

SHAPE SPECIAL ISSUE 4



**THE
ORIGIN**

JIM SCHOFIELD
A CONSPECTUS ON THE ORIGINS OF THE UNIVERSE

A Conspectus on the Origins of the Universe

Special Issue 4

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The Legend of the Big Bang

(A letter to Dr. Peter Mothersole)

Dear Peter,

Over Christmas I have been writing a long critique of, and defining an alternative to, the usual idea of The Big Bang, I started with questions about the usually assumed precedence of Energy and only subsequent creation of the First Matter, and, of course, the mechanism by which E-M radiation is produced and propagated – the idea of **Empty Photons**. And this obviously involved an attempt to account for the origin of such entities as particular Phases of the Big Bang.

But, the more I wrote, the more things that I simply could not agree with were sticking up like sore thumbs from the usual Model of that supposedly Initial Event.

I therefore not only provided alternatives throughout, but finally and irrevocably rejected the whole Event as an invention. It seemed wholly fictitious and unbelievable! I could only make any sort of sense out of it if there had been some sort of “explosion” in a prior existing Universe. Otherwise Nothing could be explained *scientifically*, but only *mathematically*! I could not start with inconceivable amount of Energy *alone*, and even more so from the postulated Physical Singularity – the Dimensionless Dot in absolutely Nothing! Something would have had to produce such a situation!

Total zeros and infinites may work in ideal Mathematics, but they do not wash in a concrete Reality!

To explain what must have ensued Pure Energy was, quite simply, *insufficient*. It could never produce Matter nor could it then aggregate that Matter. The suggested Origin could only send out continually diverging and totally symmetrical radiation, never to form any centres of Mass. As always these theoreticians had to smuggle in Random Noise from somewhere, and as it could not be from outside (there wasn't any outside), it could only be intrinsic to the dimensionless Origin and that was **Quantum Fluctuations** – God save us! How do they get away with such drivel?

To establish the absolutely necessary **asymmetries** and all the consequences of that, there must have been **both** Energy and Matter from the outset, and such could only be by some sort of colossal **explosion** as the consequence of a stupendous culminating catastrophe of a prior crisis! What else?

Then, you could indeed, begin to see how what we *knew* had happened, could have happened!

Once such a position was taken, most of the unbelievable aspects of the consensus idea of the Origin fell away, and a more coherent alternative could be put together.

Yet, they could not have come up with anything different to their conceptions. The assumptions and methodology of their Science was too reductionist and pluralist to do anything else. Though they *had* to reveal clear phases in a developing history, they were totally ill equipped to tackle **Emergences**. Whereas, it was my banker assumption and allowed the idea of the evolutionary development of a sequence of Levels of Reality to be explained, and the ever evident entirely *innovative* features to come to be.

It has taken me a week, via seven rewrites and edits, and a final set of additions and corrections, and was finished by hand-edits onto the printed file last night. The paper (not counting any final edits) is already 7, 279 words long and though it was meant merely as an introduction to a full Special, it covers the width-of-ground, if not the necessary detail, and had to be done.

It has therefore delayed my Double Slit Special (as well as the Anti-Copenhagen Special) but only because the issues addressed in the new paper, actually fills many holes that were evident in the other researches. The necessary gestation period will take a little time, but every single day is seeing worthwhile additions.

I will send a draft for you to criticise as soon as the current edits have been added,

Best Wishes

Jim

An Introduction to **The Origin**

The large paper entitled *The Origin* was intended merely as an introduction itself for a forthcoming **SHAPE Special**, but, as they say, it grew like Topsy and greatly exceeded my original intentions. And, as it developed, it became clear that it could not do its job without (in addition) a whole series of supporting diagrams and illustrative images, so it soon became enormous.

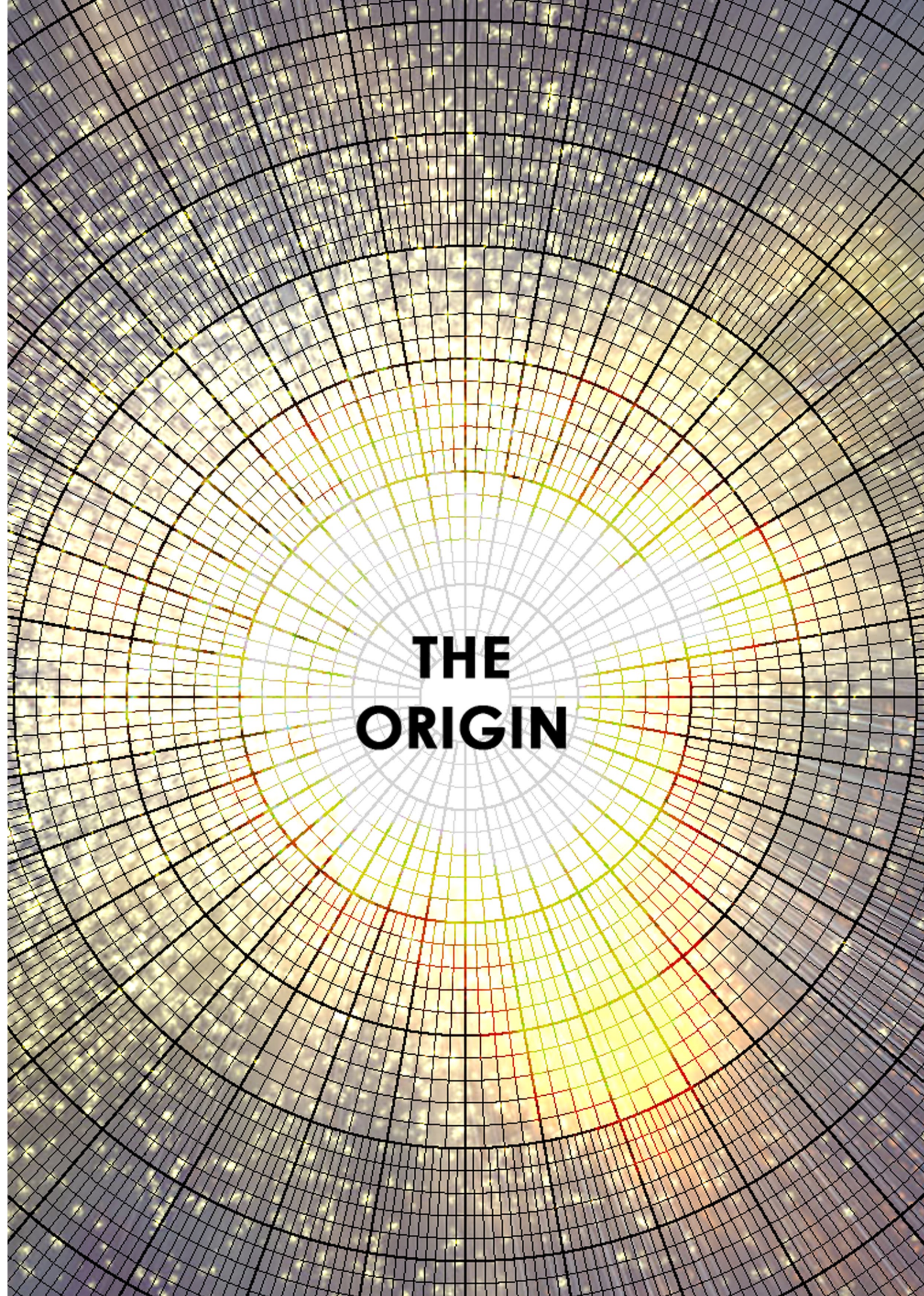
It is **still** only an Introduction, and therefore suffers from the nature of all such preliminary and necessarily superficial presentations. It almost nowhere *proves* all its made points (That would be the job of the following series of papers, which had gradually produced a viable alternative view of the Origins of the Universe. So, it should not be judged too harshly by its readers. It is meant to encourage all to read the following detailed individual papers with an idea of where they are going, and the much more detailed and well-argued areas, which make up a fully reasoned case.

For, example The *Theory of Emergences* is a **Special** in itself, without which not much sense could be made of the deliberations, which followed it

So, if the reader is dissatisfied with this potboiler, let him/her read the increasing number of **Specials** already produced, or in preparation for imminent publication by **SHAPE**. And if you disagree, why not submit your alternatives. They will be published (with responses) by the author. That is the purpose of this Journal.

