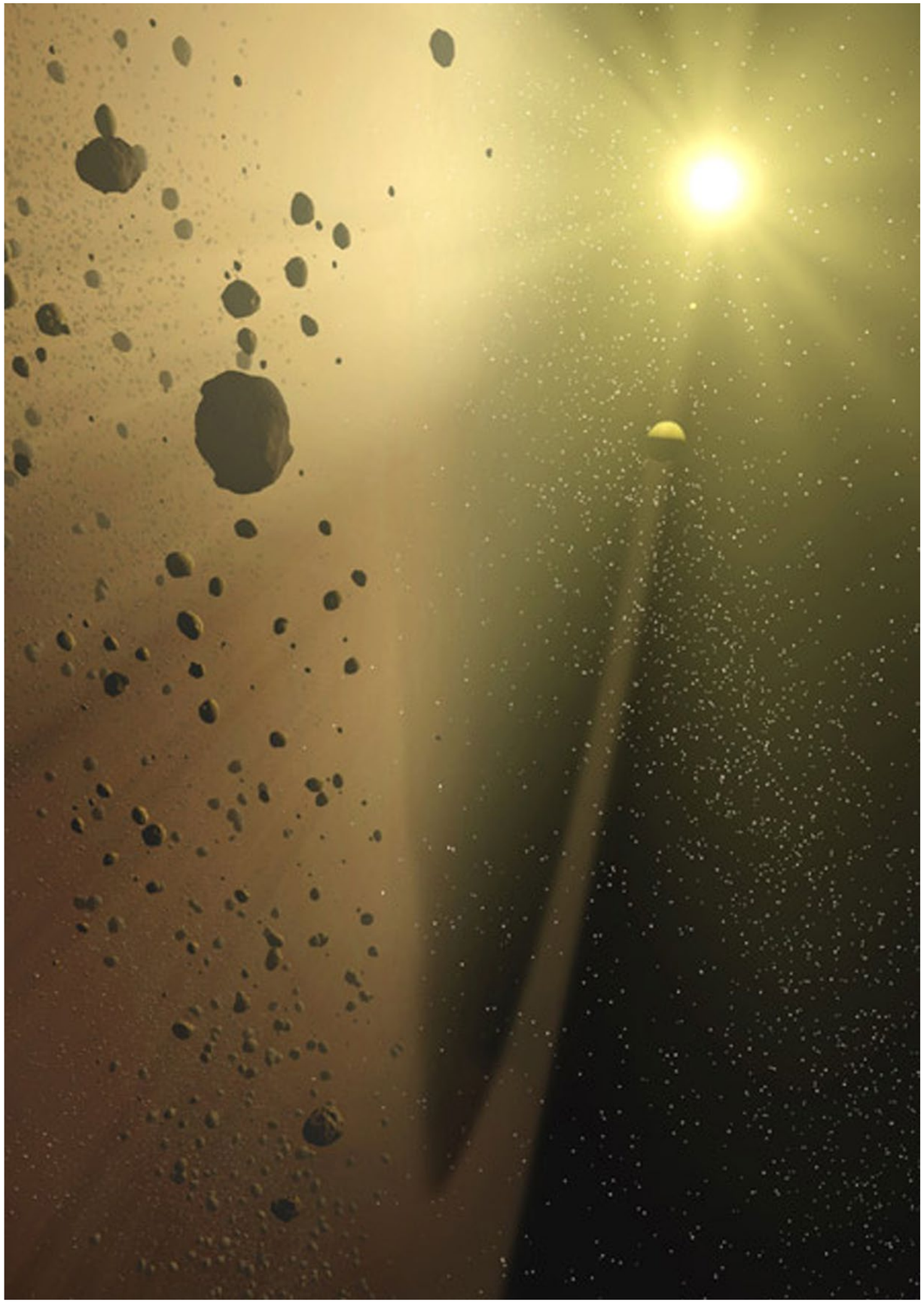
Now, this muse is very early in a possible serious theoretical study, but, obviously, it is also just the time to speculate how all the phenomena currently being addressed regarding the inclusion of neutrinos might finally deliver the as yet unexplained role of the Universal Substrate in delivering Gravity!

