

SHAPE JOURNAL

THE HOLISTIC UNIVERSE

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The Pillars of Creation, taken by the Hubble Space Telescope

The Holistic Universe

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Reclaiming Holism

Preface

by

Mick Schofield



Welcome to Issue 64 of the SHAPE Journal. In this bumper edition we collect together the most important cosmological writings of Marxist philosopher and physicist, Jim Schofield: his work on the nature of the Universe.

In his ongoing application of Dialectical Materialism to the many disciplines of science, Jim has increasingly turned to Holism as the answer to the persistent crisis in Physics. But this ancient philosophical stance isn't what most people think of when they hear the term "holistic" science.

Much like the rampant misuse of the word "quantum" by quacks and snake oil salesman the world over, the word "holistic" has been dragged through the dirt for several decades, becoming synonymous with the worst kind of pseudoscientific drivel, in the minds of many scientists, and in the popular consciousness too, particularly when it is applied to the field of medicine.

For the team at SHAPE Journal, it is high time this vital word was reclaimed for those who use it deadly seriously. While holism is often used as an excuse by some to abandon analysis and scientific rigour in favour of some questionable belief system - the rational always subtended by the spiritual - the philosophical concept itself, implies no such thing.

The dictionary definition of the term doesn't suggest this either.

Holistic is posited as the antonym of 'atomistic', as the study of wholes rather than parts, or an acknowledgment that parts cannot be understood without reference to the whole (and vice versa), that contexts and the changing relations between entities, are as important as the entities themselves. That holism is oppositional to reductionism doesn't entail an abandonment of analysis, but a crucial acknowledgment of what analysis actually is; the limitations of all analyses and the necessity for examining the real material contexts in which any findings occur.

To really understand what Holism is, it is important to understand it in terms of its opposite, the currently dominant Principle of Plurality, and Jim spends much time explicating the differences between these two philosophical approaches. As he states in *What is Holism*:

"Plurality saw Reality as being determined by a set of eternal Natural Laws, which simply summed in various mixes and proportions to deliver everything that there is. The task of studying Reality (in all its diverse forms), therefore, had to be to reveal what these Laws were, and any means that could be used to reveal them more clearly was considered a legitimate method for finding such clearly defining things. For, as they were eternal,



they could not be changed by context. So, if the context was significantly adjusted to most clearly display a given Law, that would in no way change the sought-for Law. Context would still determine what was seen normally, but merely due to the summing of a set of eternal laws in a given set of proportions."

This is contrasted with Holism in the same paper:

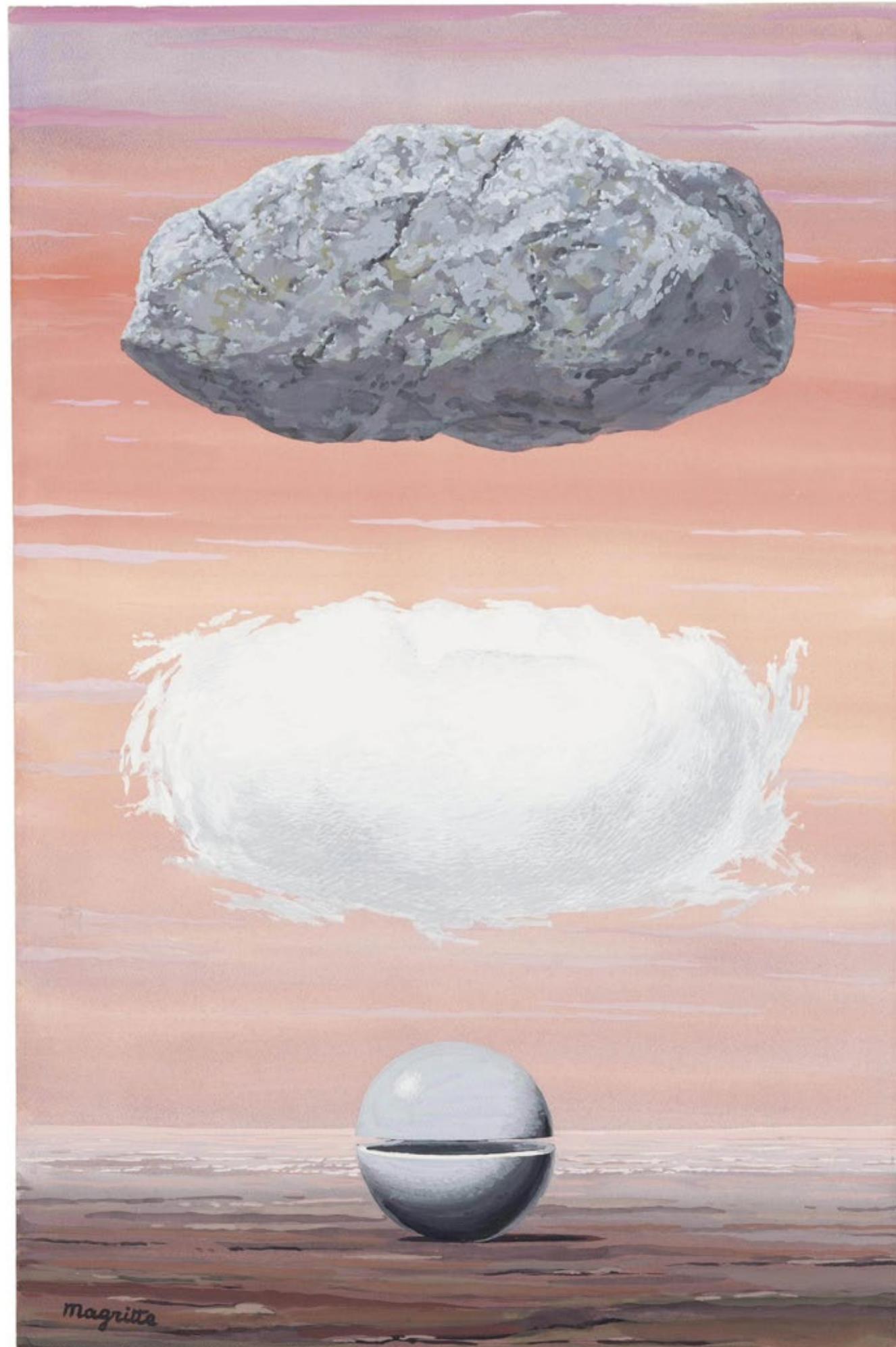
"This was most carefully defined by The Buddha in India, about the same time as Plurality was being revealed in Greece. And, in a nutshell, it was defined as, "Everything affects everything else" or alternatively as, "Everything is always in constant change!" You can see how very different this premise made the process of understanding Reality. Instead of the pluralist assumption of the addition of FIXED things, there was instead the holist assumption of the mutually-affecting combination of easily changeable and hence constantly CHANGING components."

Holism is most vitally different in how it sees time rather than space - it's not just about looking at wholes rather than parts, but looking at *changing* properties over the assumption and manipulation of fixed laws that we see in all the sciences. Hopefully you can begin to see the relevance of this to Dialectical Materialism and to our understanding of the evolution of the Universe.



The tendency in Physics is to assume the laws that control the Universe have always been the same, but there is no evidential reason to assume this - the flaw is an unspoken philosophical assumption - and it has led to a very skewed view of Cosmology.

This set of essays begins the task of looking at the Universe and its history holistically - the Universe as an interconnected and evolving Everything.



The Consequences of an Holistic Universe

Part I

(2008)

Jim Schofield

When defining an Holistic Universe, we naturally insist that Reality is multifarious – that is composed of a myriad of contributing Parts.

But, the moment we have said this we are forced to qualify it, or even condemn our usual use of the term “Part” as wholly misleading, and an unsupportable contradiction right at the outset, is, I’m afraid, unavoidable.

For, to begin to talk about anything, we have to start by labelling everything we are going to discuss. So, “Parts” will have to be named as the first step. To have to qualify this immediately doesn’t bode well for any following, completed definition!

The dangers have always been with us, for as soon as we name something, there is a danger that we will illegitimately assume its persistence.

Imagine an explanation, where at every turn the elements of our explanation have to be redefined, sometimes into what seems the opposite of what it was before.

But, the slippage into assuming that all things are unchanging has always led us deep into the mire, so on concluding that we must BEGIN by assuming a Holistic Position is absolutely necessary, and we must find ways of coping with its anti-logical moments.

The problem is, as you will have guessed, the assumption of constant Change in all things.

The initial version of this idea is that NOTHING is constant: Everything is in some form of perpetual change.

Here is the rub. No Part can persist as such, because it will be different now from what it was a moment ago. But a more accurate idea of change will involve BOTH Change, and crucially some form of Persistence simultaneously for a time.

In spite of constant changes, these will NOT immediately change the overall nature of our Part. That Part, as described will most often persist for some time. The inevitable changes, however, can be of many types.

They can, for example, be first in one direction and then in another. Or, they can even be cyclic in nature. Many types of change therefore do NOT necessarily undermine the persistence of the Part. BUT, on the other hand, there are changes which do precisely that. And these will, in time, undermine the integrity of any given Part, and it then will indeed become something else entirely.

This form of Holism, therefore, involves both self-maintaining persistence, AND incessant forces for change, which will in time cause an episodic overturn. Persistence becomes a series of interludes of quantitative and insignificant Change, separated by revolutionary Events. This is NOT the Holism of the ancients. It is not even the Buddha’s Holism, but is its legitimate son.

Now, such a definition of Holism is only a description, and NOT an Explanation.

We still have to explain why the constant changes in all things don't lead to complete Chaos, where the effect of constant change in everything would seemingly end up in total randomness and without Form.

And of course, such is not, and never has been the case. Indeed, in this Holistic Universe, Form is everywhere. This new type of holism does not result in total Chaos, but in a multiplicity of universal Forms which crop up all over the place, coming-and-going, with periods of persistence, and events of total overturn.

A description is obviously insufficient! Why do we have this particular pattern of Changes?

The crucial question must be why, in an obviously ever-changing Universe, certain things will persist, at least for a time. We have to consider that as all things affect one another, what sort of influences can there be?

There MUST be persistence because certain things “fit in better” with other simultaneous and local things. They are, for the present circumstances what we would call mutually conducive. The presence of one and its changes will help the continuance of the conducive other, and vice versa. While, at the same time there will also be things which will have the opposite effect and will be highly contentious to each other, and effectively reduce each other.

In a world of BOTH types of things (and of course their natural processes), there could be no other result but universal Unevenness. Reality, instead of degrading into a “smooth, yet wholly random, soup” instead develops an unavoidable unevenness. There will be at least semi-persistent “lumps”. Some things will persist longer than others (and conducive processes will occasionally participate in various types of conducive-mutually-supporting arrangements.

Now, this might be seen as naturally causing some sort of inevitable progress, but that would at this stage be premature. Thus far, we have Unevenness, and some things persisting longer than others, but NO clear process that could lead to such a thing as Progress.

The unevenness could be caused by local conditions which, by chance, brought together particular mixes of factors and their accompanying processes. Though periods of local development could occur under these conditions, there is, as yet, NO clear reason why they should persist over long periods, or even become somehow permanently established and generate actual Progress.

As has become a general assumption in those researchers trying to explain the Origin of Life on Earth, they have come to a belief that to establish the production of the Necessary Precursor Entities is sufficient to prove Progress. Most of the demonstrations (such as Miller's experiment) establish that processes can emerge which produce such precursor entities. But, the assumption that the identification of many of these will be sufficient to prove the Origin is wrong! It seems sufficient to mechanists, mainly because they assume that everything is determined by fundamental particles and eternal laws, and that from these everything is automatically generated.

Such a pluralist assumption is incorrect! None of these researchers can actually produce Life, and they never will, because they have NOT yet got anywhere near explaining how such amazingly progressive revolutions actually occur in nature.

It is clear that the above described localities and the development of conducive and contending processes are indeed essential to the Emergence of Life, but that actually “miraculous” overturn cannot be so easily explained.

The most important thing about such an Event – an Emergence, has to also be how changes become self-maintaining: how a whole series of initially-dissociative cataclysms, instead of producing absolute Chaos, actually end up by producing Order. That is surely the question!

The really unique feature of an Emergence has to be the fact that it creates wholly new entities, properties, relations and laws, at a higher self-maintaining Level. It is NOT merely an extension of conducive processes, but, initially at least, a, absolutely essential Destroying Process, wherein many previously established and continuing processes are first undermined, then decline and indeed finally vanish, while others persist through the tumult. Indeed, it is clear that an Emergence Event MUST BE a whole catalogue of consequent avalanches of change, each causing the next, and the whole thing is only terminated by the precipitation of a mutually-maintaining-set of Persistent Processes, acting within ever wider localities, which emerge as new “Worlds”.

Now, the impossibility of these ever being revealed by the current workers in this field, is made crystal clear by their methods, and particularly their use of Computer Simulation, which by its very omissions and pluralist nature COULD NEVER precipitate any such cascade of avalanches. Computer programs can NEVER create, only reorganise retrospectively (on the basis of prior experience), so they are stymied from the outset.

Though the feel of an Emergence can be imagined, its detailed Form and mechanisms cannot. We just do not research such areas, and think that we can work on them using our old and inadequate pluralist techniques. Bigger or smaller, faster or easier – indeed all the technological imperatives of pluralist “science” can never deliver Creation.

All these features have to be implicit in any Real concept of Holism, for otherwise, all you have is an abstract

invention, and it will in no way equip you to address the really deep and important questions of Real Creative Development.

And, we can ONLY ever define such things from Reality itself, and NEVER as intellectual conceptions of supposed “great Simplicity and/or Beauty.” The temptation is always there to do precisely that, and as such it then becomes a “possession” of the profound thinker who came up with it, rather than a means to a deeper understanding of Reality.

So, we have qualified any simplistic definition of Holism into one created, fed and watered by the Reality which it produced. A mature conception of Holism is NEVER a beautiful, wholly self-consistent and logical whole. It MUST be a concrete sequence in a Reality which is essentially self-contradictory, and which both dissociates and then creates things, but in that process inevitably EVOLVES.

NOTE: The Evolution is inevitable, but the forms of that Evolution are certainly NOT.

It has to be an engine of creation, literally out of the chaos that it produces of itself. The Second Law of Thermodynamics is a product of Mankind insistently standing on one leg, because the other leg seems to totally oppose the first, and so must be discarded as incompatible. Such a view can only result in Mankind falling flat on its face. The tidiness of the periphery of Reality accessible by such an approach, fails miserably as more central things have to be addressed. The simplistic coordinating rules of Formal Logic may well insist that the second leg is contradictory. But such a view has no objective basis - - only tidying and beautiful assumptions. Reality stands upon two legs – opposing it is true, but also together infinitely creative and evolutionary.

Part II

Process

Now, the ideas in the first paper under this title were philosophical and abstract, and though definitely in the right direction, they didn't even begin-to-address the actual key processes that could result in an Evolving Reality.

To start such an investigation, we must begin by asking the following questions:-

- What is such a Natural Process?
- What governs its trajectory and performance?
- What terminates it?
- And finally, what causes it to lead to significant, even revolutionary, Changes?

As distinct from Relation, wherein the mutual relations between particular parameters are laid out as a supposedly eternal law, Process is different in that it always terminates.

A process cannot continue for ever! It requires resources and conditions, and neither of these can be eternally the same.