Jim Schofield April 2011

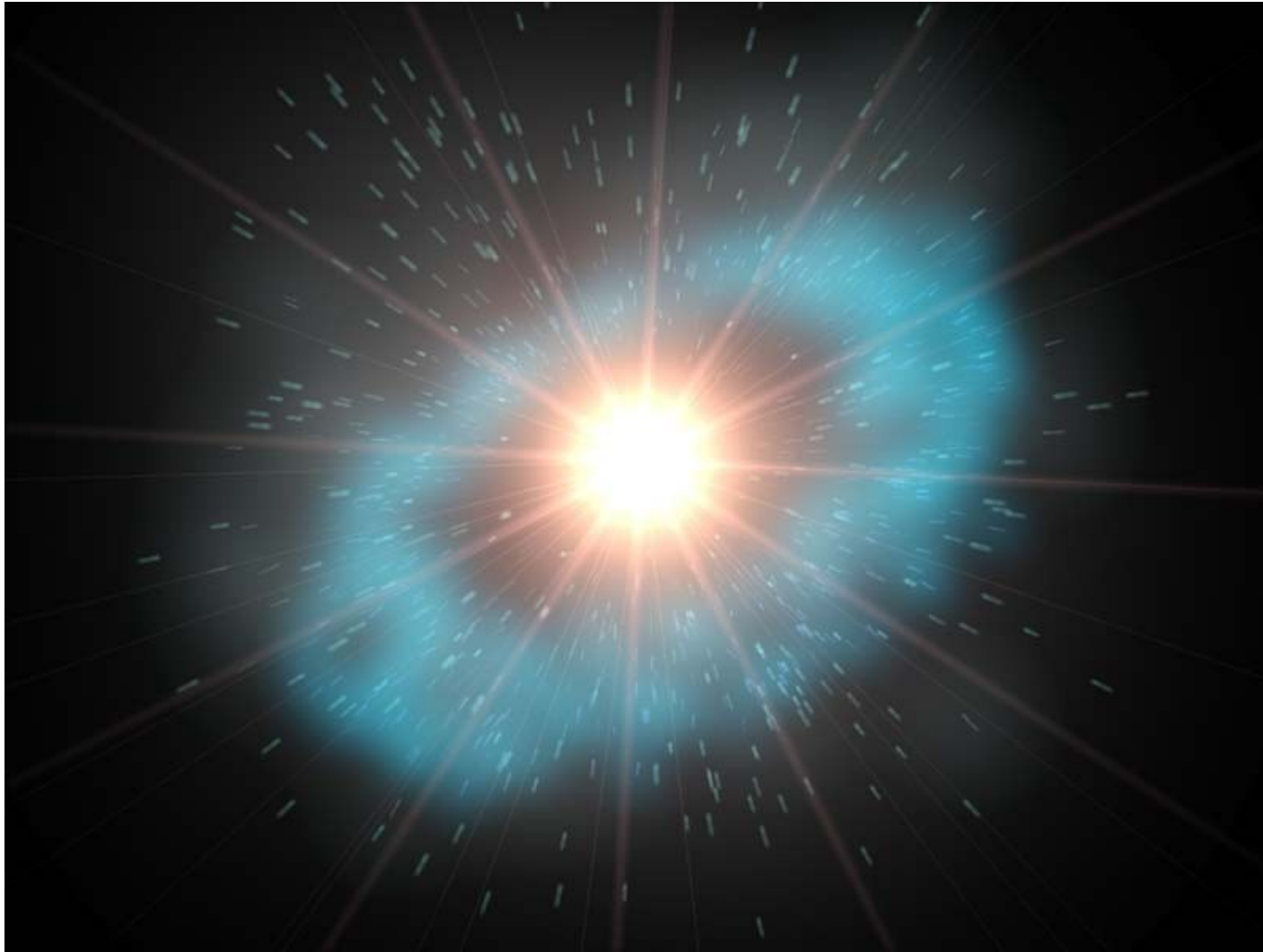
(260 words)



THE ORIGIN

(What Came First, Energy or Matter?)

This paper is about The Origin of Everything: the Event that began it all, and is usually called the Big Bang.



But when considering such an Event, which is well beyond our usually reliable methods of observation, experiment and consideration, we find ourselves unavoidably isolated in a situation wherein our most likely considerations will at best be informed speculation. And from the outset key questions present themselves. For example, do physical things produce Laws, or do Laws produce physical things?

Such dichotomies seem to be always with us, but deliver of such totally incompatible, yet often believable, alternative, general schemes, that we dispense with neither and instead frequently switch from one to the other when it fits better.

Yet the former makes all Laws *consequences* of physical relations acting upon physical entities, while the latter gives priority to eternal rules or **Laws**, which gradually, in various combinations, produce the whole gamut of entities and their qualities and phenomena.

What these two alternatives boil down to are, of course, forms of **Materialism** and **Idealism**, and involve very different approaches in the search for an understanding of Reality. And, what makes the choice difficult between these two alternatives is that both, at one time or another, have been crucial in important developments, while on others they have led to many frequent dead-ends. And the reasons for such confusing, overall evidence must be similar in both cases.

It must be our basic **definitions** and **assumptions** that lead us astray.

Now, both of basic standpoints are usually quite distorting simplifications of what actually pertains, so that though they can certainly be **useful**, their crudest forms will always become untenable in more subtle and complex situations. Neither is the full Truth!

For **Idealism** starts from *disembodied* Rules, which are supposed to guide, or force, Matter via stages into ever-different forms. And rather surprisingly, such ideas do **not** run counter to the results of most scientific investigations. For the required conclusions of such activities, are more often than not **Equations**, and these can very easily be seen as the *driving* **Essences** of Reality, and are even termed “*The Laws of Nature*”.

But, of course, though such ideas do not prohibit the effective use of these equations, they **do** pose the question,



“**Where do these laws come from?**”, and if it is not Nature itself, then, they can be, in Man’s Image, very easily attributed to an overall designer, indeed a **God!**

Now, **Materialism** can seem to be likely to deliver everything, including **Life** and even **Thought** by mechanistic, eternal forces, which are seen ultimately as intrinsic properties of Matter itself, and will therefore result *automatically* in the entities and phenomena of the whole of the present complex World., from the **stars** to a **living leaf**.

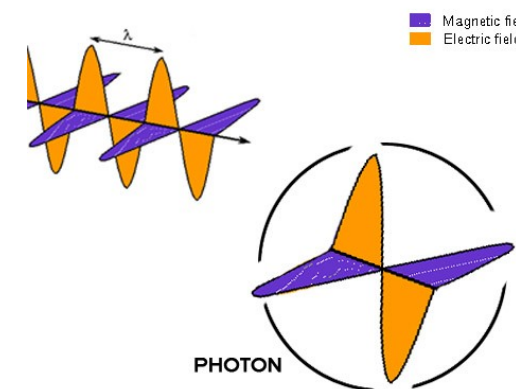
Yet the inadequacy of both of these basic conceptions is repeatedly proved by those unavoidable and recurring zigzags from one of these positions to the other – no matter which has been previously raised to the position of Ultimate Source.

Even the earliest attempts to understand the World were much more idealist than materialist, because the “conceivers” were themselves *thinking human beings*, and could not imagine that the clearly coherent and seemingly law-driven World, without an all-powerful designer-in-Man’s-image – indeed a God!



So, to get anywhere with this fundamental question, we have to focus upon some feature of Reality, which, of itself, contains this dichotomy at its very heart.

Let us consider the **Photon!**



To believe the theories of the modern cosmologists, our Universe started with the **Big Bang**, some 13.7 billion years ago, and consisted initially solely of Energy *and nothing else*.

No matter of any kind was present, and this emanation of Pure Energy wasn’t even an explosion, but an outpouring from something termed a **Physical Singularity** (see Mathematics for what a Singularity is). Indeed, they usually insist that this outpouring came out of absolutely **Nothing**, like a +1 and a –1 out of a **zero**, or a +ve charge and a –ve charge out of **neutrality**. So it wasn’t something that occurred in a pre-existing Space! Indeed, it has become usual to insist that Space itself was created simultaneously with, and indeed by, the **Big Bang itself!**

There was not, nor could there be, any outside contributions at all.

Absolutely everything came from this **Origin Event** into Total Nothingness!
 Now, hold on! I am well aware that all rational beings will certainly have many criticisms of such a **Speculative Muse**. But the authors of such fictions would never listen!
 And the reason is that they are **mainlining** on Mathematics, and would have it no other way.
 They demand equations for everything or they dismiss what is suggested by any other means as “groundless speculation”. Of course, what **they** are suggesting **isn't** groundless: it is grounded on Mathematics – the **Absolute Essence** of all things (they believe)!

So, we have to outflank their mathematical blinkers. Let us do that!
 And right away we have a few major problems with their Theory!

How could Energy, for example, produce Matter?

Why would Energy produce Matter?

Energy exists today in vast quantities, so why isn't it producing new Matter now?

Also prior to Matter, what would the form of Energy be?

For all currently existing “free” energy bears the stamp of its origin in Matter, so *primaeval* Energy would have to be different: What would it be like?