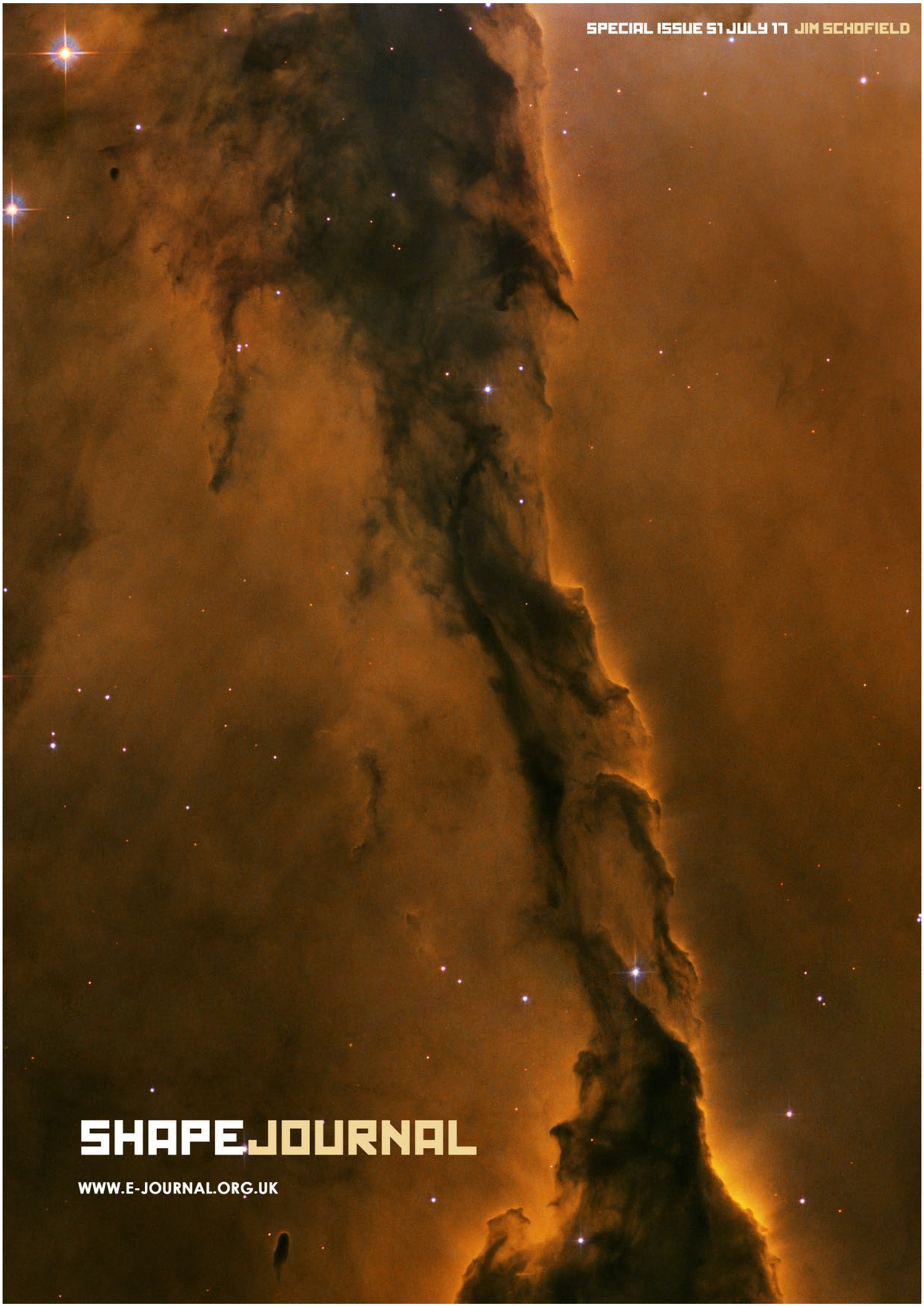
It should already be obvious to the reader that the supposed conversions, between neutrino types, with different defining energy contents in each, could be related to energy transfers between joint-substrate-particles involving neutrinos.

Clearly, we are in difficult territory with neutrinos, and with my proposal of joint, mirror-image particles, they are almost, if not already, undetectable, But, these joint versions can very easily dissociate, and just as easily, re-associate into different entities with different energy contents.

It does not require a great leap, to imagine an environment, in which the dealt-with neutrinos of the reported current research could, indeed, be temporary products of joint-neutrino Substrate Units, and the disappearance being caused by their dissociation and re-association into a different type of joint-particle.

Clearly, at this stage, all this is speculation, but unlike the usual Copenhagen idea of a theory, it is physical, and hence both theoretically investigate-able, xnd experimentally testable. It is the intention of this theorist can to do what he can to integrate the research upon the Universal Substrate, with this current research on transforming neutrinos.





SPECIAL ISSUE 51 JULY 17 JIM SCHOFIELD

SHAPE JOURNAL

WWW.E-JOURNAL.ORG.UK