Even if in total isolation, BOTH of these will be drastically affected by the action of the Process itself: the resources would be exhausted and the consequent volume of product will have transformed the context. Now, it is even more that way in totally unfettered Reality. Things happen there in conformity to any number of simultaneous other processes, and we correctly never assume that any or all of these stay the same for ever. Why do we do this with regard to Processes?

It must be to do with Resources and Products!

So, while a Relation is usually conceived of as The Way, the Rule, for one entity changing quantitatively due to changes in another, it is always an abstraction of a special type: an abstraction that contains within itself NO context or conditions which might cause it to stop relating in that particular way.

A Relation is actually THE most pluralistic of Mankind's methods of analysing the World!

Now, though we delight in the Simplicity of such a Relation, and even use that as a reason for its validity, we cannot either notice it acting, or use it, without setting up the absolutely necessary conditions for its "truth" to be fulfilled (indeed they would be much more accurately called constraints.) A requisite straight-jacket of such controls is always necessary to actually perform exactly as its equation predicts.

But a *Process* has to include many such things.

A Process unavoidably transforms its conditions, into different conditions, and so removes its own basis for acting.

But, we don't see them as such.

We always separate necessary containing conditions from the things that are changed.

It is because processes work on Resources to generate Products, and they can obviously run out of appropriate Resources, or even be swamped by a preponderance of their own products, and thus isolated from their resources. They can never happen alone in the midst of empty space, for example. They must exist alongside other processes. Otherwise where would their resources come from?



In an *empty* Universe there can be NO processes - space must be “full”

There has to be necessary content for our processes to even start. A mixture of content and conditions might start a process going, but it could be like an avalanche – a finite process of limited duration. It will use up the available resource until it is exhausted, and then it will stop. But, it will also have changed things locally. Where there was a preponderance of resource, there would now instead be a preponderance of product. The local environment will have changed.

Perhaps the conditions would have to change for anything different to happen.

So, let us suppose that they did change sufficiently for a new process to commence, and began using the abundant product as ITS resource, and again “avalanche through” until it (in turn) was exhausted, causing this process too to terminate as with the previous one.

Considering vast periods of time, and crucially also significantly varying conditions, we could have had many such processes, but, as so far described, they seem to be episodic, finite and dependant upon chance changes to the conditions.

So, let us imagine a condition in which the various resources and products could be transported about by natural self-moving physical processes of a medium (under gravity or ocean currents, say).

Let us therefore include widespread natural conditions such as the presence of WATER (H₂O). It is a simple substance, and if the background conditions have allowed it to exist in the liquid state, it can flow about with gravity or convectional currents. With variations in temperature it can also move about by convection as warm and cold water are different densities, it can rise or sink due to such differences. It could also be evaporated into gaseous water vapour, and with a moving atmosphere (also driven by temperature differences), it could be carried to cooler climes, where it might well be precipitated as rain, and fall to ground back in its original liquid state.

It may, indeed, fall upon higher ground, and so would flow downhill. Its action would dislodge small particles of the ground, and these, carried along with it, would increase its tendency to excavate along its own downhill paths. Combinations of these tricklings would increase this process and ultimately that water would produce rivers, transporting all sorts of carried or dissolved substances to new places, and even, ultimately, to produce new seas.

Water would undoubtedly accelerate the tempo of the stop-start processes outlined above, and would make available more and more resources for more and more processes. So, there would very soon develop multiple, different localities, caused by these many factors, and, perhaps crucially, there would be unavoidable boundaries between such localities. So, the situation would become more and more active, with multiple, simultaneous processes occurring, and always the possibility of replenishment of resources. Significantly, among the variety of adjacent processes, conducive processes (mutually supporting groups) could occur next to one another, and hence allow the possibility of more continuous (less episodic), indeed perhaps uninterrupted change. If the resource required was continuously produced by another process, the usual avalanche-like duration could be radically extended. Firstly, conducive processes would tend to survive while non conducive processes would continue to be spasmodic. The persisting processes would therefore have more chance of tying-up with more and more of these conducive forms including eextended Sequences and even Cycles, which would both set off and be maintained in action.

The reader will no doubt see the implications of such happenings in the long march from inanimate processes to Life, but eons would pass before such a Significant Revolution would possibly occur, and even with everything required being available, it would still require a wholly new Interlude of Changes to occur.

Life is a great deal more than a system of self-perpetuating processes.

NOTE: Though the limited set of such processes that exist in Living Things (and there are termed Metabolic Pathways) are clearly in line with the above reasoning, we must resist the temptation to to imagine that ALL we need for Life are the appropriate set of linked processes. That is far from the complete truth! Somehow there has ALSO to be the effective exclusion of all the myriads of processes NOT in this set, for the ascent to be able to continue, and that, at first, appears to beseemingly impossible. Most scientists working in this field concentrate solely on establishing precursor situations, and hence by ellipsis inferring Life as a direct consequence. I'm afraid that is not the case. Though these arguments will NOT be omitted in an explanation of the Origin of Life, they are nowhere near sufficient in themselves. They are necessary, but profoundly insufficient!

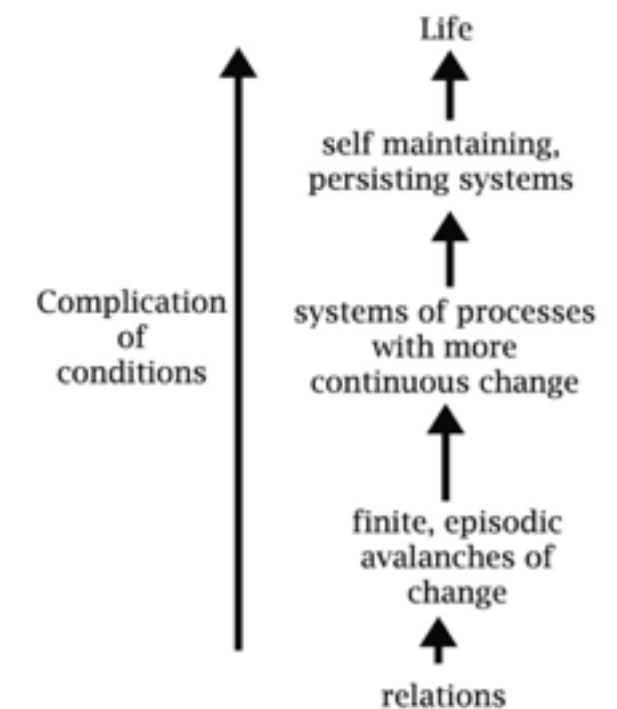
But, this essay has more restricted objectives. It purports to establish that Processes are the essential elements in all change, across the Universe.

Processes involve relations, but they are higher than them. They are *active* systems, and though Mankind has learned how to isolate and feed them in highly controlled circumstances, in unfettered Reality they only exist in concert with countless others.

The next higher layer is entirely about groups of processes and their necessary inter-relations. It is at this level that our contending and conducive processes affect one another, and systems arise which can indeed persist. Indeed, a wholly new kind of Development appears, which is very different from prior mere Complication.

And, by these new means there appear to be ever new contexts and appropriate processes continually becoming available. And they involved Dissolutions as well as new Associations: they were termed *Emergences*.

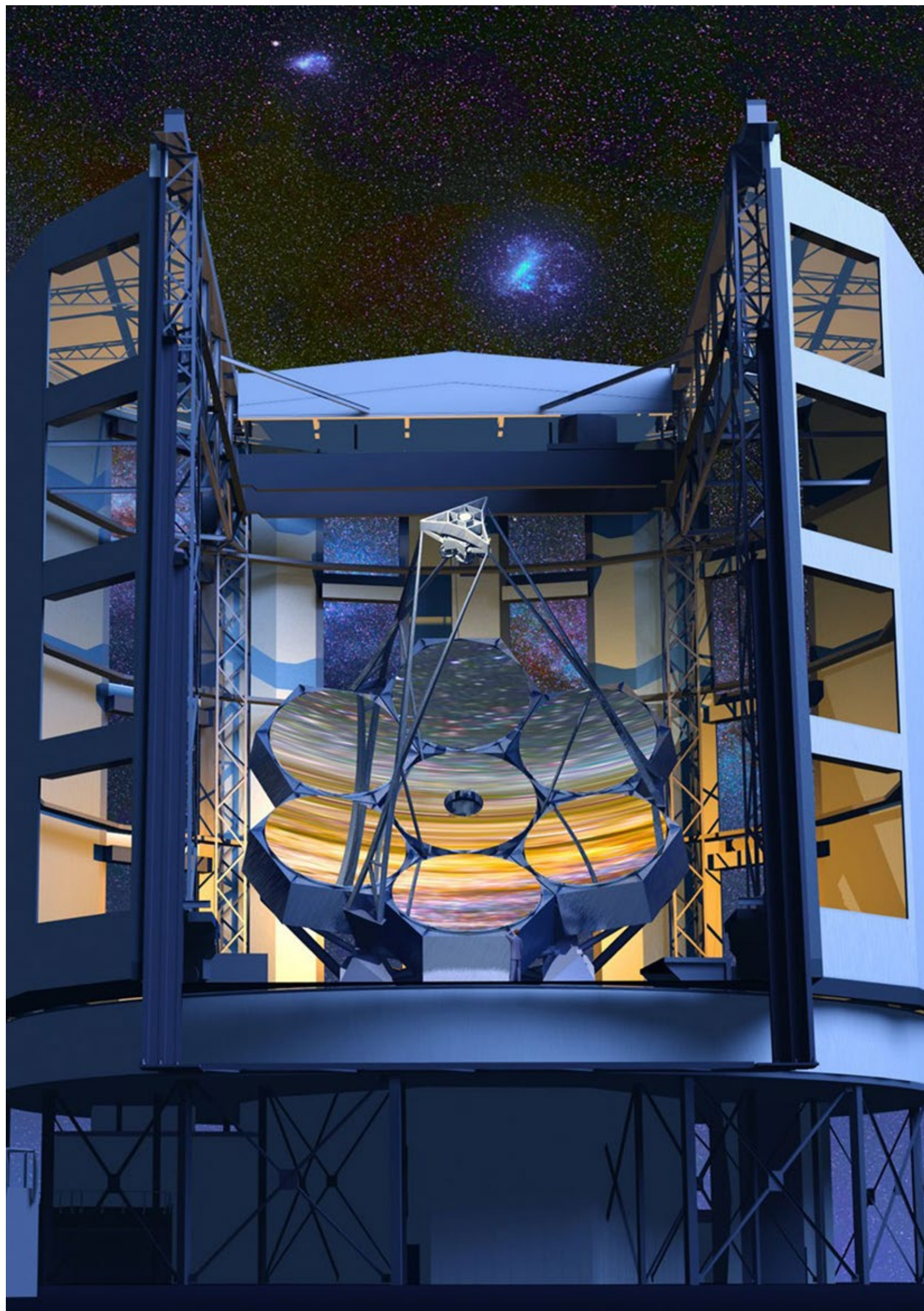
So, long before any Life, there was an important History of the Development of Reality. For Reality, by its very nature, has the propensity to develop – to actually produce the wholly NEW - the evidence is all around us. Many things will, in these remarkable Events, have occurred for the first time ever, and by so doing Changed the Game! Contexts will also have been transformed, and in so doing, opened up new possibilities. Quite separate from, and wholly different to Plurality, there exists a natural Holistic development based on the above considerations.



The diagram above is obviously too simplified to explain anything. It is more like a simplified categorisation of the stages in development generally.

This diagram seems to be self contained, but it isn't!

The arrow, on the left hand side, covers a multitude of necessary conditions, which themselves change due to various natural processes, not least the developments on the right hand side. But, in so doing they CHANGE the possibilities of what can possibly happen. Entirely new conditions, never before in existence, allow new processes to emerge and participate with prior ones. [A modern way of putting this is to say that theses developments themselves all lead to an expansion of the Possibility Space of the system as a whole]. The steps upwards through these sequences are NOT necessary and inevitable. Each step is made possible by the occurrence of an Emergence.



What we see in Space

The effect of the speed of light

When we look up at the stars we don't see what we think we see.

In order to begin a holistic study of the Universe we must acknowledge how our view of it is distorted.

I must first establish the position, from which I will strongly criticise the usual answers to this important question. For, in contrast to the usually accepted stance in both Modern Physics and Cosmology, I reject the premise that all Physical Laws are eternal - the current and long-standing consensus position, due entirely to the ancient stance we now term Plurality: and instead base my own analyses upon Holism, which sees no Laws as eternal, but always determined by their *sometimes-changing* contexts!

I also totally reject the central role of Pure Mathematics in Physics, as the norm for the consensus, as delivering a totally reliable integrator, within literally all of the Sciences, as it is the only genuinely Pluralist discipline, and therefore also deals exclusively with only Perfect Abstract Forms - making it in addition entirely Idealist!

These criticisms effectively prevent such a rejected stance from ever dealing with both real qualitative changes, on the one hand, and actually concretely-existing relations, on the other. At best it gives only a distorted reflection of just the forms alone, as delivered by an purely idealist mirror!

NOTE: the reason for such a continuing and widespread choice in the Sciences, comes from the usually-dependend-upon experimental technique of always intensively managing and maintaining the necessary experimental

conditions, in order to guarantee a strictly pluralist situation, and then only ever *using* the acquired Law in reality, in exactly those very same farmed conditions.

So, clearly, as a Materialist, such a set of premises, when attempting to reveal a General Law, falsely makes the version delivered always-true just as it has been revealed, and so must also be rejected.

Finally, since, first, Zeno of Elea, then Hegel, and finally Karl Marx, the Form of the ubiquitously-employed Formal Logic, as a wholly-pluralist discipline, has also been demonstrably replaced by Dialectics as the only means of also addressing both Qualitative Change in general, and wholly-transforming Emergent Episodes in particular. For, it has become very clear that the pluralist/idealist Copenhagen Interpretation of Quantum Theory will never address the impasses of either current Sub Atomic Physics or Cosmology, so Dialectics is also central to my reasoning!

But, as I have found in all my diverse areas of study, the most damning critique of the theories I oppose is always best addressed by letting the anomalies of the usual consensus theories effectively shoot themselves in the foot: for given an adequate exposure, they always do!

So, here, I will be addressing, "What we see in Space!" entirely from the *consensus* position, to thereby clearly reveal its many impasses, entirely from their own professed-to-be-appropriate stance.

Let us walk in their footprints! As we look through our telescopes, everyone agrees that whichever direction we choose, the celestial objects that we will sequentially-see,

will be those that are both distant in Space, and also, far back in Time, due to the finite Speed of the Light, taking appreciable amounts of Time to deliver what we finally see!

We also see everything that is available to our power of telescope, present in that chosen direction, no matter how far away they are, and from when we are seeing them. Claims are made that with the best available kit, we can see all the way back to when Atoms first formed, “making Space Transparent” - but no further, as “the original Plasma Form of early matter made Space opaque!”

But also, what we can see will all be “apparently” moving away from us, “due to the expansion of the Universe”.

Now, this will be the case, no matter in which direction we look: for we will, with the appropriate equipment, finally be looking at the limits of how far we can see, all such views being from a common time.

So, in all viewed directions, we will see a time, some 300 million years after the Big Bang: yet that light, from all those directions, arriving at us now, will be from how the Universe was then.

BUT, how can we now be in the midst of what were being delivered then?