That should be enough questions for now, and in the light of these let us consider the materialist alternative.
 The simple materialist conception of Energy is that it is **always** predicated upon Matter as **Receiver**, **Receptacle** and, indeed, as **Source**.

All sorts of forms of Matter-in-Motion seem to posit Energy **into** Matter in all sorts of ways.

But the bruise on your shin from inadvertently banging it against a rock is attributed to the energy involved in the movement and the immovability of the inanimate rock.

We could never conceive of Energy without Matter!

Now, the early scientists, such as **Newton**, suggested a real source for all such things contained within All Matter. That source was the naturally occurring force of attraction for all other Matter. Left to itself, a dispersed distribution of fragments of Matter would pull upon each other and cause movement. This force imbued the Matter with movement and thus added energy to the Matter (**Kinetic Energy**). If pieces of Matter could not move, it was because they were somehow held in a fixed position, then the force between them and the other source would also, of itself, involve Energy (**Potential Energy**).

So early scientists predicated ALL on this **Force of Gravity**, which was a **property** of all Matter.
 A whole new approach was born, which put Matter (with this inherent force) as the **Prime Mover**.



Yet, any thinker worth his salt, could NOT countenance the reduction of Thought to merely **Matter with Gravity**. Such a conception had to be mechanistic rubbish, but it was a start.
 Could this scientific approach be developed to be applicable to other things?

Some would not hear of it, while others were excited at the prospect! It is true that to connect Gravity with a process that ended up with Man and Society from such barren stock would surely be a step too far.

But this **was** a new approach: it must surely be stretched to its limits, and no shortage of obvious areas in which it could be applied was clearly evident all around us. Let us see how far we could get!

So, even among the strongest proponents of Science, there were many who agreed with these criticisms. Though in most things they would pay lip service to a solely materialist idea of Reality, they were aware of its evident limitations. For the time being, however, they would continue along the road, which by careful observations and measurements could enable them to **glimpse** other real relations, and as soon as they could also extensively **control** the conditions for such “experiments”, they were able to get sets of data, which clearly revealed **rules of relationship**, that could be expressed as **Laws**.

In spite of a trumpeted materialist credo, these scientists found that the phenomena of Reality were best expressed, as **Laws**, and the most succinct form of these were wholly abstract **Equations**. These frequently became the **sole objective** of scientific investigations, and were considered to be the **Essences** of this particular aspect of Reality.

Now, such forms-as-drivers were, without doubt, entirely **idealist** Conceptions!

Abstract relations were seen as the **causes** of phenomena, and scientists undertook large numbers of such investigations **solely** to **extract** these equations from Reality, and go no further!

Now, you can see the problem!

Try as they might, our scientists kept straying into Idealism, for, what is more, it also turned out that such a change equipped them to do more than describe and encapsulate Reality.

Their equations enabled them to **direct** it!

Prediction and **planned production** became increasingly possible.

Yet **Einstein**, seemingly out of nowhere, came up with $E = mc^2$ - a relation between Matter and Energy.

$$E = mc^2$$

This seemed to infer that one could conceivably be converted into the other, but how this could be achieved and why it was considered possible was not, and could not, be evident from such a formula, for as with all such equations they never give any clue as to “**Why?**”. They are **descriptions** (in this case of **what**) and occasionally of **how**, but never **why**.

They are descriptions of **Form alone!**

But, as with all pragmatists, they didn't have to know why, and they “proved” the validity of Einstein's equation with the successful development of the Atomic Bomb.

As the Nobel Laureate Laughlin pointed out, even at the end of that process, they still did not understand why, but they had cracked How, and that was enough!

Never ask a technologist why something behaves the way that it does. He will ask you why you need to know, and will show you how to do it. But the question “Why?” perplexes him.

“Why would you ever need to know the Why of a situation, if you have the How in your hands?”

And nothing will convince him that he is missing the real content completely.

Thus, Einstein's equation then stood as the ultimate relation and inferred that, at some stage, and by some means, Matter must have been **created** for the first time out of that true essence of everything – **Pure Energy**.

“How can you be a Materialist if Matter is not primary”, is the inferred question.

All the conceptions of Energy, which involved Matter as a receptacle, were therefore considered to be **later** developments. Prior to some first production of Matter there would be **only Primaeval Energy**, which did not yet bear the stamp of Matter.

The question was, *“What was the nature and form of Energy prior to Matter?”*

Thus, this became a major question, because literally all our Science is based on Energy *in Matter*, or at the very least bearing the stamp of Matter, from its origins into Radiation.

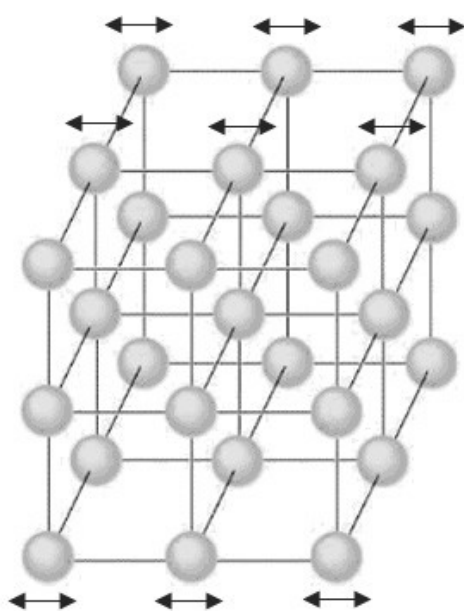
But what a complex form that Matter-sourced Radiation is!

In its seemingly totally non-material form, Energy is called Radiation – the so-called Electro-Magnetic Radiation, which includes everything(?) from Gamma Rays to Radio Waves, via Light and even Heat. But what does this mean?

It means that such disembodied Energy is an oscillation! But it is NOT a movement type oscillation as is involved in a tuning fork or a guitar string, BUT an oscillation of a pair of locked-together qualities – the *electrostatic* and the *magnetic*.

All of these **are** E-M Radiation. And, this pair of qualities are not only perpendicular to one another, but also differ in Phase! They are locked in synchrony, but *exactly* “out-of-step”

Now, all our experiences of oscillations unavoidably involve a balance of opposing forces, which with NO energy present *seem* to be at rest. Though, clearly, such a system must be packed with a kind of intrinsic **Potential Energy**, like a system held stationary via a set of stretched, elastic supports, which would oscillate in an identical way if disturbed.



There is a balance of these forces, which seem to cancel each other out, and what energy there is in the situation is wholly *potential*.

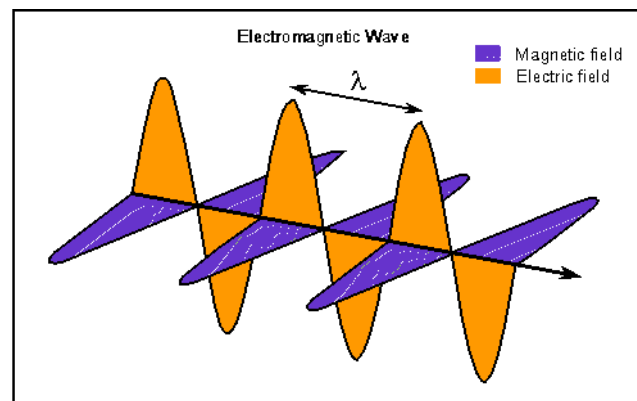
This is proved by the addition of Energy to the situation, which causes it to move away from its balance point. BUT, the immediate reaction of the system to this distortion is to act directly against this displacement, and strongly bring it back towards its original rest state and balance position. Of course, that force will bring it back with increasing speed, so that it can do nothing at that point but *overshoot*, so that it moves out in the opposite direction, but clearly this is also temporary, and yet another return is inevitable.

The energy is absorbed to establish an **oscillation** about the rest state: the amplitude of this oscillation being totally determined by the amount of energy involved.

Indeed, in the case of E-M Radiation, it is even more complicated, because we have **two** qualities involved, both the E and the M. Now all of this begs the question, “What is actually oscillating?”

It must involve some form of “structure”! You cannot have electrostatic and magnetic properties of **Nothing** (or even of Space itself, as Einstein proposed).

“Something” must be involved which delivers a pair of closely related and balanced qualities – like the above-described elastically held, yet stationary situation, and in a direct comparison with that system our “receptacle” of E-M radiation will currently have NO measureable amplitudes of oscillation, They actually will be, or at least appear to be, stationary.



They actually will be, or at least appear to be, stationary.

Now, we did, in time, admit to a general model for oscillations, which we called **Waves**, and they appeared everywhere in association with Matter-in-equilibrium states (like perfectly still water for example).

But, these were always idealised as both continuous and infinite models and were always predicated upon material structures.