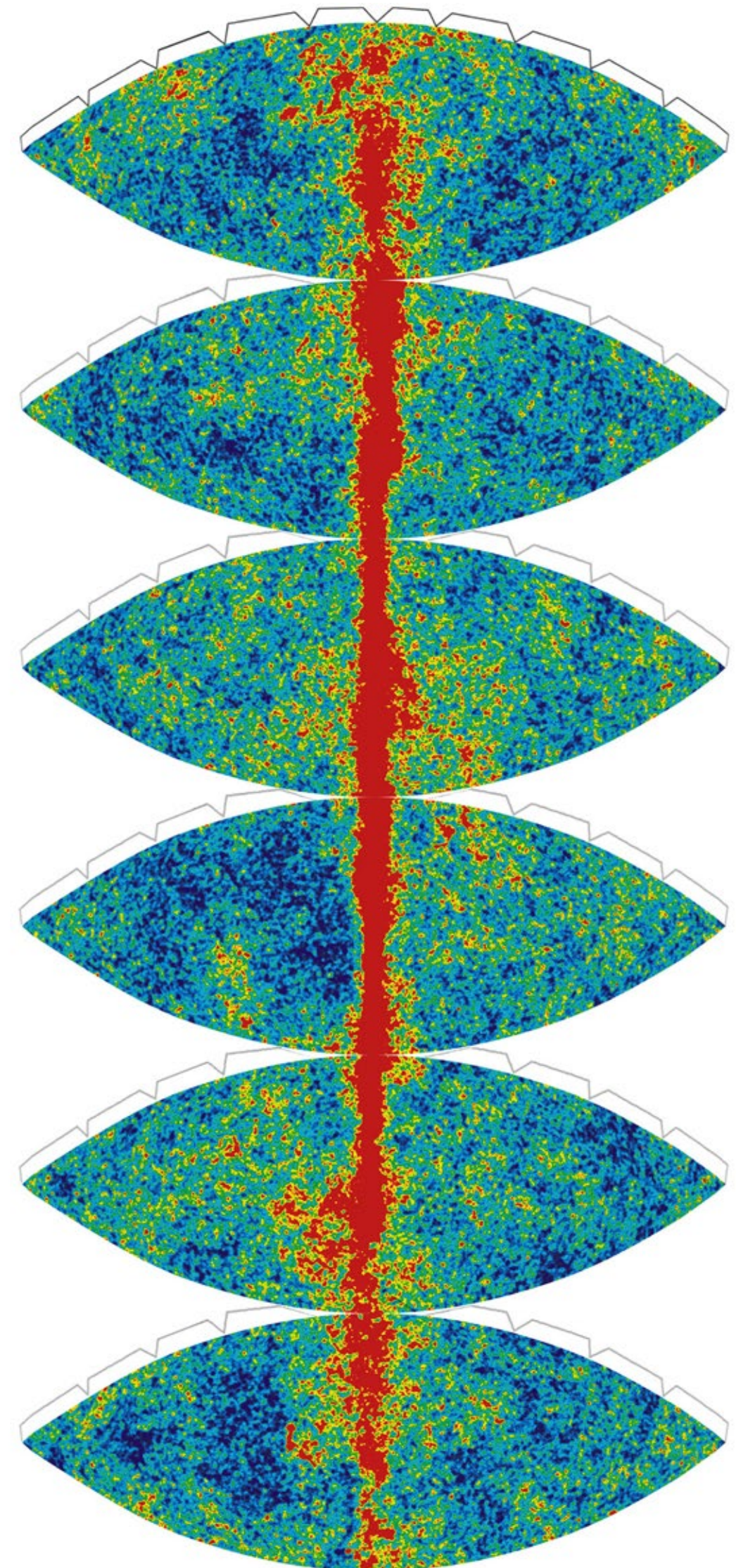
We are surely in one place now! How can we then be getting it from ALL directions?

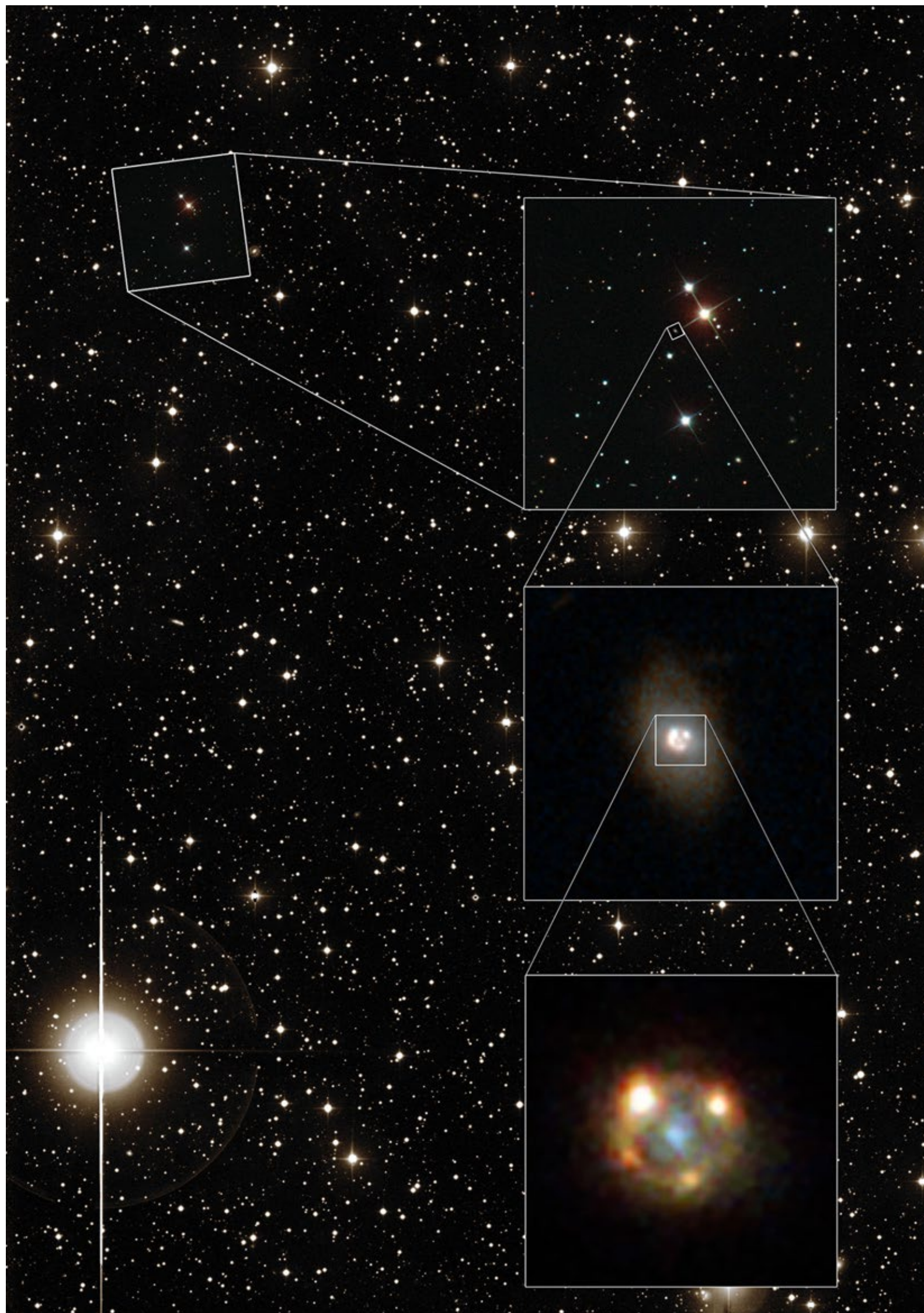
AND, “Wait for it!”..... the furthestmost light has been travelling for about 13 billion years, at the Speed of Light, in all directions from its sources, only, somehow, to be simultaneously arriving from all direction surrounding us at our ONE place now!

And, in addition, the famed Cosmic Microwave Background (the CMB) is also homing in on us from all directions, in spite of its very early production, once again as radiation in all directions from its source.

Now can anyone explain all these anomalous cases, so that everyone can understand? And without using formalist tricks like multi-dimensional mathematics! FOR, will Pure Mathematical idealism, and both-pluralistic Science and Formal Logic be the only means, once again?

The Holist stance alone has the potential to explain these problems and contradictions, but there’s a lot of work to do.





Cosmic Time and Space

How the finite Speed of Light straight-jackets available Space & Time Measurements

Let us consider further what we actually see through our telescopes, as we delve ever deeper into Space.

First, we can have no *immediate* idea just how far away anything we are looking at actually is!

And, in addition, because of the finite Speed of Light, exactly what we actually see now, will not only depend upon how far into Space we are looking, but also, as these distances are truly vast, so the light always takes an appreciable time to reach us: so, we will certainly be looking at a particular object as it was some time in the past, and NEVER the current situation now at that place.

Our journey into Space, via such observations, must unavoidably also be a journey back in Time!

But, to compound the difficulties still further, the Transparency of Space allows all things that are in the same general direction to be seen simultaneously, and totally independently of how far away they are, and hence from what prior and different Times we are seeing all of them from then, though apparently all together now.

It is, therefore, a very different discipline to how we conduct Science on Earth, isn't it? Not only can we never intervene in material reality, as we do in the Laboratory, but also not knowing how far away, and from when, what we see actually came.

Clearly, very different and unavoidably indirect ways of assessing distance had, somehow to be found, for though very close objects could be estimated by taking directional barings from the earth, (most effectively

when it is on exactly opposite sides of it's orbit around the sun, for it would then involve the using of known distances and some geometry to calculate the required distances involved). But, for larger distances-away, even this would never suffice! And, means like oscillating Cepheid Variables and Type A1 Supernovae would have to be used as "Standard Candles", along with their varying brightnesses to estimate distance (though necessarily also involving bootstrapped suitably-close Cepheid initiators - with their distances calculated geometrically, to enable the initiation of a process for an estimate of the far distances to be found).

And, even with these aids, as we proceed upon such a Journey into Space, we also leave behind a truly vast wedge of totally unknown Space/Time, of which, any particular view is only ever able to deliver a very-short-time-interval for every selected single individually seen object that we reach, but even so we don't know immediately what that is.

For, in every single View there is inevitably also an amalgam of all the other included visible objects, delivering their light, initially from very different distances away, but now, in this view unavoidably superimposed, and arriving simultaneously within that particular Line-of-Sight. Indeed, our journey would commence via any immediately-past viewable situations close to our viewing position, while any attempt to study-the-history, of that, and, indeed, any other subsequent points in Space that we can see, will be totally impossible - for "each-viewed-point's-own-time" necessarily unfolds at the very same speed as our-own-observer-time: so to see what happened, say, over the following year, at that same position, we would have to stay, looking through

our telescope, at that position, for the same full year that it would take, for our view to deliver it! How do they cope? It seems impossible.

NOTE: There is, of course, the famous Redshift of light, which (via the Doppler Shift phenomenon) is thought to reveal speeds of recession away from us, at the precise time then, that we are viewing it now: but not everyone agrees with this! There is increasing evidence undermining this interpretation of Redshift, which I have written about elsewhere.

So, to get even small chunks of past histories of an object at a particular distance away we would have to be recording everything continually, for each relevant particular point in Space, and we would have to do it for as long as we would want our to-be-studied history to be: and in addition, all simultaneously-viewed objects from other times and distances would unavoidably accompany our chosen object and it's time. So, it is never a simple ongoing observational exercise!

NOTE: You cannot distinguish Times and Distances categorically, for, all views included will only actually change at the common-to-all, same Speed of Time-Passing then, as the observer is also experiencing now.

You can also see why Earth-based telescopes were gradually replaced by constantly orientate-able, recording telescopes in Space!

Indeed, all visible objects, occurring at all distances away, within that view, would change at the very same rate for absolutely everything viewed, but the various distances away in that recorded footage might, with care, be discernable by comparing lateral speeds, if such were measurable, but sadly they are generally not.

So, within such a trawl, ever-deeper into Space, every succeeding view will always be, as you focus upon a cosmic object, like a star or galaxy, from an earlier time, and though it will always be from a long-gone-time ago, you will still see it exactly as it was then.

But, as it actually turns out, the viewed movements are so tiny, that we only ever effectively glimpse the equivalent of stills from the past: and we certainly don't see any dynamic events actually playing-out, because we can only see them at the rate of the Natural Flow of Time, and even the whole lifetime of the observer would still

never be long enough to see anything significant at all! The difference in timescales is vast.

And, also we only ever see what is visible from a particular position at a particular time: the complete past-history from that position will have already passed our viewing position, so is totally lost to us, whilst it's future performance, beyond that time, has not yet had time to reach us!

So, this being the case, however do we manage to conceptually arrive at over-time conceptions of Dynamic Events from the past, and also somehow acquire their involved speeds of translational movement?

For, we cannot directly measure such speeds of change: we never have the necessary access to be able to measure such things directly. And, similarly, we don't have any access whatsoever, to any of those dynamically-changing Events: we merely have a collection of separate stills, and crucially all of them can only be from different objects, occurring at different times, and, therefore, unavoidably contained NOT in the same continuing process, but in different, but only supposedly similar different Dynamic Events. We "construct" an Artificial Model of a Continuity, out of a series of many totally unconnected moments from elsewhere in the Universe!

It can, therefore, only be that we make "extrapolations" over many different stills, but never from the same object: they will always also be from many different galaxies, and then, we form from them, only, generally-conceived-of-motions: but ALL the individual positions-used will be from different Times, Distances, Positions and even Galaxy forms.

So, we finally arrive at the nitty-gritty!

The then usual subsequent fitting-up of a Perfect Form taken from Mathematics, into an Ideal Formal Equation, could never be anything other than an unreliable conceptual "rig-up". Why do they do that? It seems wholly illegitimate!

It is because they believe that Ideal Mathematical Forms actually *underlie* the whole of Reality! It is considered to be the same absolutely everywhere for all real situations, and so, because of this "it doesn't qualitatively change": it is, then, a totally pluralistic view, which, they believe, "legitimises" their methodology.

And, in addition, as the data from changed-light-frequencies, was used to indicate speeds, via assumptions of Doppler Shift alone, it too must be similarly unreliable as assuming the same General Pluralistic Mathematical Context for such changes. As, Halton Arp has ably demonstrated, there could be other causes for the crucial Redshifts involved.

A possible conclusion?

Now, I am, hopefully, finally-homing-in upon the necessary conclusions about the now-universally-agreed "sudden" acceleration of the Expansion of the Universe, fairly recently "observed". Is this, also, derived from redshift measurements, for, how can they look at the same galaxy at different times - for later views will have long passed us, while earlier views have yet to reach us! Once again, are different galaxies being used as "general evidence" for constructing individual-histories, as no direct real histories are available?

AN ASIDE: For such is only justifiable in a pluralist world, where things are fixed, but wholly inadmissible in a holist world, where things are determined by context and certainly evolve!

And, as these are based upon new, much-deeper-into-the-past, as well as further-into-the-distance observations, than ever before known, we would be using evidence from earlier in history than ever before to highlight a "later acceleration?"

Some years ago, addressing closely-related questions, I developed two diagrammatic means of displaying the same two, though very different relational considerations, namely:-

1. All times and distances from the Big Bang and
2. Times & Distances from the earth, of observations made from the Earth.

These enabled some very useful extractions to be made then, when related to one another, about other Cosmological questions, and clearly something related to those diagrams will be essential in addressing the problems outlined here.

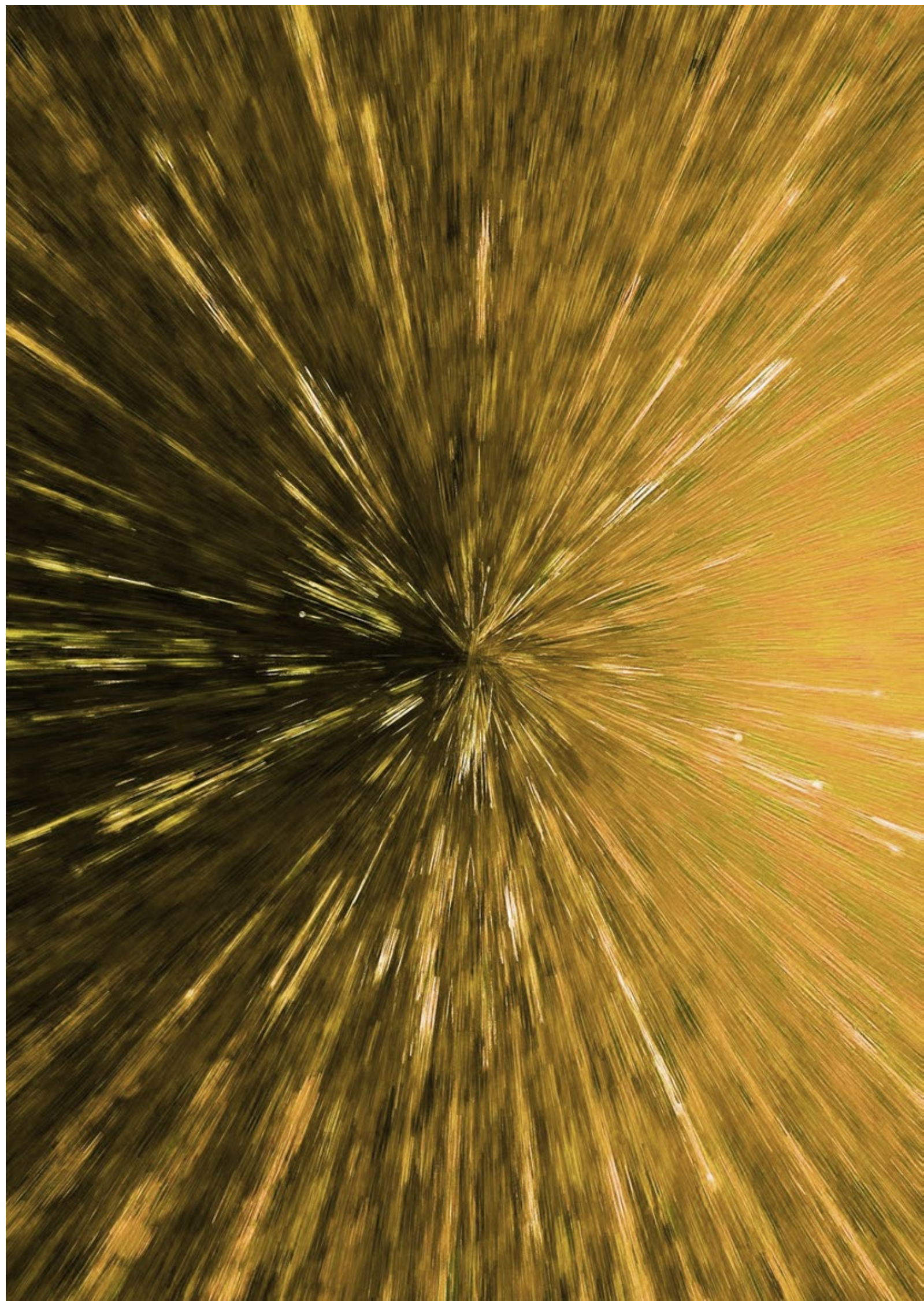
First, any such investigation will NOT be using the usual pluralist assumptions. Second, it too will be using relational models based upon two different reference frames, and unavoidably, therefore, using only selectively-included information. Third, it will also assume a non-empty Space: indeed a Universal and Finite Substrate with such an entity's varying properties - depending upon current Contexts

- how far away from the position of the Big Bang!
- with terminating changes at the periphery
- Total Internal Reflections of Light at the edge
- Different Phases of the Substrate due to Contexts

Clearly, the Accelerated Expansion must be what is happening now, and relate to a change in the currently encountered Substrate, compared with its prior states! For, similarly, the very early Inflation Phase would indicate an initial difference, in either what the expansion encountered, as well as in its own composition, or even maybe both of these together.

It almost infers a full-three-stage-expansion, with an initial Substrate outflow preceding the Main expansion Phase - at which an initial minimal substrate content, spreading into absolutely nothing. Then involving a heavier content spreading over, and modified by traversing that prior Substrate-only expansion, and then latterly, that same expansion, but finally into an increasingly dispersed Substrate once again.

Thus, delivering yet another eminently possible scenario explained wholly physically via a Substrate, as was previously achieved with the Double Slit anomalies too.



The Nature of the Big Bang

As far as we can speculate... which isn't far!

Though purely speculative, this paper has to start from somewhere already established in present day Philosophy and Science, so this theorist could do no other than use as an indicator and model his own *Theory of Emergences*, which he finally produced following a lifetime's work, almost a decade ago. Drawing on Marxist theory and Evolutionary Biology it remains the best general explanation for the emergence of the wholly new.

All of current Cosmology depends greatly upon what we conceive of as The Big Bang. For, it alone must deliver everything that will finally result in the Universe as we know it today. The suggestion that it was some sort of Cosmic Explosion is currently universally-and-energetically rejected by the majority of present-day cosmologists, though exactly why that should be the case isn't entirely clear.

Now, it has to be said, that such a consensus among that "group of experts", certainly does not fill the rest of us with boundless confidence that they have it right, or even that they know what they are talking about at all! Indeed, crucial features of the actual Origin Event, include the assertion that the essential pre-requisite - the actual prior-and-necessary condition, for that vital Event to actually occur, wasAbsolutely *Nothing*(?) While the necessary context within which that remarkable Event could occur was, once again, only possible within Absolutely Nothing!

Not exactly the most-promisingly-rich starting conditions for producing a seemingly infinite Universe, full of both energy and material developments, is it?

It was supposed to self-generate out of Nothing-as-Source and into Nothing-as-Place!

Forgive me, but that sounds awfully like a religious miracle - introduced from "elsewhere" by some Supernatural Power, enabling Absolutely-Nothing within Absolutely-Nothing, to somehow actually create Absolutely-*Everything*!

And all of this certainly isn't at all in the past tradition of scientific thinking achieved by the 21st Century: it just isn't a reasonable hypothesis at all.

"Ah! - but you are merely harking back to the old, and now universally rejected, theories of the past, before the Transforming Intellectual Revolutions that transformed absolutely Everything in the 20th Century!"is my imagined response from the Copenhagen physicists, who were those that finally "revealed" The New Essential Truth! How could anyone come up with such stuff?

If you are a current Copenhagen physicist you will know the answer to that - because it could only come from their final-and-complete rejection of Physical Explanatory Science, and its total replacement by the *Mathematics* of Quantum Mechanics, following the radically transforming adjustments of Niels Bohr and Werner Heisenberg in rejecting qualitative Causality in the Sub Atomic Realm, for a general Indeterminacy from a form of Wave/Particle Duality, occurring universally at that level - and deliverable only by an illegitimate amalgam of both purely mathematical Probability & Wave Theories alone.

Now, the rot set in very much earlier, in Ancient Greece, at a time which, today, generally, only receives universal praise, and though that was indeed both fully justified and understandable, such an assessment, of the crucial time in question, did also succeed in hiding-away its significant detrimental features, beneath the other clearly enabling virtues coming out of that same important Intellectual Revolution.

It was, of course, in that lauded Greek Intellectual Revolution, of the 5th Century BC, in which that extended and transforming Event both enabled the construction of the very first Intellectual Disciplines, based upon a wholly new kind of Abstraction, while it also laid the basis for irredeemable flaws in both Reasoning and Science, surviving totally uncorrected even beyond the following two millennia.

Of course, those involved could not be blamed for the damage, for compared with the state of Thinking before that revolution, what it imparted to intellectual life was certainly totally transforming, and what they achieved, warts-and-all, was still enough to embark Mankind upon wholly new lines of significant development.

So, what was good and what was bad in that Greek Intellectual Revolution? The real gains came from a new kind of Abstraction that for the first time delivered the elements of an area of study that were both common to everything involved, and yet were also mutually relatable.

They have been termed “The Essences”, but that would definitely be overstating it: they were in fact simplified relatable Abstractions, and to reveal them as they first appeared to the Greeks certainly dismisses them being termed Essences, for they were the extracted features recognised within Shapes as so-called Points, Lines and Planes. They don’t initially seem very important, until you actually clearly define them:-

A **Point** precisely defined a precise Position, but involved NO extension in space whatsoever.

A **Line** defined a connection between two Points, without having any thickness at all.

A **Plane** could be defined by a Bounding Series of Lines, but again had no thickness.

They were total Abstractions. And, they could indeed be related to one another to construct all Shapes, without the difficulties that would be incurred with their concrete-real-equivalents: for these were indeed Abstractions: they could not exist as such in concrete Reality, but nevertheless carried within their abstract versions all that was needed to build the relational Discipline of Euclidian Geometry! Their disembodied forms could be both represented by drawings, and conceptually manipulated very fruitfully indeed.

And, extended to all kinds of such forms, they could successfully define the very first Intellectual Discipline - called Mathematics, where Theorems and Proofs could extend its forms forever!

And, that last point is tremendously significant, for unlike Reality the new implied context-and-content was both potentially infinite and consisted only of these simplified relatable Abstractions and absolutely nothing else! It was, at best, only a limited Reflection of Reality, with none of the latter’s Properties or concrete-potentials: it defined an idealised, purely formal World, which was later termed as Ideality.

But, nevertheless, it instituted the possibility of other Disciplines also having such relatable and hence developable features. But, it also had a truly major restriction! Its relatable elements had to be permanently fixed. And, this was embodied in the Principle of Plurality. Now, this was, indeed, clearly OK for Mathematics, but deleterious for many other potential Disciplines. Yet, the Greeks were so enamoured of its developmental power, that they exported its developmental methodology (including its Plurality), first to Reasoning, and thereafter to Science too! So, in making them fit that required functionality, resulted in *fixed* concepts in Formal Logic, and *eternal* Natural Laws in Science.

Now, as long as only wholly stable situations (with unchanging components) were being dealt with, these limitations would be OK: but with any kind of Qualitative Changes whatsoever, and, of course, with all Developments, they would NEVER be addressable by such means! This extension of Plurality to include both Reasoning and Science, significantly held-them-back for literally millennia, but also still enabled productive gains to continue to be made, but only in carefully constructed and rigidly controlled situations. So, Plurality proved to be no constraint upon appropriately-organised, technical

productions, though it unavoidably significantly restricted and damagingly distorted all attempts at a Scientific Theory. And, while formal Logic could still deal with qualitatively unchanging situations, it could never ever cope with Real Development.

Now, the enormous extension necessary to correct this flaw cannot be dealt with in full detail here, but the results, ultimately obtained elsewhere, will definitely have major relevance in all the main issues in Cosmology referred to earlier in this paper.

Suffice it to say, that the general solution elsewhere, namely Materialist Dialectics, will also be our stance in addressing the Big Bang and Cosmology in general.

Indeed, dominated by eternal Laws, how could Science ever attempt to encapsulate the on-going, dynamic trajectory of the miracle of dramatic-qualitative-changes that undoubtedly IS Cosmology.

And, the Problems arise most markedly, and obviously, with the Big Bang itself!

For the assumption of truly eternal Natural Laws means that they must, in some way, actually *pre-date* that Event: and that seems to mean that laws also predate Matter, and Charge.

This makes no sense. What are disemodied laws without matter to act upon? There must have been something there before. And, whatever that is chosen to be, it too would itself require an Origin.

The Year Dot can never be a reasonable assumption! The “beginning” is always endlessly deferred.

Just as Everything out of Nothing is also totally unjustified! But what else do the pluralists have?

If you think about their attempts, they MUST start with eternal Natural Laws that somehow *generate* everything else: but that is, undoubtedly, a totally Idealist starting point.

Yet, with the alternative Holist Stance, “Laws” are defined by their Contexts, however vast and ancient, and will emerge as those contexts both change, proliferate, and interact: and what will all this be producing initially?

It has to be in the Original Emergence of our Universe!

Indeed, if the many discoveries of the dynamic trajectories of Emergences occurring later in that Universe are symptomatic, then something similar will have had to occur at the very “beginning” - indeed occurring multiply, one-after-the-other, and in quick succession - a veritable avalanche of Universal Emergence!

With the *Theory of Emergences* (2010) - (as the only currently-known creator of the wholly new), it should give us some sort of guide, for at least a part of that evidently extended Event. For, it alone actually tracks a “possible” Emergence of Order out of Chaos, via its turbulent path to a series of temporary, if persisting, Stabilities, and even their ultimately inevitable dissociations, first via Crises, and then total dissolutionary Collapses!

But, clearly, those examples from today will never simply fit what happened at the earliest moments of the Universe: indeed, a substantial measure of developments and of variety will always underpin every modern-day Emergence, and the Stabilities, so achieved, are likely to persist much longer today, due to their self-maintaining complexities, than they would have done then.

It seems inevitable that when such creational processes occurred, very early in our Universe, any intervening stabilities would inevitably be of short duration, and be likely to increasingly occur as multiple and simultaneous sets of processes.

So, those, as a part of that early phase, would not be directly relatable to modern cases! It seems inevitable that the earliest processes would be very different, because of the paucity of processes available to become involved.

An initial First Stage would, therefore, have to be on a Different Basis, starting with multiple small events as necessary pre-requisites to any ultimate classic-type Emergences.

So, what could possibly be the very first initiating Event? It just couldn’t be out of Absolutely Nothing!

But a totally-dissociating Universal Collapse, does deliver! The only probable situation that comes to mind, following such an Event, would have to involve two entirely contradictory but essential features.