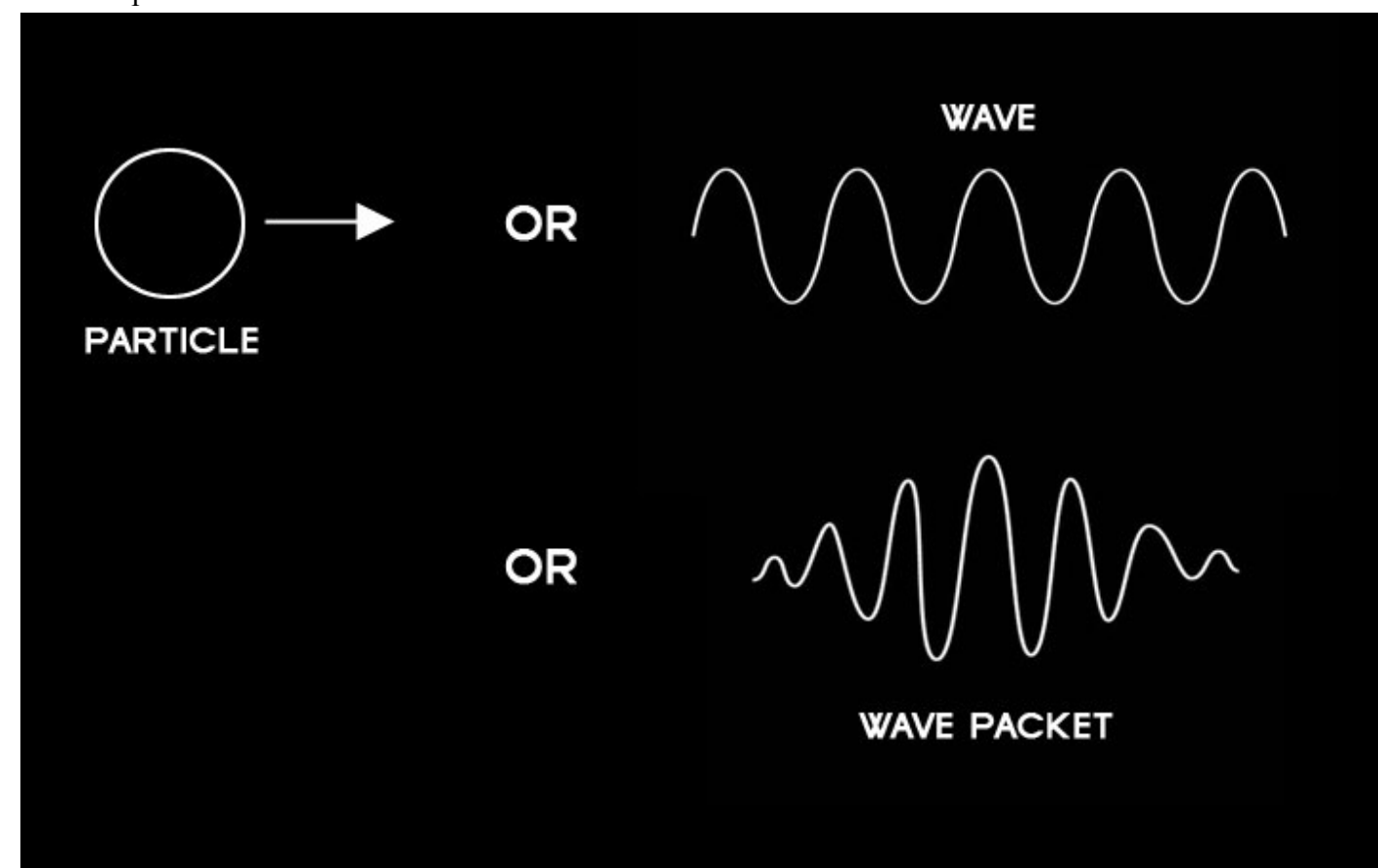
So, when we removed the necessary continuous material substrate, our model became unintelligible. So, the need for some sort of **medium** for E-M radiation begat the **Ether**.

This was a seemingly massless, elastic and invisible medium that completely filled all of Space.

[So don't be too dismissive of the idea of the “paving” of the Universe with Empty Photons. It has precedents, but it is fundamentally different too. For it is restricted to the Universe. It was not pre-existing, but was achieved by the Big Bang. And it is made up of discrete elements.]

But, the Ether caused too many problems, did not conform to all other media, and was finally dumped as pure invention.

To finally bury such conceptions, scientists were increasingly finding evidence that E-M radiation existed in “**packets**” – finite gobbets of energy, which, in certain circumstances, were the *only* viable explanations for the found phenomena.



These were termed **Photons**.

And in their initial form they were conceived of as *particle-like*, finite entities, containing individual **quanta** of energy. Each Photon contained exactly **h ν** energy (where **h** was termed Planck's Constant, and **ν** was the frequency of the oscillation). Light ceased to be a **disturbance** in a continuous medium, and became instead a **Shower of particulate Photons**. But how then could interference occur? For such things did indeed happen!

Now perhaps Waves in Gases might give some sort of clue, for the individual molecules of a gas were NOT locked tightly together, as were the atoms of a solid. Nor were they in constant inter-relation, but relatively free-moving otherwise, as in a liquid. In a Gas the individual molecules were entirely free, but banged into one another all the time: that was the unique form of their interactions (as had been demonstrated by Brownian Motion).

So, perhaps Photons were more like gas molecules, delivering wave-like properties by the collisions of moving, discrete particles (the Photons). But that too proved to be unsatisfactory.

Light (indeed all E-M radiation) was a major problem, and what then upset the whole applecart, was the discovered behaviour of unquestionably discrete particles (such as electrons) acting as if they were *waves*, or at least behaving in a way that seemed to be wholly *determined* by waves, BUT, these were NOT waves in the usual sense at all, but were “**waves of probability**”, which could be used to make “overall” predictions.

The famed **Wave/Particle Duality** had appeared, and could NOT be explained in the usual classical ways.

So, ALL explanation in this area of Sub-Atomic Physics was summarily abandoned as pure Myth, and instead **Wave Equations** were used to deliver not actual values for key parameters, but the probabilities for their individual values in a range of possibilities ONLY.

With this change Explanatory Science in this area had been completely abandoned, and the whole of Reductionist methodology went with it.

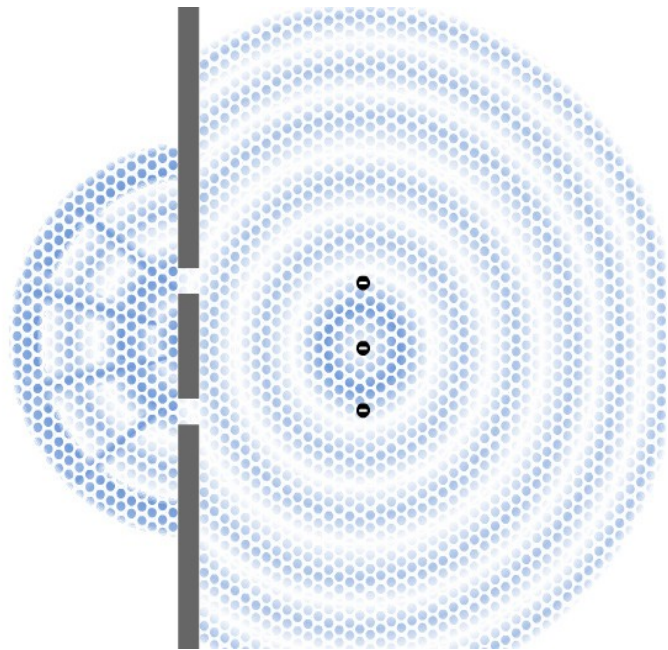
Now clearly, these **Copenhagen Interpretation of Quantum Theory** physicists were **wrong**, but HOW were they wrong?

What was really going on, and how could it be *explained*, as had always been the objective in Science since its inception?

Perhaps the answer resided in the actual nature of the Photon? So, let us investigate!

Now, I have already put forward a suggested alternative to both of the models for the propagation of E-M radiation through Empty Space, and, if it is neither a continuous, “elastic” medium, nor a shower of particulate Photons, what could it be?

I have suggested that the whole of the Universe from its Big Bang origin position to its outermost limits is “paved” with Empty Photons!