1. Totally-unorganised, yet rich Chaos with a still-active dissolatory process keeping it that way.

2. A kernel of “building” processes which survived that dissolatory collapse and begins to build the new

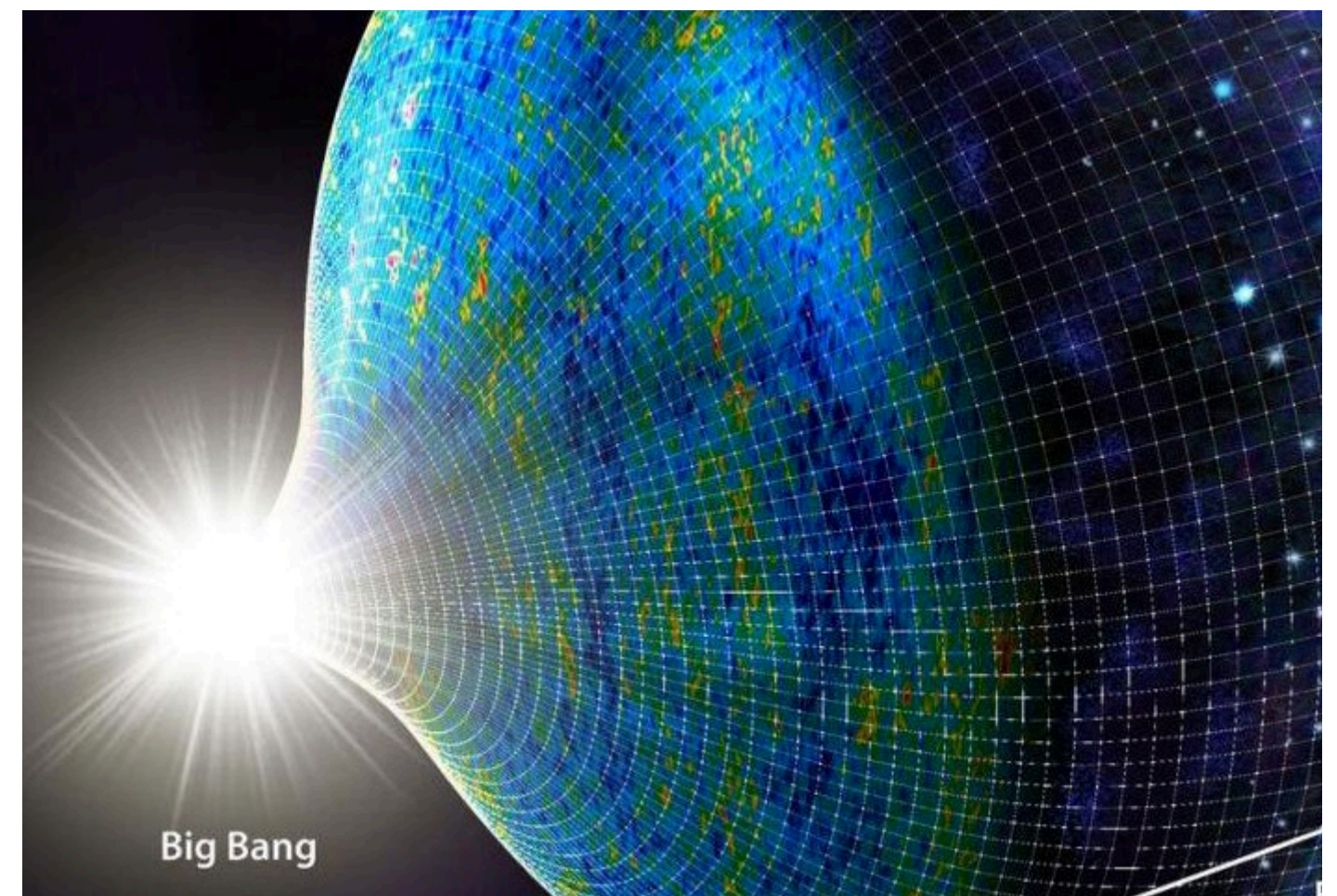
Notice how these two opposite processes will ultimately come together to deliver the classic modern Emergences as described in 2010. Yet, even so, they would need something to act upon. “Nothing” cannot be the Starting Point!

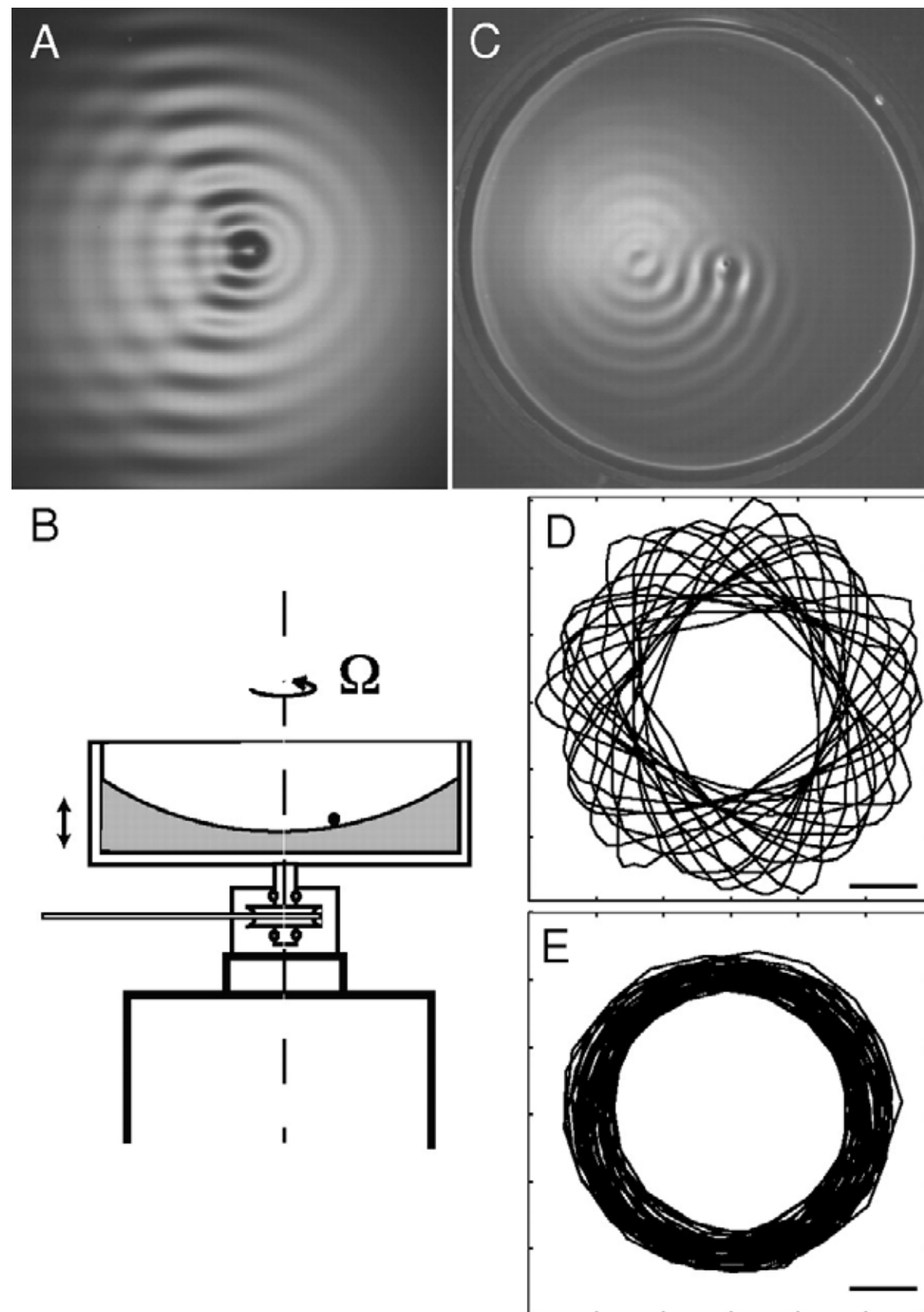
There just has to be a Pre-history to produce the “Big Bang”, a previous Universe - no other explanation stands up to scrutiny, or gels with our general knowledge of how new things come to be.

Postscript:

Now this initial venture cannot be left without a final condemnation of how Modern Science got into its current Terminal Impasses. For, it is most certainly based upon its abandonment of Explanatory Causality for pure Pluralist Mathematics as the Answer to Everything: as long as some formal description could be pragmatically fitted-up to real Events, without any qualifying and explanatory physical Causes, they would ultimately, and idealistically replace them, to absolutely guarantee their ultimate Total Failure.

I am convinced that even our naive concept of a Beginning is an unavoidable placeholder for some sort of Mighty Revolutionary Phase, which is currently, in spite of being wholly beyond Explanation, due to myriads of the unpredictable outcomes of transforming Emergences, instead embodies it all in The Big Bang, and having only Pure Speculation, and the Infinities of Mathematical Idealism as options for Myth Building around such a supposed Event!





Couder's Experiment

Addendum

A series of significant consequences of recent additions to the above paper, along with other older research elsewhere, have been realised, since it was completed, and should be appended to it, as they are of real significance.

It primarily concerns Yves Couder's brilliant "Walker" Experiments, which involve a liquid substrate but, surprisingly, absolutely nothing else! Couder's reasons were initially not clear, but his results were devastating, so before drawing the recently arrived at conclusions related to the Big Bang paper, I should detail some of the gains made by Couder in his experiments.

Couder successively reduced the elements in his initial experiment until he had nothing left but his chosen substrate of silicone oil. Clearly, he was rightly preoccupied with such a "substrate" as a truly active participant in all experiments including such a component: so he chose silicone oil, for several reasons - it located his experiments in the Macro World, and by involving a liquid substrate, also made all effects easy to observe, and with such a choice having the appropriate characteristics to display any phenomena that would be clearly delivered by the Substrate itself, when Energy of various kinds was delivered to it. (I assume that he did it to move the effects of an invisible substrate out of the unobservable Micro Level, in order that they would be easily visible, and probably was looking for a Macro analogue, of what was going on at the micro Level - within atoms for example.)

Whatever he originally attempted, did not deliver what he desired, so ALL material additions were dispensed with: and he started by simply applying a sustained, vertical oscillation the container for his oil. The substrate was not significantly changed by this - it just moved up-and-down in concert, without any evident effects!

So, to minimise his second insertion of energy, he decided to achieve it with a single drop of the very same silicone oil released vertically onto the surface of the oscillating tray of oil. To begin with it just got absorbed, but by varying the size of the drop and the height from which it was released, he finally got the drop to bounce! Continuing his adjustments, he finally got the drop's bounce to synchronise with the oscillations of the tray, enabling the drop to bounce continuously.

And, gradually, new things began to happen within the substrate itself! A series of declining Standing Waves began to build up in the substrate, surrounding the bouncing drop! And he found that his "Walkers" - as he called such emanations, began to move about and even bounce off each other. They also, somehow, seemed to "leave-a-track" in the Substrate, which caused them to follow one another, or even form serried ranks as if they were influencing one another.

But, all that was there was silicone oil, but now recursively self-structured by the added energy of the bouncing drop of the same stuff.

NOTE: Elsewhere, in theoretical research upon substrates formed from mutually-orbiting pairs of Leptons, with diametrically opposite properties, this investigator soon discovered that the Units of such a Substrate could self-structure-themselves into various very different forms - for example, as a pseudo-solid form, or alternatively as driven liquid-like Streams, or even stationary or moving but constantly rotating Vortices. Later, different but similarly-constructed, Substrate Units were also found to deliver both Electrical Fields, and even Magnetic Lines of Force - entirely as emanations of the Substrate in response to charged and/or moving interlopers!

Clearly, such substrates were a great deal more than passive hindrances: they were both affectable-by and effecting-of what occurred within them.

And, they could indeed support local-maintained-structures just as James Clerk Maxwell had actually assumed, in his Analogistic Model of the Aether, which though never confirmed as having that form, STILL enabled his derivation of his famous Electromagnetic Equations, which are still used to this day!

The inner structures of Substrates were very slowly emerging as crucial contributors, in their own right, to what occurred within them!

Indeed, by far the most exciting revelation by this theorist, was the alternative Explanation of Quantized Electron Orbits in Atoms entirely-due to a currently undetectable but effecting and affected Universal Substrate!

For, though Streams and Vortices would be only transitory phenomena when caused by merely linear passages through the Medium, when these were constantly repeating Orbits, as in Atoms, they could be maintained by picking up energy on each cycle, and occasionally paying it back to the Electrons, until a maintainable balance was achieved - a Quantized Orbit!"

And, of course, an undetectable Universal substrate composed of tiny, mutually orbiting Leptons, that because of their diametrically opposite properties, would indeed be entirely invisible and undetectable, so the Propagation of Electromagnetic Energy would simply be Bucket-Brigade sequential transfers of individual Quanta via a loosely-linked version of the Substrate - termed a Paving! As it happens, Pair Productions and Pair annihilations involving Electrons and Positrons, are also explained by the very same Substrate Units.

Indeed, in extensive researches dedicated to investigating the theoretical possibilities of undetectable substrate units, a whole hierarchy of levels within such a complex, multi-unit and multi-function Substrate has been established theoretically, and experiments like those of Couder are promising an extensive confirmation in time!

These are not all the products of this theorist's work alone. The Neutritons and the Magnetons are my inventions, however that conception of magnetic fields in space was originally introduced to me by Mohan Tambe, while the idea of "Aetherial Particles" causing gravity was developed by Glen Borchardt.

The original inspiration for the heterogeneous substrate came from James Clerk Maxwell's conception of the Ether, a diagram of which is included below.

Notice that his substrate is also heterogeneous. It is composed of static "vortices" and moving "electrical particles". So if we admit a certain amount of Objective Content to Maxwell's discarded model (remember we still use his derived equations for electromagnetism), we should at least attempt to update it - including our current suggestions as to how a universal substrate could remain undetectable.

And crucially we must not lose sight of several important properties of our proposed components (above).

First, they are all, either individually, or in-collection, neutral in all the usual measurable ways. But, they act together differently.

The neutritons form a relatively static paving (see Schofield). While the magnetons normally form a random, gas-like cloud, wherein it magnetic properties cancel out (see Tambe), but when concentrated by the presence of a charged particle, will gather around it, in concentric shells, to deliver a Field.

Also, in the presence of an externally applied magnetic field, these magnetons will line up along so-called magnetic lines of force. In fact, they are the actual cause of such lines of force, building chains outwards from some source to link opposite "magnetic poles" together, and in doing so create the Field.

Finally, the "Aetherial Particles" are considered to be in vast quantities, but extremely small, though of a vast range of sizes (see Borchardt). Their effect in space will be of cancelling out collisions, but in the vicinity of much larger masses, a shielding effect caused by net directional push forces, which are said to constitute Gravity.

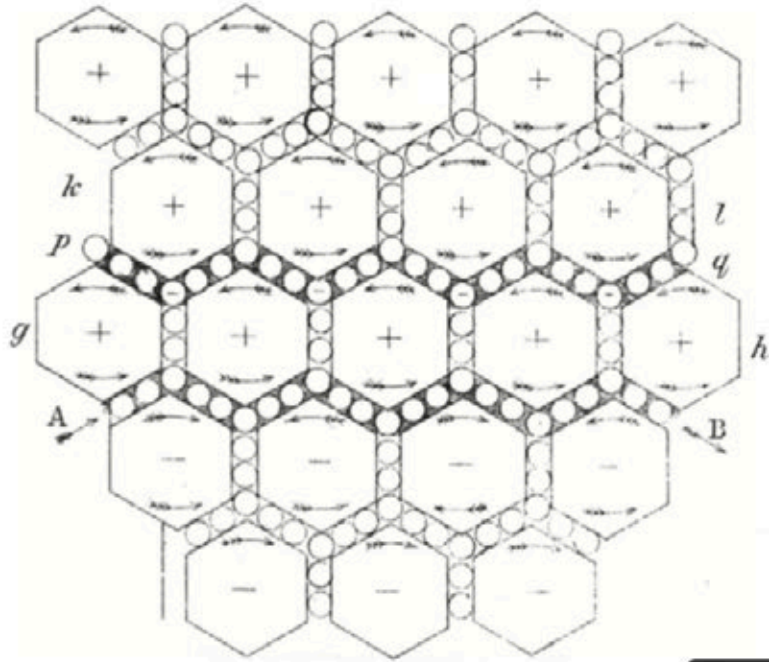
Now, clearly, just treating each set of these different components separately is a pluralist method. And, to an extent such may well be a reasonable ploy in Space. But, as soon as they are mixed with matter particles of much larger sizes, and even with driven flows of these, the situations will certainly differ markedly.

The problem to determine is "How?"

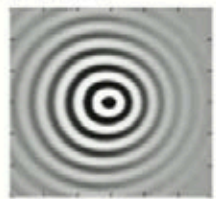
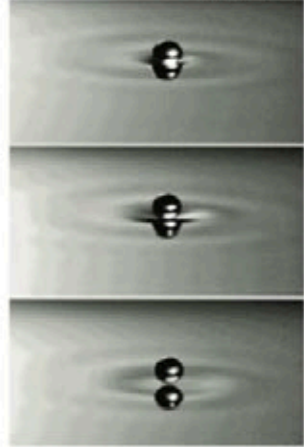
The only thing I can think of is to follow Yves Couder's lead, and construct at the macro level, experiments that enable us to investigate what might be happening at the micro level.

Of course, such a construction will not be easy. Couder, in his experiments, reduced his contents to a single substance - silicone oil, consisting of a falling drop and a vibrating tray of the very same oil. His active forces are mere oscillations, and with such a minimalist set up, you would think that what he actually managed to achieve would be impossible. But, the opposite was the case! He effectively removed any accidental causative inclusions, and his adjustments then boiled down to merely adjusting a few parameters of the various vibrations involved.

It was a remarkable effort, and amounted to a significant breakthrough in experimental methods. To succeed with our objective, will be even harder, for, somehow, we have to include three different components at different levels. But, as with all macro analogues of micro entities, it is unlikely that a single contrived set up will suffice. We are likely to have to take partial models, and then make the integration theoretically.



In the Couder-Fort model for deBroglie waves, particles "bounce" above or below a 2-D surface, due to an external energy of vibration which has been applied to the entire system



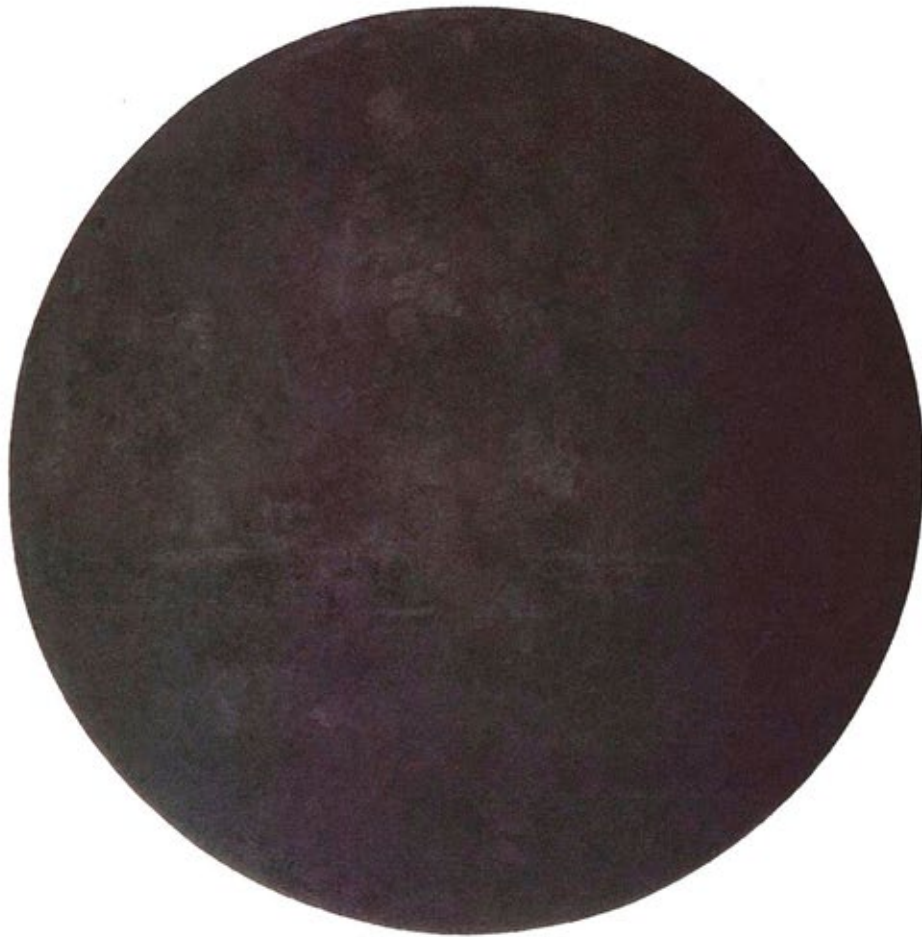
"deBroglie waves" created by bouncing oil drops



July 6, 1995 in crops



Couder's Experiment played an important role in the formation of Substrate Theory. A full definition of this theory will be published by SHAPE this year, in the meantime there are many essays and articles on the journal which chart the development of this alternative physics. The Atom and the Substrate (Special Issue 36) and Substrate (Issue 56) are good places to start.



Before the Big Bang

Can we really leave it open while describing its consequent performance?

The elephant in the room cannot be ignored any longer!

Despite all the exotic Mathematics purporting to describe the entire History of our Universe since the Big Bang, the question that still demands to be addressed is why it happened in the first place - and this question is always energetically sidelined as unanswerable, as if the claimed-to-be-actual Event of the Big Bang, itself, isn't also just as unanswerable, another exercise in total Speculation, dressed-up as science.

But, of course, Mankind's efforts in "clearly-valid-areas", for both investigation and theorising, must, at least, give us some *grounds* for informed speculation, even if we will never be in a position to confirm our musings scientifically.

And, there IS, of course, a pressing reason for addressing this question! It is the all-embracing takeover of the legitimate areas of scientific study in Sub Atomic Physics, by what can only be termed as illegitimate speculation - framed within a totally illegitimate methodology - namely the Pluralistic Formalism of Mathematics. For, having risen out of the still totally unresolved Crisis of modern Sub Atomic Physics, this same speculation has also been extended into a wholly unjustified Cosmology, and it must be vigorously opposed there too!

Indeed, there has always been areas of Reality, which, at certain times, in Mankind's own past History, when they had no other possibility but pure speculation: indeed when it was often the unavoidable first step to anything, by an as yet exclusively non-intellectual human population! But, it can also be attempted to interface with current knowledge and understanding, which had

previously been established - especially as an important part of any achieved coherence of such Knowledge, as will have been used in the revealing of developmental processes - how things naturally change intrinsically.

And, such must not only be used to ensure the coherence of current gains, but also to predict, on the one hand possible futures, and on the other, to relate, just how things arrived at their current situation. And, finally, to track ever backwards to some sort of ultimate origins.

And, this objective has become absolutely imperative to even continue with the means that we thought we had perfected, for all investigations and theorising NOW! Especially, as certain Key premises have latterly proved to be significantly mistaken - the primary one being that the Laws of Nature are forever fixed! And, also that ever deeper explanations will merely always boil down to ever more complex mixes of Eternal Laws.

For, if that premise is indeed wrong: and it most certainly is - the way back in time to ever earlier states will NOT be via totally unchanging Laws, but must involve some understanding of their actual and inevitable Evolution, for though the laws will change, the overall process for their continuing development will presumeably remain.

For, our initial assumption that mere quantitative changes could build up into purely cumulative qualitative change, has proved to be wholly incorrect. The really important qualitative changes occur in a very different way, indeed as the outcomes of energetically turbulent and entirely unpredictable Emergent Interludes.

The belief in simple backwards extrapolations was wrong!

And, a wholly different developmental process would have to be studied to have any hope at all of tracing backwards through such Emergences!

Indeed, it was the historian Karl Marx, who took the discoveries of the idealist philosopher Hegel concerning such qualitative changes, and then went on to identifying the Events in History when major Social Changes occurred, as occasions when such Emergences became actual Social Revolutions.

In attempting to reveal such processes as they had been in the past, and were still-happening, in the Economic System of his time, he therefore embarked upon a lifetime's study of Capitalist Economics, in his 3 volume book *Das Kapital*. But, in spite of his major achievements, his Dialectical Materialism was never incorporated into the systems of Knowledge-and-Theory of most societies at that time, and it has remained so today. But, though the reasons for this omission were largely political (Marx's conclusion was to constantly organise to overthrow Capitalism in a Socialist Revolution - not popular amongst the bourgeoisie!), his methods would never be allowed to take hold in any of the usual citadels of learning in any Capitalist Countries. And, that sadly meant in Science too!

But, there was another important reason: Holistic Dialectical research and consequent Theory was incomparably more difficult than Pluralist methods of analysis, so the epitome of all such Science, worldwide, remained totally pluralist, and remains so to this day. The easy Causality of Plurality will always work well in carefully-designed and rigidly controlled situations, which can be achieved in many Experimental, and even their consequent Productive situations, so that's what they continued to do.

But, clearly, in all real developmental sequences, and in which the significant changes always occur in totally opaque Emergent Interludes, NO actual articulations of Causality are evident, without a sophisticated and essentially dialectical Theory and Practice - so, instead, purely speculative and artificial causal connections, are made between simplified initial situations, and their actually dialectical results - which are always concocted-to, and throw absolutely no real light upon the actual cascade of actual Emergences involved at all!

So, added to the fore-mentioned impossibility of unfettered, experimental investigations, such a disability in Theory made, and continues to make, the speculations in Cosmology very wide of the mark, and useless as any kind of narrative of the True Evolution of the Universe.

So, what are the conclusions for Cosmology?

Most of what is presented as the pre-history of the Universe is pure pluralist speculation, so it must be cast aside!

What, however, might deliver a series of snapshots, of a multiply, and actually-generally-occurring process, could be available in the instances from all over the seen Universe, especially as the finite Speed of Light does also give us views of many past times, as the light from those times is only now reaching our telescopes.

But, as with the fossil record in the rocks beneath our feet on Earth, the interpretation of those stills into actual developments will often be both simplified and wrong.

Without a truly profound knowledge and understanding of many dialectically addressed Emergences, which can only come from re-interpretations of earth-bound developments, in particular achieved by very different Experimental Methods.

The failure of Stanley Miller's ambitious Experiment in attempting to reveal some of the chemical processes prior to the Origin of Life on Earth very clearly demonstrates the key problem: as constant regular monitoring in carefully-designed, physically-constrained alternate flows through the system, would be vital in giving initially only fragments of what might have happened, and which mostly would only deliver how to re-construct the Experiment, with new particular objectives.

In fact, only very many such oft re-designed runs would be absolutely essential, in order to deliver what would be required for a full Dialectical explanation. But, those experiments would be in do-able circumstances - always impossible in Cosmology.

So, once again, the only real evidence for developing an applicable general idea of qualitative change, would have first to come from just such carefully-designed, but relatively fast-changing developable experiments.

Clearly, long before such ideas could be applied to Cosmology, they would have to have literally become legion in terrestrial experiments.

NOTE: But, earthbound and therefore controllable dialectical experiments could indeed supply appropriate and dependable analogistic models for Cosmological developments

But, nevertheless, even now, there are things about current cosmological theory, that are so basically untenable, that they should already be subject to major criticism!

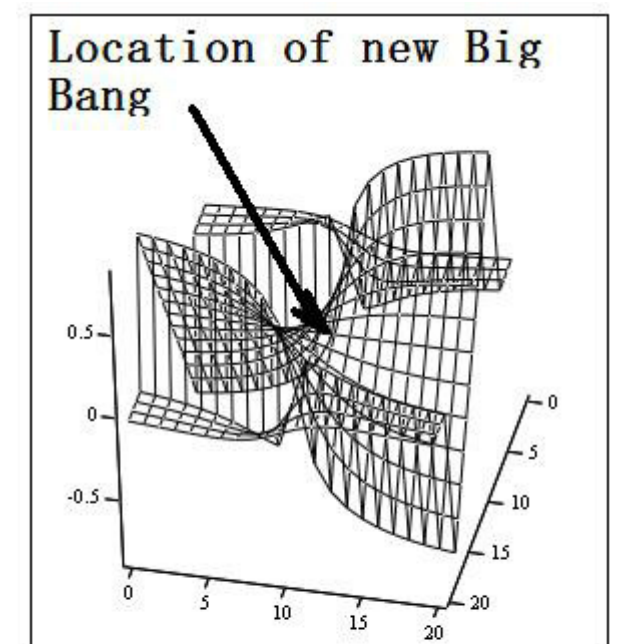
The very idea of a totally non-explosive Big Bang, both out of Nothing, and creating its own space as it goes, just have to be opposed. Space itself cannot expand, as it is our pluralist invention, another Abstraction we have developed to help deal with an incredibly complex material reality.

There would certainly have to be, for a materialist, a previously causing physical situation, at the very least.

So, having the Big Bang without any precursors must be nonsense.

They have even dreamed up Branes, in a higher dimensional Space, which caused our Big Bang by a mutual collision between Branes! And, they can always find-a-form in such a "space" as it is supplied by Ideality, to deliver whatever they need: that's its primary virtue, and "proves" that it is the prime mover of everything.

As it stands Cosmology is largely an idealist fantasy.



Collision of M-Branes leads to a new universe from.....NOTHING!

The Possible Origin of the Universal Substrate

In thinking afresh about The Origin of the Universe, it seems to me to involve at least two contributory stages.

The non-explosive expansion into the Empty Void seems to be an entirely speculative starting point, and requires some profound physical-and-dialectical considerations of what we actually know exists today, and might throw at least some light upon what may have happened then after all there is no doubt that they are definitely related!

The two most important ideas which must be addressed, have to be those concerned with those early Propagations and subsequent Development: for, if it wasn't an explosion, the assumed Origin would seem to require some sort of enabling Substrate, to facilitate at least a part of the required Expansion. And, even more importantly, to involve a whole series of developmental Emergences to actually deliver the sequence of all the necessary initial processes involved.

For, otherwise, you are limited to delivering everything cumulatively merely by those applications of the currently-assumed eternal Natural Laws, available from the outset!

The reasons for these qualifications have emanated from my previous extensive researches into a sought-for invisible Substrate, in order to overcome the existential Crisis in Modern Sub Atomic Physics caused by the retreat instituted by the Copenhagen Interpretation of Quantum Theory. So following extensive successes in that endeavour, it clearly then required a turn to address that crisis's consequences in Cosmology also.

The previously enabling Substrate in Sub Atomic Physics, could also be tested out and even perhaps improved in this demanding area.

It had been formed entirely from a variety of Units, all of which were composed out of two diametrically opposite and very tiny Leptons, mutually-orbiting one another, and thereby enabling the Propagation of Electromagnetic energy by Unit-to-Unit transfers - involving the demotion of an elevated orbit in one Unit-pair, to then be absorbed into the promoting of the as yet unpromoted orbit in another Unit-pair. But, of course, the Developments involved in producing that initially, have still to be devised!