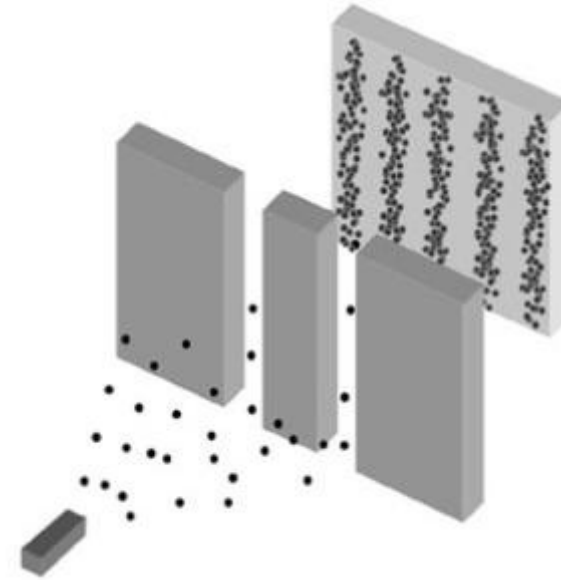


Still from The Animation of The Double Slit Phenomenon

Now, these are not what you might think. And certainly NOT merely normal Photons that have lost all of their contained energy. These are different entities left over from *before* the Origin of Matter. Indeed, they are the *transformed* remnants of those primaeval Photons, which made up the initial **Primaeval Energy** that was the only thing in existence prior to the emergence of Matter. And these remnants are also very unusual in that they no longer even *move*! In spite of being discrete entities, they are certainly NOT particles, and they neither *move* nor *collide*.

They propagate E-M radiation entirely by Photon-to-Photon **Induction**.

Now, this is very straightforward! To carry E-M radiation, they must have all the necessary “structures” to be immediately “*inflated*” into internal E-M oscillations, and these properties are such that they are easily induced into similar adjacent receptacles (other Empty Photons). The “paving” of Space by these Empty Photons will therefore cause disturbance within it to behave like a wave! YET, all transfers to and from the individual discrete entities making up the paving will be via Single Quanta of energy!



Elsewhere this construct has enabled this author to explain the famed **Double Slit Experiment** using both light or electrons and also the **Photo Electric Effect**, while other phenomena such as **Compton Scattering** by electrons, and the **Ultra Violet Catastrophe** along with other crucial evidence for quanta have been shown to produce no major difficulties with this Theory.

Finally in **Pair Creation** and **Annihilation** evidence from Accelerators, there does appear to be offered the possibility of Photon to Matter Conversions,

NOTE: All these points will be fully explained in **two**, soon to be released, **SHAPE Specials**: the first in *The Double Slit*, and the second as a *Refutation of the Copenhagen Interpretation of Quantum Theory*. In addition, at least two more **SHAPE Specials** on **Cosmology** are already in an advanced state of preparation, with the

concept of the Empty Photon at the heart of each. For the consequences of these ideas in Cosmology turn out to be quite remarkable!

Physical Singularities, Parallel Universes, Wormholes to other Universes, and many other modern myths, bite the dust, and the consequences for what we see in the Heavens are positively *revolutionary*.

But, as with all such Theories, the conception of Empty Photons will certainly NOT be the last word!

It will, as with all Science, be replaced by something better, something closer to Reality-as-is.

Yet, the significance of this temporary placeholder and its revolutionary suggestion cannot be avoided, for inaccurate or not, it still is put forward because it has inherent *objective content*, so it cannot be dismissed as “not the absolute truth”. What content it does have *must* be addressed, for it will, as it stands, warts and all, with work demolish the idealist errors of the Copenhagen Interpretation of Quantum Theory, and, for the first time, bring true **Emergence** into the heart of **Cosmology**, rather than the existing amalgam of Laplacian determinism, random chance and the pinch of evolution that even these idealists find unavoidable.

Throw-away lines, in the present theories, seem to pay lip service to the actual Evolution of the Universe, but with absolutely NO adequate model for how any of the necessary qualitative changes occur, their admixture of such ideas being more a matter of faith than of proof.

Indeed, any criticisms of these ideas from the ground(?) of Copenhagen will not even be addressed. Such a position is wholly idealist, and has absolutely nothing to recommend it on scientific, theoretical or philosophical grounds.

But, that doesn't mean that I will not address genuine criticisms of Empty Photons!

Indeed, I don't *own* these ideas. I will NOT defend them as my own life. Scientists never should descend to such egoism.

But, I will be the first to admit that my own ideas (presented elsewhere) do not cross all the t's, and dot all the i's. I would be astonished if the Theory was not roundly criticised for its mistakes and omissions.

Indeed, this particular paper is not the receptacle for the establishing of the necessary materials. They appear elsewhere. It was commenced as my own contribution to exposing some of the inadequacies of my own Theory, though it has taken me to this point to even establish an understandable basis for such a critique. So, having, I hope, described what it is, let me begin to point out the more evident weaknesses.

To have an Empty Photon, it seems reasonable to consider that in a prior phase there must have been "filled Photons", and if we are to accept an Initial Phase of the Universe, which consisted *solely* of some sort of Primaeval Energy, we then have to see what could be accomplished in that phase that could "conquer" or indeed *create* Space itself. Now, that task could not be accomplished merely by a "filled" mode for our later Empty Photons. Now the reason for rejecting such an idea is fairly unusual.

This author is no Laplacian, and can only see the development of the Universe from its initial state via a whole series of **Emergences**, each of which produce entirely new Levels, consisting of new entities, relations and Laws, which did not exist prior to the establishment of each new Level. To therefore simply derive the paving of Space directly and simply from that Primaeval Energy-as-it-was is simply the usual reductionist and deterministic sort of explanation. As with all temporarily stable phases (Levels) in any development, the whole gamut of inherent possibilities soon runs out of steam. For example the energy available will not be infinite, and the nature of the density of energy will dramatically change. Such changes always are elements in an undermining of a current phase and always precipitate a major dissolatory avalanche of changes. The result is inevitably some form of **Emergence** and what appears is never directly predictable from pre-Emergence circumstances. A simplistic relationship between the initial Phase and the paving of Space is certain to be merely a rational invention only, as are most such accounts over anything but within-Level explanations!

Think about it!



A so-called "paving" is no simple process: "paving" can never conquer "empty streets", nor can it actually "create" them. Such a process is a sophisticated thing, and could never be directed and causally explained in terms of Pure Energy alone.

For one thing how could this Primaeval Energy move into Total Nothingness? What would its Containing Form have to be to do this, and

how would it be changed as it did so? Clearly, in emanating from some Point(?) Source, the energy will be immediately in a very different context. Whatever it was prior to emanation would itself be from another Level entirely: it would have to be different *immediately* and that would change what it could do. The most simplistic change would be that instead of its former mode, it would have to be IN, or indeed *make* Space. The *volume* of its new existence would change it immediately, as an entirely new mode of existence.

NOTE: This is not some way out assertion! Consider Energy within an Atom. There could be energy within the nucleus, and energy contained in the cycling routes of the surrounding electrons. Yet what happens when these come out of those contexts? Do they not change radically? Is not Radiation the mode of existence of Energy when released from Matter into a Space tailor-made to propagate it?

Everyone takes on these transformations without a murmur.

Why would the above suggestions be "too way out"?

And *those* particular forms cannot be anything like Primaeval Energy, for, being prior to the existence of any Matter, its properties and characteristics would be wholly unlike Matter-sourced Energy: Primaeval Energy would bear no such stamp. Indeed, it is hard to conceive of, for as far as I am aware, none of it still persists.

Naturally, therefore, all of these considerations of the Early Universe are certain to be full of guesses and assumptions. For example, we invariably confuse the Energy that *caused* the Big Bang, with the Energy somehow *distributed* to its ever-increasing limits.

The simplest ideas, which always take over when all other constructs fail, will almost certainly be **The Explosion**: and by this I mean "our" kind of explosion, from our present day experiences. But such an Event would have to include Matter from the outset, and all the energy produced at its creation would be expended entirely in distribution.

Now we are asked to conceive of something very different – an energy-only "explosion" with no Matter at all. I suppose the model for such an Event must be a Nuclear Explosion in Empty Space. Yet these don't seem to happen anywhere and in any existing circumstances. Even Supernovae have Matter involved as can be seen from the debris they leave surrounding the site of the Event.

But whatever the Big Bang actually was, it would require a *sufficient* and *explained* pre-existing **cause** precipitating the sudden calamitous change in a critical situation.

In addition, we must address the fact that our cosmological theorists for some reason also require a **Year Dot** – a *Beginning without a Cause*. For when asked for a reason for the Event they (when pressed for some sort of answer) came up with their considered response – "Nothing!"

But let us be clear what they meant. They didn't fail come up with *anything*: **Nothingness** was indeed their considered Source. And such "Nothingness" cannot be Nothing: it must be neutral something!

Yet that is certainly THE most unsatisfactory thing to propose as the Sole Source of the most almighty Cataclysm in the whole history of the Universe. Most people would consider such a suggestion to be either a joke, or alternatively Total Rubbish!