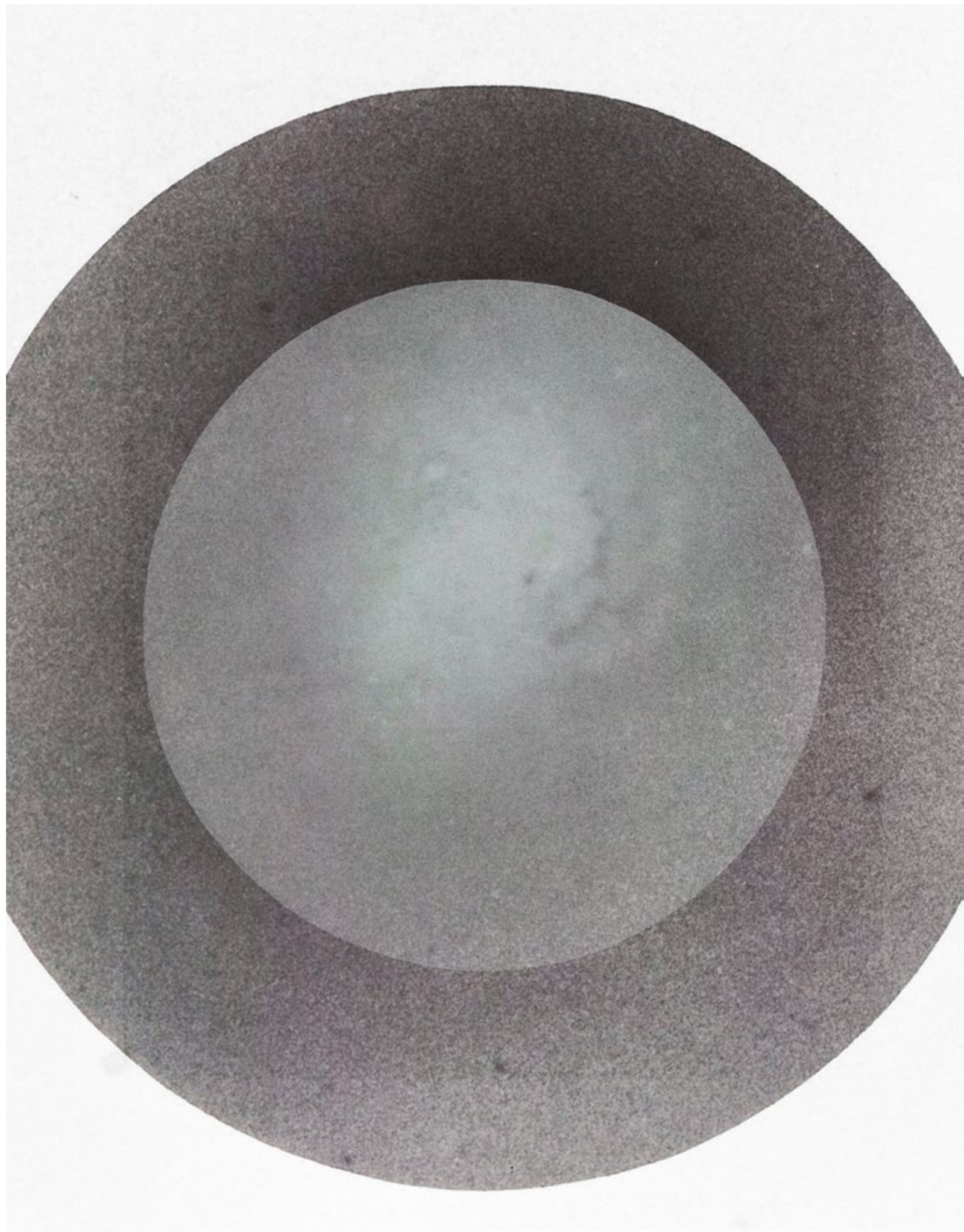
The reason for an interest in such Propagation, is that there is no requirement for any extra facilitating energy: as, such a kind of energy transition is entirely self-energising, involving a simple downhill energy transfers, yet if repeated over a whole series of previously unpromoted units, would actually deliver a "potentially infinite" series of transfers at absolutely NO extra-energy cost, above that of the actual propagating quanta themselves.

Now, of course, this doesn't solve the problem of the mechanism of the supposed Big Bang, but let us run with it anyway for now!

Let us, therefore, begin by investigating the propagation of energy, via some form of substrate, which, itself, might have been already generated by some prior Event.

The above described example was initially of a Substrate of Neutrित्रons, each of which was composed of one negatively-charged Electron of ordinary Matter, and one positively-charged Positron of Antimatter, mutually-orbiting one another. Now, it has been shown elsewhere (by this researcher), that such Unit-pairs, if sufficiently close together, would, in spite of their overall-neutrality, nevertheless, form a loosely-linked Substrate (The





Paving), due to the mostly-internal properties of one sub-unit, within its Joint-Unit, briefly-but-regularly, affecting those within the other Joint-Unit. And, thereafter, by the above described means, then propagating individual quanta, bucket-brigade fashion throughout a sequence of Units oif The Paving!

NOTE 1: In a crucial investigation, to a point, very close-to and between, two of the Joint-Units, delivered at that point, two simultaneous, sinusoidal-oscillations - one magnetic and the other electrical, actually delivered by these cross-over effects, as the internal sub-units performed their orbits.

The conclusions drawn from these revelations, were that all the Units of such a Paving would oscillate-in-place in a complicated way about a position a fixed-distances-apart, both delivering the necessary stability, as well as the possibility of Propagation, and, indeed, also the fixed Speed of that Propagation determined by the regular gaps between Units.

NOTE 2: Now, these Neutritrons had been observed in the Tevatron ar Fermilab, where they were called Positroniums, and largely discounted as unstable: but in Empty Space, at low energies, and loosely-linked together as described above, in a Paving, they become stable, and equally spaced, so able to deliver Propagation at a fixed speed, determined by those common gaps - at the Speed of Light!

Now, this suggested Paving not only propagates quanta of energy with ease at the Speed of Light, but is also composed of very small and opposite sub-units, and hence totally undetectable electromagnetically. and even gravitationally as their matter-effects, as a everything-containing universally present Substrate, would effectively cancel out.

So, such an initial emanation, of such a Substrate, before anything more substantial (and therefore energy-requiring), seems eminently possible, and effectively solves the conundrum of Propagation in Totally Empty Space!

If the involved sub-units - the Electrons and the Positrons, were the initial products of the Big Bang, they would either form Neutritons, and a consequent Paving, or mutually annihilate one another, producing Energy, and thus allow the very early flooding of Empty space

with Energy held-in. and passed-between the promoted mutual-orbits within the Neutritrons.

And, at the same time explain the energy-transparency of pace physically.

Indeed, it should be also emphasized that all propagations and even Fields subtended in Space, are delivered by various other Substrate Units - all of which are built upon the same mutually-orbiting lepton plan, but producing both Magnetons and Gravitons in addition to Neutritrons.

And, finally, it must also be mentioned, that all of these different Substrate Units, can actually occur in different Phases depending upon circumstances, which, in turn, deliver very different situations and phenomena.

Finally, the presence of an undetectable Substrate would also hide a vast amount of matter within that Substrate.

The Substrate Universe

The Consequences of an Effectible and Affecting Universe

When considering the infamous Big Bang, with its rigidly Non-Explosive Initiation, we are informed (by those addressing such questions), that it is the Universe itself that has been expanding, following that Event, BUT what that Universe consisted of then is not known, and hence why and how it was expanding is also not known, though as we have some idea of how it is now, we ought to be able to say something about it then!

So, as the Universe now consists of matter and energy, we can assume something related to those were even present back then.

But, that unexplained expansion has apparently continued, but not without some breathtakingly-inconceivable variations in Speed - from the fairly early, and truly mammoth Inflation, via an interim period of fairly constant expansion, to the, much later, General Acceleration in the whole process.

The evidence for concluding this expansion seems to have come from measured Redshifts in the spectrums of light from cosmic objects, but because of the constant Speed of Light, and the current vastness of the Universe, we also not only look into the far distance, from our current position, but also far Back-in-Time too, so the light arriving at us now, is coming from older and older times as we look ever deeper into Space!

But, as holists, and Dialectical Materialists, along with the evidence available from the past, we must assume that then, as now, there must have been similar past developments, to those we are aware of now, and crucially, that the changes that will have occurred, will be similar to those that we have ample evidence for, which will

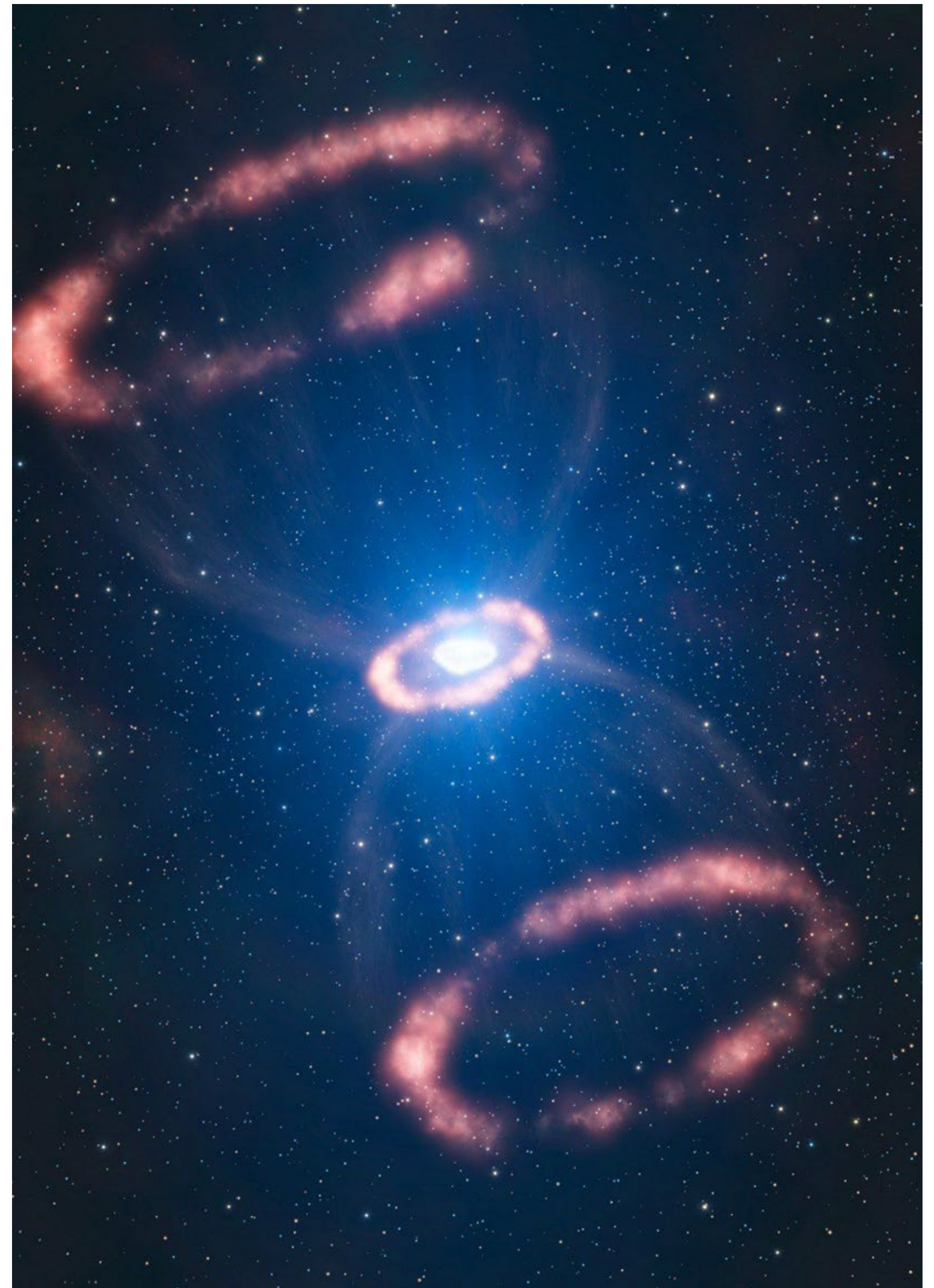
be the same kind of brief but transforming Emergences, always occurring in between longer periods of persisting Stability as have arrived within either totally-observable or historically-recorded examples in more recent times! So, we must assume that what we experience now are only the latest products of a long period of developments, so, what originally started the whole process, must both have been very different, but also capable of finally produced what we have now.

But, the only mammoth present day Events in the Cosmos, big enough to produce the simplest products are so-called Supernovae, which tend to both dissociate more complex forms, on the one hand, while also producing wholly new components by Fusion processes on the other!

NOTE: Certainly, there is evidence of Supernovae as far back as we are able to see, but the earlier ones may have produced different products than the later ones!

Now, clearly, all of this has not been given to us along with any kind of explanation, but merely as “descriptions-that-fit” current situations, and are surely-inconceivable without both an initial Cause, and also with something that such a Cause must actually be affecting!

Now, I have, as part of a more general undertaking, been addressing, for many decades, similar inexplicables within the Copenhagen Interpretation of Quantum Theory, and have managed to remove every single one of the anomalies of the famed Double Slit Experiments, merely by assuming the active presence of an undetectable, and hence invisible, Universal Substrate.



So, clearly, these currently inexplicable contortions in past Cosmology, might well be susceptible to the same sort of approach? And, especially if the same Holist, rather than the usual Pluralist approach is employed, which involves an affected and effecting Substrate, with one of these involving changes to the Substrate which later, in different consequent circumstances, could then affect the very same interloper that had affected the Substrate originally. And, clearly, such considerations are unavoidably holistic, and may not be evident until at a certain juncture, locally, where those changes finally produce the dominant causes in an observed situation.

Now clearly, these “cosmological features” are currently mere, unexplained inventions, with regard to Causes, and which were brought-in to accomodate otherwise inexplicable features of the Universe, as, of course, are all Man-devised theories (at least initially).

For, we, as merely naturally-evolved animals, can have NO direct access to Absolute Truth, as we were certainly wholly in-equipped, genetically, via Evolution, to even address such questions, and have had to painfully, and purely socially, devise always-necessarily-inadequate intellectual means to hopefully get ever closer to Reality, by revealing what is termed improved Objective Content (partial views or aspects) about our world - with the principle that any such alternative that explains more than the current theory, should replace that theory due to its being closer to the truth.

Now, the undetectable Universal Substrate of my alternative to Copenhagen, would, in addition, also surely be relevant to these cosmological questions as well, for it would supply, not only, to the thing affected, but also that which carries everything in the Universe along with it.

And, also, from that same prior research, it was shown that the Substrate could be transformed into several very different Modes or Phases - to, in addition, be itself structurally-affected, as well as clearly differently effecting those things occurring within it.

For example, the so-called Neutritron Phase of the Universal Substrate, could, in certain circumstances, form a loosely-linked, “solid-like” medium, delivering Speed-of-Light-bucket-brigade type Propagation: while, in very different circumstances, it could also have its composing Units dissociated into a kind of Random Gas, or even

a “liquid-like” driven Stream, or, maybe, multiple, persisting and rotating Vortices, enabling phenomena such as quantised orbits.

And, to cap it all, other Levels within that Complex Substrate have been shown to also deliver Electrical, Magnetic and even Gravity Fields, and even supplying the energy to make them effective.

Indeed, perhaps the most significant transformation was in the Causal Recursions between simultaneously-existing, different Phases within the Substrate, and even between coherent Levels within the overall multi-Level situation.

And, finally, the complete removal of an entirely inert “Empty Space” also significantly changes absolutely everything! For, there would be NO underlying “Stable Ground”.

Even the Universe, itself, could not be such, for though seemingly mostly stably expanding, it too, could suffer such inexplicable interludes as The Inflation, and the more recent Acceleration carrying all within it without any obvious explanation.