But clearly they would NOT be *mathematicians*, would they?

Only mathematicians (it seems) *know* that you can get Nothing in various ways.

It could be +1 and -1 for example, or +1,000,000,000,000 and - 1,000,000,000,000. It could also be *equal* +ve and -ve charges too, no matter how large. As long as we have "blessed Symmetry" as a principle (an almost *holy* concept), we can have **Nothing** – but packed full of promise!

NOTE: And the currently accepted Theory of Totally Empty Space (within the Universe) is that it can, at any time and at any point, spontaneously produce a pair of opposite entities, which immediately mutually annihilate one another. Empty Space "on average" and "overall" is therefore **Nothingness**, but a "nothingness" that "hides" a constant activity. So, to those who pour scorn on this author's idea of Empty Photons paving the Universe, let them weigh that idea against this one. Take your pick!

But, this author doesn't forget the factors involved in the usual eclectic amalgam of ideas, which constitute current Cosmology. **They worry him!**

They seem to be entirely non-cogent, yet lucid ideas, but are, on the contrary, both pragmatic yet incoherent. They seem to pull out one strand of ideas when they fit a given phenomenon. Yet, just as easily, pull out another entirely opposing one when the first one fails.

As a scientist, I consider such dilettantism to be mere Technology: all such are considered to be entirely legitimate to achieve results NOW! The fact that the strands do NOT make a coherent and comprehensive Whole is nowhere near as important to a pragmatic technologist as getting a required and useable result NOW!

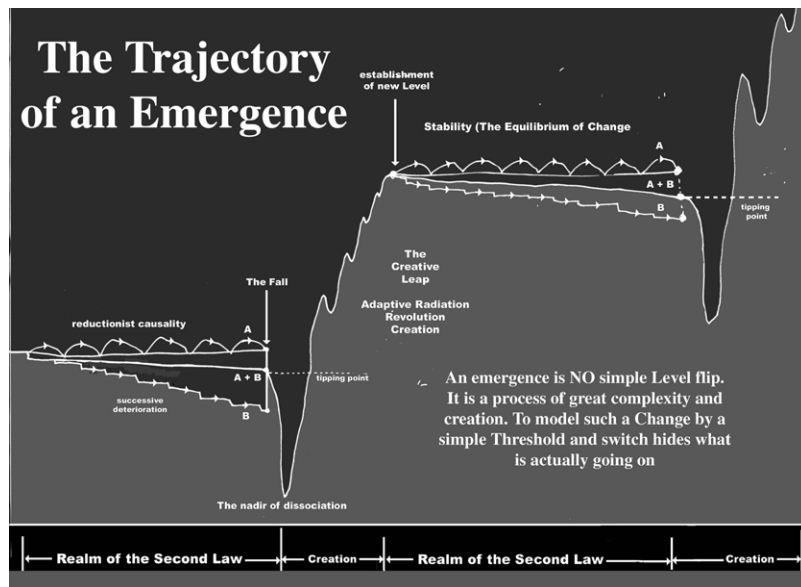
But that is NOT Science!

Nor is it Philosophy!

What purports to be Science (and is also claimed to constitute a revolution in Philosophy) is simple who-needs-theory Technology! **Explanations** are not important; **recipes** to get a useable result are everything!

Now, having clarified(?) the opposition, this author had to consider alternatives, and the centre of all this work over the last decades has been **Emergences** – the crucial episodes in any evolving system: the cataclysmic Events, which dismantle the Old and create the New. Indeed, consideration of THE most important Emergence in the whole History of the Universe **had to be** the **Origin of Life on Earth**. And that **had** to be used as the initial template for all Emergences (as shown in the next diagram).

The reason that these Events are so important is that they change things both **profoundly** and **qualitatively**! Wholly **new** entities, properties, relations and Laws both **appear** and **persist** within these amazing Events. And the “**Systems**” that they create also transform the seemingly persistent background conditions too! The still-surviving context (from prior Levels) is also changed – **top-down** causality is added to bottom up causality! What **was** ever-dominant, is dominant-no-more. And even what persists in that background has also been changed.



The Trajectory of an Emergence

Like a Phoenix arising from the Flames

With such established Events as template, we have to see the Early Universe as also **evolving** via such cataclysms too! From a Universe containing only Primaeval Energy, all that has followed must have been created from that undifferentiated Source. The question has to be, “How?”

Let us say what is required!

What has to be dealt with is **why** should a crisis have even been generated in the Early Universe? How did the “Explosion” divert from absolutely **radially symmetrical expansion** (what else could it be?) into **localised** creations of Matter?

What could precipitate another Emergence – with its avalanche of dissociation?

And how differently could that new start proceed?

Why, indeed, was the creation of Matter, **better**?

These should be sufficient to focus our thinking!

One aspect of the **Theory of Emergences** is that for anything to persist is **has** to be part of a self-maintaining System, which is the product of an Emergence, and which, once in place, commences an extended period of Stability.

Such features cannot creep in by the backdoor, because every Stability is an extensively maintained Level: it got there by defeating its alternatives and “permanently” establishing its own protective systems. It could not have **terminated** the Emergence Process without such features.

YET, such seeming permanent Stability is actually never eternal.

It is always temporary, and here we are not only considering the Level as System, but its contents and relations therein.

And when it comes to the persistence of certain entities, the property of stability will **never** be found in the nature of a given entity in **isolation**, but only in its role within the overall Level stability.

Hence, a Photon, of whatever type, which persists, will do so because of how it **fits** into its overall Level.

You will never find the answers wholly within the nature of **that** Photon all-by-itself!

(That is **Plurality**)

Holism IS the true nature of Reality, and shows itself indubitably in **Stability** as **persisting situations**, and in **Emergence Events** as both the **destroyers** and the **creators** of such Levels.

Now, you can see the certain dangers of starting with ANY definition of something: any exhaustive description of the nature and internal structure of something **alone**.

With such an approach, the immediate question about the Photon will be what was it originally, and how did it become something else - a history of the Photon, no less?

Looking deeply into the conception of the Photon is like looking deeply into an Equation to find the source of its subsequent changes, and even its demise!

You will **always** fail, because what you seek is NOT where you are looking.

It resides **higher up**, in the Level of which your “thing” is a part, be it Photon or Equation. BOTH are integral and determined parts of an established Whole, but will never persist exactly as such **beyond** that Whole.

Another unanswered question must be why we cannot detect the Empty Photons, which are supposed to be absolutely everywhere? “If we cannot do this, they probably don’t exist!”, is the usual conclusion.

But, how do we detect anything?

It is surely by what it does! How can we detect anything when it isn’t doing something and cannot be seen?

Hegel insisted that as soon as you are aware of a boundary, “You have already passed it!”, and its corollary must also be stated – “If you are unaware of a boundary, you don’t even imagine that it exists!”

So, without any form of interaction with an Empty Photon, it also will NOT appear to be there!

Now the only property of the Empty Photon (which is indeed a very complex one) is the ability to propagate E-M disturbances right across the Universe. Does that prove their existence? And, remember, if you disagree with Empty Photons, you will have to substitute your own explanatory alternative for this actuality, and purely formal “solutions” such as Einstein’s will not do! They are Formal only and Form does NOT determine phenomena: phenomena determine Form! Hence Science requires physical explanations and not descriptive formal patterns.

Now, some of the theoretical developments based on the idea of a paving of Empty Photons throughout the Universe also turn out to be important in this discussion, because the consequences in Cosmology are colossal, and give us many, many ways of either confirming their existence OR proving that they don’t exist.

These are to do with the assumption that the propagation of E-M radiation is **ONLY** possible via such Empty Photons. This means that propagation outwith our Universe would be **impossible**!

If there are other Universes out there, we will not be able to see them. And, even more important, what will happen to such internally sourced radiation when it reaches any of its boundaries of the Universe?

It cannot cross over into Nothingness, neither can it simply **cease** at the boundary. What then will happen?

It could **only** be “reflected” back into our Universe. The disturbance would be communicated **inwards** by inductance – like a form of **Totally Internal Reflection**.

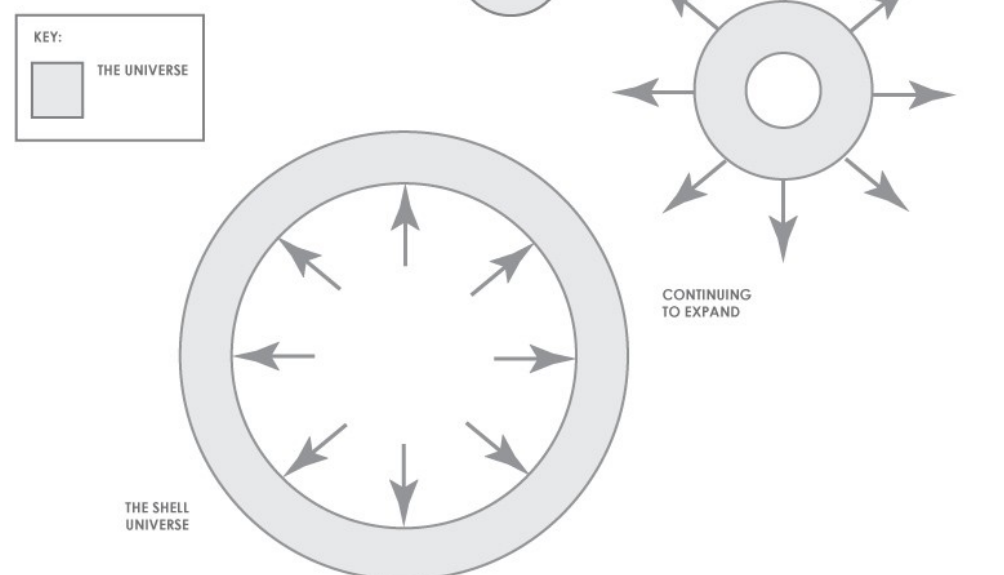
Now, the consequences of this would be stupendous!

We would see sources **more than once**! (see the next diagram)

Each reflection that sends light back to an observer will create an **illusory source** out **beyond** the boundary of the Universe. And, along with the concept of a **Shell Universe** (inevitable with a Big Bang of finite duration), where everything can only exist within that outer shell, such reflections will allow not only multiple such illusory sources, but the possibility of cycling round the Whole Shell delivering multiple images of the same source at different stages in its history, yet appearing to be quite different sources, all of which would be beyond the actual boundaries, and would appear to exist at vastly different distances from the observer.

The “delivered” Universe, that we imagine that we are seeing, would inevitably appear vastly larger than it actually is, and would be largely illusory and totally misleading. Our conclusions derived from observed evidence would therefore be both incorrect, and massively misleading in the derivations we make from that evidence.

The Big Bang Universe of Limited Bang!



for early in 2011).

Clearly, such an imaginary Universe would appear very much bigger than it really is, and even our usual rules about distance and time would be wrong, including all backwards extrapolations to define the age of the Universe and its clearly obvious Origin!

In addition it can be demonstrated that under certain conditions a single star would appear as a Star Cluster!

I think you can see why these ideas are important.

NOTE: An in-preparation SHAPE Special will detail all these ideas in the near future (planned

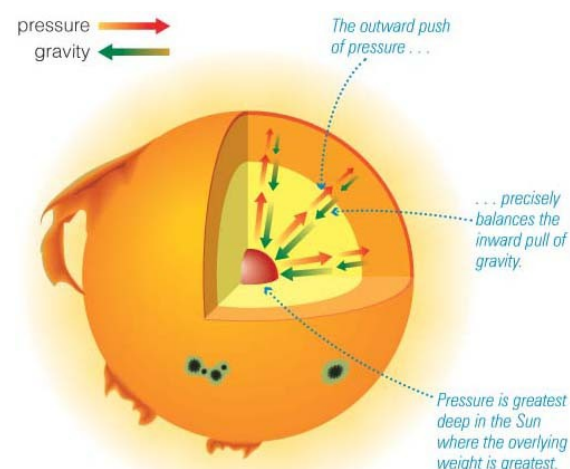
The major difficulty is to track the Early Universe through its initial sequences of Emergences, of which there must have been very many!

Yet with zero direct and unassailable evidence we can do nothing but make assumptions, and perhaps the initial “explosion” might differ from the usual consensus version.

Perhaps it really was an Explosion, not too dissimilar to a Supernova, but even more extreme!

If it were such it would have to have been an Aggregating situation (like a Black Hole), which finally reached some sort of limit and “blew up”.

Just as primitive aggregation of Matter into a single central form, would at some point reach central temperatures and pressures which would trigger off entirely new processes of Matter Fusion that would terminate the stable aggregation process completely, and replace it with a wholly new entity – **a Star**. And this body would not only produce new forms of Matter (Helium) but also completely transform some of the



Matter involved in to Pure Energy, to finally arrive at a new stable process involving vast outpourings of energy balancing the inward forces of Gravity.

So, why could not some even more extreme form reach a similar limit and produce the Big Bang? All prior stable processes building towards this ultimate crisis and Event, would be destroyed in the initial avalanche of destruction of the New Emergence, and produce a headlong descent towards total chaos, with the contents of the explosion reduced to the smallest fragments of what came before.

All of this is imposing the Forms of an Emergence onto this cataclysm, but what else could it be? Yet what we are considering is ONLY the initial destructive start – Phase one of this Emergence! [See **The Theory of Emergences** by this author]

Then, in compliance with what all Emergences undergo, that dissolution would effectively sweep away all the stabilising processes, and (as is usual within that Phase) it would seem to be careering off to Total Random Chaos, and would hurry down to a Nadir of Dissolution.

But, such a point in an Emergence turns out to be the opposite of what is expected. Instead of it being an end point as decreed by the **Second Law of Thermodynamics**, it turns out to be the ideal situation for **Creation!**

Out of just such turmoil of destruction the Phoenix always rises!

The crucial absence of the stabilising processes enables the totally uncoordinated remnants that remain to begin to form mutually beneficial relationships (that were impossible within the prior stability due to its essential self-maintenance and defence processes, which always disabled such things. Indeed, without the incorporation of these processes within the prior system, it would never have become established and persisted.

Now, they were no more, and anything could happen with what remained.

Processes of all possible kinds would start to happen, but initially would be wholly uncoordinated and would vanish almost as soon as they happened. But, any mutually conducive processes would fare better than mutually contending processes and small proto-systems would gradually begin to appear.

NOTE: Also, all the usual criticisms of the Pure Energy conception of the Big Bang would be absent here, as with an Explosion there would be NO symmetry restraints. Indeed, such an Explosion would be necessarily and majorly **asymmetrical** and **non-homogeneous**.

So aggregations of fragments of leftover Matter could happen from the outset, and would occur in **locally** denser areas.



Now, such an alternative would be quite unlike the usual model, where ONLY Energy would be present, and somehow **two** very unlikely processes would have to occur.

These would be

1. The Creation of Matter from Pure Energy alone, and
2. The appearance of Asymmetry in what would have necessarily been an entirely Symmetrical Origin. For without this, how could the beginnings of aggregation ever take place?

Indeed, it is impossible to conceive of how an Energy-only Origin could ever lead to either of these outcomes. Energy would be rapidly

spreading and diluting, and would surely be the very opposite of **focussed!** It would surely be radially

dispersing along rapidly diverging directions, and hence NEVER converging into freak concentrations for aggregation at all!

Returning to our Explosive Alternative, things would be very different!

Its quite feasible and multiple **asymmetries** would clearly lead to many small centres for aggregation, and in such localities lead to interactions of Energy and Matter throughout.

Now such a giant Explosion would indeed break up most surviving Matter into quite small fragments, with only a few slightly larger chunks quickly becoming centres for aggregation. The smaller fragments subsequent histories would, in the short term, be determined locally, and only in the long term by the ever larger aggregations, which would ultimately dominate.

So we must consider the mix that was mainly quite tiny fragments of Matter (maybe some elementary particle-like forms), bathed all around in a dense “fog” of energy, all moving outwards and spreading out along radial trajectories.

The presence of such concentrated energy-plus-particles might well lead to further Matter creation, because vast supplies of energy would be near concentrations of Matter. And the current Theory of Pair Creation has the source of such Pairs as very high energy Photons, perhaps being temporarily near a weighty nucleus of matter. Now, if this is reasonable for the present time (and it does seem to happen in our Accelerators), it could have happened *then* too.

Indeed, such Matter creation would tend to significantly change the nature of that locality, and a switch over to basic aggregation might well be triggered.

We may have to redefine our Matter quite significantly in such circumstances, for the presence of atoms in such a mix seems highly unlikely. That Matter may well have been much more basic particles, and the subsequent creation of Nuclei (of the heavier units) and later of atoms themselves would be the results of New Emergences at a later time.

Now, this picture of the early Universe seems much more telling than the usual version.

Instead of a rapidly expanding and totally symmetrical Universe, managing (somehow) to make Matter in what can only be continuously deteriorating conditions for such creations, we have a much more fruitful situation. And, it would NOT be one pulled entirely out of the blue, but indeed one based on the known phenomena of Emergences, and their sequences of Phases.

Also, a real Explosion CANNOT be symmetrical: an explosion is characterised by its non-homogeneity, and is a process over time, with different speeds at different points in the mix.

The results would, therefore, be much more conducive to the next-phase *creative processes*.