And, can we really terminate the currently assumed downwards sequence, of the multi-level Substrate, in the way that we currently do?

Having spent many years discovering, and then defining, the most general nature of Significant Qualitative Change, culminating in my *Theory of Emergences* (2010), as its most General Law, and thereby establishing an apparently generally applicable trajectory, to such changes, namely:- from Stability via Crises to a total Collapse, then to the Nadir of Dissolution Interlude subsequently delivering the Remarkable Creative/Constructive Phase which finally resolves into a wholly different and Higher Stability.

For, such a trajectory is evident in many, and perhaps ALL the Transforming Emergences - establishing Wholly New and hence Original Levels in Reality, all the way from the Life Histories of Stars to Social Revolutions in Human Societies!

Can we really terminate that downwards sequence, exactly where we currently do, and, in which all relations are eternal Natural Laws, and Emergences are seen as

mere summed complications of those fixed laws. And, nowhere is it accepted, that the creation of the wholly New, via such extendedly dissociative calamities could occur!

So, ALL the most important Transformations, such as the Emergence of Life, of Consciousness and of Human Societies, are wholly beyond the current pluralist stance and methods to explain.

Clearly, the three Phases occurring in the expansion of the Universe, are

- 1, The initial Inflation
2. The Normal Expansion Phase
3. The Accelerated Phase

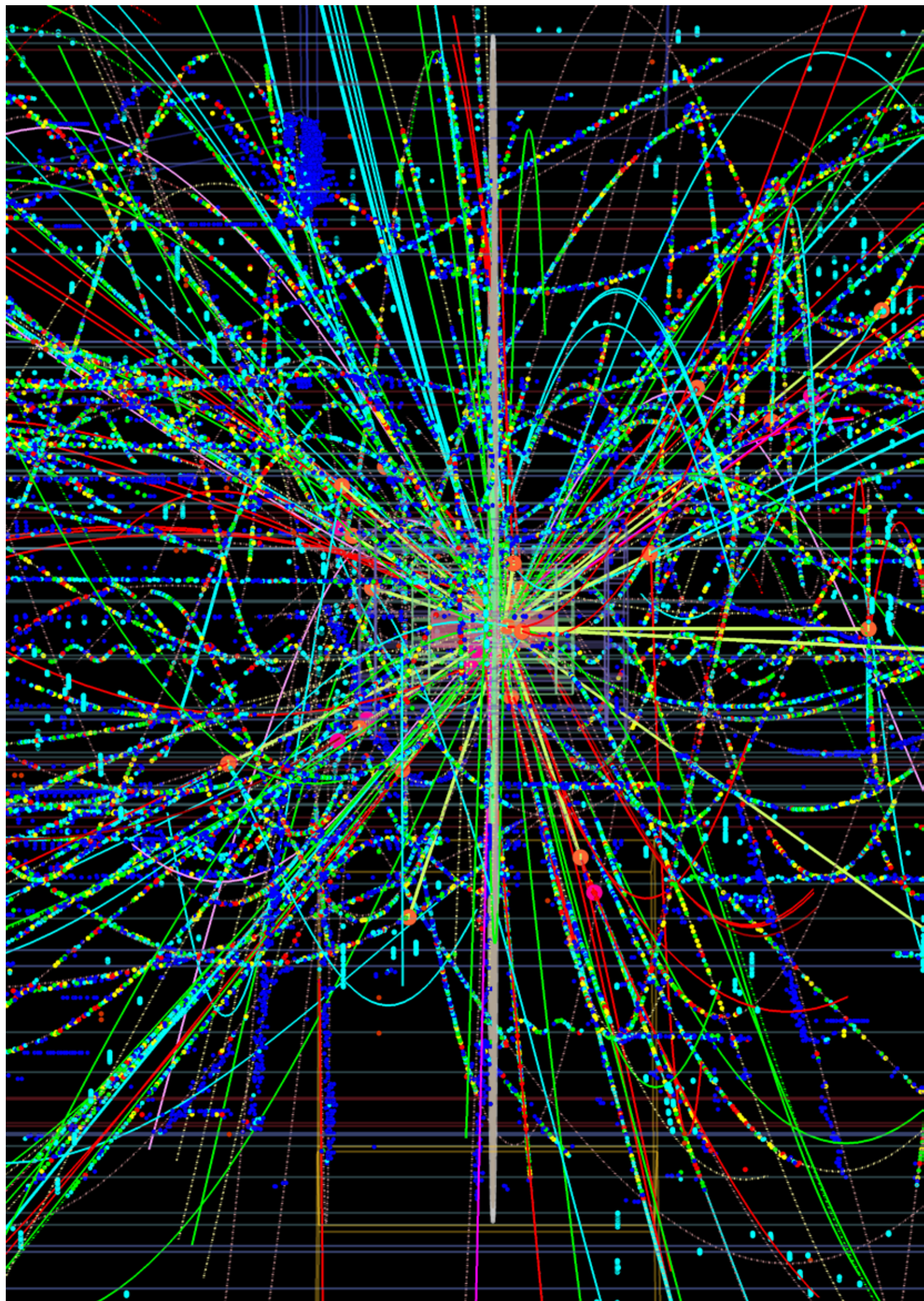
And, they could be due to differences in how the Substrate was currently being exuded-from, and extended-after, the Big Bang, and with variations in both those emissions, and in the Substrate itself under varying conditions.

For example, the very emanations from a single origin, would unavoidably be into an ever increasing volume, and hence a diminuation of density: while any included energy would be similarly diluted and perhaps cause changes in the form of the Substrate. While anything else being delivered outwards could also be affected or itself affect the differing forms of Substrate encountered.

Indeed, what has previously been revealed in theoretical considerations of such a Substrate, has been significant possible changes in the way energy is propagated by the Substrate in its various different forms. And, with the necessity of such a Substrate, in propagating energy, and a final boundary to that Substrate, which could involve Total Internal Reflection at such a real physical boundary, with consequent surface effects there, as well as others caused by the consequent reflections of Radiation within the Substrate.

For an interesting (yet early) musing on some possible repercussions of these ideas, watch our video *The Shape of the Universe* (2011)...

<https://youtu.be/b3lp0rLtcMM>



Pre-Elementary Particles

Are we searching through our own self-produced debris for the secrets of the Universe?

I have always been puzzled by certain properties of so-called Elementary Particles, which to me don't seem "elementary" enough!

The primary problems concern Charge, which because of its dual nature - with positive and negative versions, seems to infer, first, that they require differing internal causes to deliver those differences in Charge. And, second, there is the precedence question, between Charge and Magnetism - the fact that an orbiting charge can deliver a magnetic effect, while spinning electrons can do so also.

WHY?

In addition, both the achievement of Neutrality, and the bipolarity of any produced Magnetic effects, also proved that the whole joint area required a single explanation. Indeed, the "secret" appeared to reside in the Neutrtron (or Positronium as it has been named elsewhere) which was an entirely neutral and non magnetic Joint Particle consisting (it appeared of one electron and one positron - mutually orbiting one another), while other related particles also composed in the same way via mutually-orbiting Leptons, which because of asymmetries delivered Magnetic Dipole Moments, in spite of presenting NO charge.

Indeed, I was so bothered by these "anomalies" that I began to consider particles like electrons and positrons as mere fragments of "more-elementary" neutral particles, so that only as those fragments actually occurred, did they suddenly display charges, and as such would then easily unify with other fragments possessing the contrary charge, to produce other entirely-new stable outcomes

(indeed the Hydrogen Atom displays many of the same reasons for its very early appearance in the History of the Universe).

I decided to theoretically find out how these prior "Elementary Particles" could be constructed, by considering oppositely charged pairs mutually-orbiting one another.

NOTE: I also had other motivations, concerning the widespread possibility of a historically primitive currently undetectable Universal Substrate, which would also need to be composed of very similar joint, and hence invisible, particles.

So, these other researches managed, theoretically, to produce a range of such joint particles out of various oppositely-charged Leptons. And as the most interesting of these had already actually been observed in the Tevatron at Fermilab, initially named the Positronium (consisting of a mutually orbiting pair of one electron and one positron), so, I decided to consider that joint entity, first, as an undetectable component of my Theoretical Universal Substrate. But though, in the high energy accelerator, it was clearly unstable and quickly dissociated, I decided to investigate how it might behave along with many others of its kind, in totally "Empty Space". And, somewhat surprisingly, discovered that it could deliver a loosely-linked solid-like medium, which I termed The Paving, and which could propagate quanta of electromagnetic energy, bucket-brigade-fashion, between the internal orbits of these linked joint-units.

And, remarkably, these also explained Pair Productions and Pair Annihilations, and even Photons, as well as

existing in various different Substrate structural-Phases - as un-linked, driven Streams, rotating Vortices, and, finally, as a kind of Randomly-moving Gas!

Interestingly, the assumption of a Universal Substrate, wholly composed of these “Neutritrons” (as I re-named them) managed to remove every single anomaly of the whole series of Double Slit Experiments, without any recourse whatsoever to any of the Copenhagen assumptions.

Now, the abandonment of Aether Theory, following the Michelson-Morley experiments, had presented Science with a major problem: for, how did Electromagnetic Energy get propagated throughout totally “Empty Space”, to get oscillating Electrical and Magnetic Effects to do that seems impossible? You can imagine some form of physical medium, being disturbed and communicating the disturbance due to the real connectivity of that medium, but how would *Empty* Space do it?

The usual switch is to then talk about Photons as particle-like missiles propelled through the vacuum. But, how would a disembodied, purely-energetic Photon carry a Quantum of such energy?

I can imagine a mutually-orbiting pair, as in an Atom, or my Neutritron, having its internal orbit promoted, and then being moved, along with its material container, but no other way seems possible!

NOTE: The clear physical relations between an orbiting charged particle and a joint electrical and magnetic sinewave oscillation are obvious.

And, how would Cosmic *Redshift* work?

The Universe (Empty Space?) is expanded and somehow stretches waves or orbits, to give that kind of Redshift, but to do so, surely the *physical connectivity* of a medium simply must be involved! That is how Doppler effects work in other physical media.

Is Empty Space connected? For if it is, it is surely a Medium!

Also the bucket-brigade propagation of individual quanta via Units of Neutritron Substrate, presents absolutely no problems, as it is already well known from Atoms!

And, what about Action-at-a-Distance?

Electrical, Magnetic and Gravitational Fields are also supposed to act over totally Empty Space, always involving Energy, which never seems to come from the assumed initiator of the Effect.

Where does that come from, and how is it communicated over truly vast Cosmic distances?

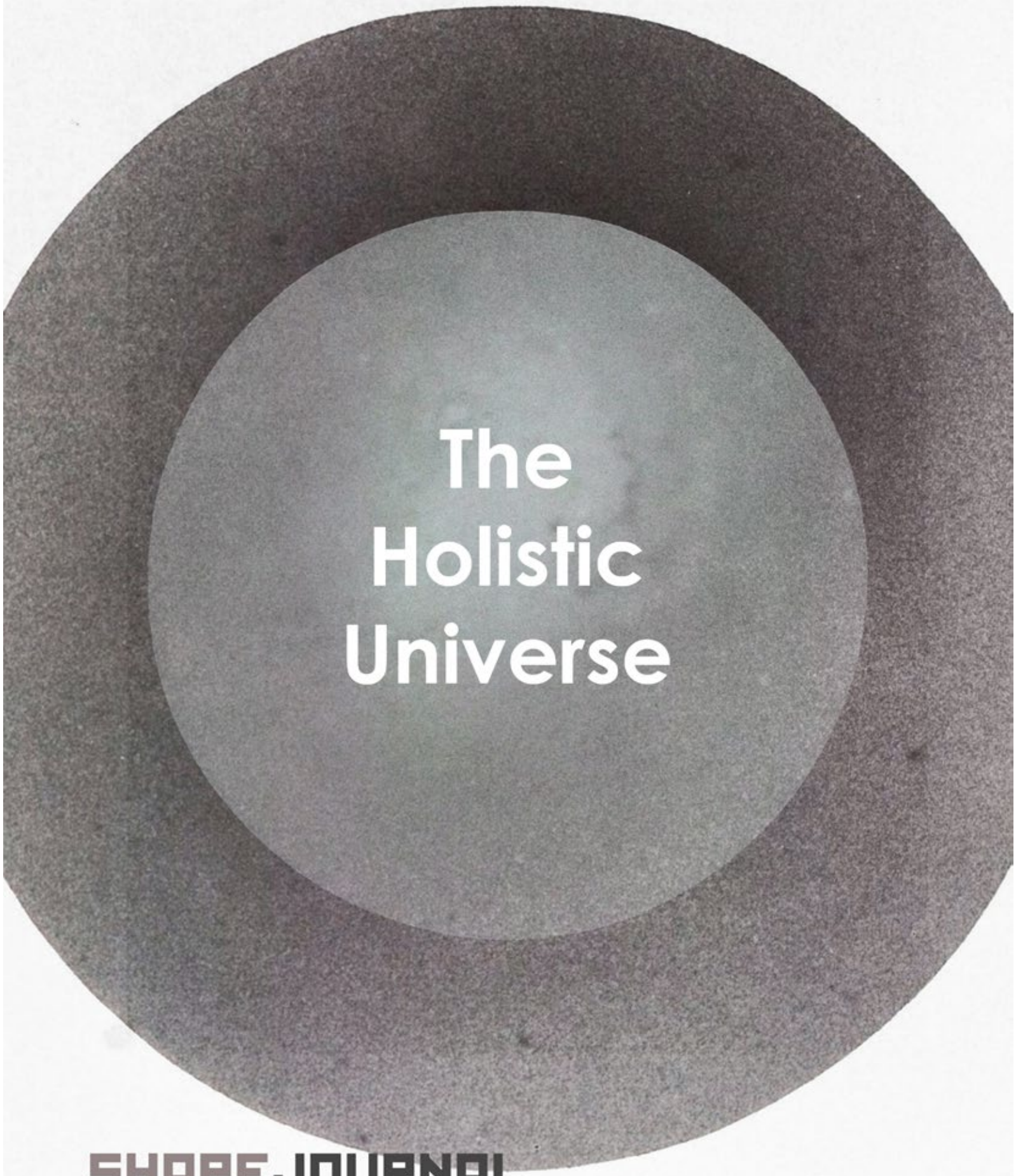
Now, my theoretical researches into an undetectable but material Universal Substrate, managed to devise not only Neutritrons, but also Magnetons and Gravitons - all constructed in the mutually-orbiting-pairs model - with Lepton-components of opposite charges and opposite matter types too!

Indeed, these different Substrate Units were so different in sizes, that they all existed together in the same overall space, but NOT interfering with each other: they co-existed, each in their own world of inner or outer spaces! And, as all were mutually orbiting pairs they had internal orbits, so could hold or pass on energy: so they, overall, also existed as both Sources and Sinks for energy, and both stored it appropriately in the Field Units, and supplied it when required in all active Fields.

Indeed, the possible Structural Phases achievable by Magnetons can produce fully active Electrical and Magnetic Fields when initiated, and a random Gas-like Substrate otherwise.

If all this is true, it means that current Sub Atomic Physics is unaware of the most important and dominant parts of the Universe, and spends all its Time and energies investigating the smashed up fragments of those things, from which, along with a totally idealist Mathematical Theory, they expect to explain concrete Reality!

No chance.



The Holistic Universe

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