As in all Emergences, an initial cataclysm dismantling everything down to a Nadir of Dissociation actually creates the most conducive conditions for entirely new associations of entities and processes into various proto-systems.

Just such a situation seems ideal for new developments and even creations of Matter from Energy in focussed areas of both high Energy and fragments of Matter.

So, why is the usual alternative preferred?

It is because it can be supplied with Equations.

The formal tail can then wag the real dog!

And, that other perplexing task for the Early Universe (in its usual interpretation) has to be the creation of Galaxies, and even Galaxies moving towards one another. The energy-First scenario is decidedly poor at dealing with such developments.

But, any sorts of asymmetry and consequent happenings are possible in an actual Explosion as is suggested here as a viable alternative.

In contrast, in the usual version, with all being Energy and expanding radially from the so-called Physical Singularity of the origin of the Universe, most of the real qualities of Galaxies seem highly unlikely.

For example Rotation and Angular Momentum and all their consequences **do not** seem to appear naturally from a perfectly symmetrical expansion ***do they?***

What could be included here would be an accounting of all the Emergences that must have followed the initial one, which at each and every one of them would deliver many wholly new entities, relations and Forms, but this paper has already grown, like Topsy, to a rather distended size, and will require much too much to be considered ever roughly describable at this time.

The usual Theory has to deal with anti-matter and its absence NOW! It must also tackle the contradiction inherent in the **positron**. It seems to be merely ordinary matter, of the size of an electron, but *instead* having a **positive charge**, but everyone insists that it was the first example of **Anti-Matter**. Yet Anti Matter is supposed to be a different and incompatible form of Matter, which cannot co-exist with ordinary Matter and vice versa. Thus in Pair Annihilation, whenever both meet, they should mutually annihilate each other giving only Energy again. This is building a major plank of the development of the Universe on a small wisp of straw. It will not take much of a Wolf to blow that house down, will it?

(7,635 words)

The Myth of Analysis

I include here this old paper of mine from October 2008.

It falls short of where I now consider myself to be, but nevertheless it has the freshness of the discoveries of that time, which, currently, I consider to be so obvious that that I no longer emphasize them in my writing, concentrating upon new ideas, as you would expect. So, I ask the reader to bear with its increasingly evident mistakes and inadequacies,

It is still a sound description of the emerging alternative to the usual pluralist standpoint of the majority of scientists of today, and which was, and still is, integral to their consensus Theory of the Beginning of the Universe, as well as everything else.

Persuading myself that I might, for a change, learn something from *The Universe* programme on the History Channel, I turned on to hear the latest on **Dark Matter** and **Dark Energy**.

The programme started with the anecdote about Einstein and his dreaming up of the Cosmological Constant to explain the equilibrium of the Universe. The story goes that Hubble later established that the Universe was expanding, and Einstein ruefully withdrew his Constant, admitting that it was his biggest ever mistake. Subsequent “discoveries” many years later have now resurrected the discredited Constant, and given it a new opposite slant. Now, none of this is actually new. Several years ago Melvin Bragg’s *In Our Time* programme on BBC Radio took up the same issue with a panel including Roger Penrose, and exactly the same anecdote was used there too.

At the time I felt it necessary to emphasize the “equation complex” of all involved, and wrote what I considered to be a humorous exposé of the discussion.

But today I realised that my previous reaction was also too formulaic. It wasn’t just a fixation with equations that required criticism. It was the whole philosophy that was woefully inadequate.

In the TV programme all the contributors, though differing in one idea or another, nonetheless were unanimous in trying to identify the physical entities involved. Modern Cosmology is a weird beast. It is, without doubt, a web of Mathematics; indeed it was in studying the heavens that the first mathematics was extracted, and the idea that the Universe obeyed mathematical forms was first established. Prediction was brought to remarkable levels of accuracy at a surprisingly early stage, and throughout amazingly radical changes in “explanation” the solidity of the equations involved carried through almost unscathed.

Explanations, indeed, became a commentary on the Mathematics and could be remarkably exotic and magical. The accompanying narrative was a memorable “story” in which to bed down the eternal equations.

Note: It is essential to position this cosmological mathematics within the later position, which saw all phenomena as being similarly defined by equations. The cosmological cases were unique in that they were acting in such isolation in Space so that the mathematical forms did indeed give a very close match to the physical situations. But, of course, once the same approach was settled upon terrestrial phenomena, the same isolation was impossible, and in every single case, scientists had to impose a severe set of constraints for even an investigating experiment to be devised and carried out. Yet the extracted and abstracted equations derived from these experiments were considered to be identically acting to those governing celestial bodies, and that the constraints were there merely to “reveal” the hidden relations.

So, particularly in 20th century Cosmology, an erection of remarkable tales of the Universe, was in line with the usual forms.



THE MYTH OF ANALYSIS

So, in tackling Dark Matter for example, “things” were defined – from the data and the extracted mathematical forms, that would fit, and all that was required was to find one.

The area for their search was the “most basic level” in the physical world. The discussion went through various candidate particles to supply the Dark Matter, from neutrinos to axons and wimps to deliver the required hidden matter, and I suddenly realised that they HAD to find answers at that level, because their presumption was that Reality was composed at base of fundamental particles under fundamental laws, and yet they were staring at the seemingly empty void. The reason for the apparent absence of their essential entities must be that they were the most fundamental of all the fundamental entities. They certainly could not conjure them up out of the current set of such elementary particles, because they were much too big and easy to detect. It would be much better to assume that these particles were missing because they were impossible to see and hard to detect. If found they might even turn out to be even more fundamental than the current set.

But, finding a needle in a haystack was nowhere near as difficult a task. The culprits were surely invisible, with “no charge” and almost negligible, individual mass. It fact no *almost everything!* It was going to be a deuce of a task to even detect any of them. The best place seemed to be down the deepest mine on earth, when it was pointing away from the sun. Only such particles as these would then get through the whole mass of the earth to their banks of detectors. But they HAD to find them, for everything in all the theories of Dark Matter depended on some such repository of mass.

Note: I feel that I must comment on the necessary devices for modern physics. Apart from such systems as these, they also have the most prodigious accelerators and colliders, because they will need the prodigious energies that they will produce to make such that their “bullets” would smash into one another with sufficient energies to produce the various missing particles that theory confidently predicts will be present.

Ultimately, they assert they would have identified all the actors, and the Universe of “plays” would then be totally explicable.

But, surely, such a purpose must be infantile?

Do we also explain the Origin of Life and its subsequent Evolution in terms of such basics?

I think you will find that we don't!

The most important discovery that came out of the Origin of Species and the establishment of the fact of Evolution was the role of **Emergences** in that development. The history of Living Things is punctuated with vital episodic revolutions of Change – Emergences, which are of a very specific nature.

They are revolutions which overturn each previous status quo, and which establish wholly new and indeed *created* Levels, which could, in every single case, never have been predicted from the preceding Level's contents and laws.

And this total absence of prediction was not because the involved elements were not fully known, but because Emergences are impossible to predict by their very nature.

They are always entirely creative in producing wholly new entities, processes and even laws. And to put the cap on it, Emergences actually transcend straight contradictions at the preceding Level. Things that were impossible due to direct contradiction were in fact overcome by the new situation at the new Level, and this was in spite of the contradiction being STILL unresolved, and indeed still fully extant at the lower Level.

When stated as above, this affirmation still appears totally impossible, so how can some thing impossible be overcome? The answer is that the factors hammering up against one another with no resolution at the lower Level actually subside at the new Level. It isn't that they cease to contradict, it is that they cease to exist in such a form that their opposition is significant. Other things have come into dominance, and the once totally dominant factors have melted into the background.

The thing about development is that you can't explain things at one Level in terms of those at the precursor Level.

Full reductionism is a myth!

Now, this is not to say that the comprehensive nature of the new Level is not wholly dependant on what preceded it. Of course it is! BUT, the mechanisms that precipitated the new Level from the Old are completely unavailable to our METHODS and our philosophical standpoint. Transitions of this type are beyond a pluralist approach entirely. Reductionism is ONLY possible *within* a given Level, and even then only to a certain degree. There are NO things that are common throughout ALL the Levels in Reality. Each new Level carries with it its OWN elements. The search for the reasons for the Origin of Life in the exact conditions that preceded that Event is an impossible task. Such will never be found!

In the same way, the occurrence of the idea will not be explained in terms of neural nets within the brain. They are at different Levels!

What does this really mean?

It means that the development of Reality is precipitated into cataclysms wherein all the old conditions are undermined to such an extent, that even the very variables we are studying as significant and indeed dominant *disappear*. They cease to exist as such in the new Level. And what new entities can be identified CANNOT be analysed into their prior-level variables. This becomes clear ONLY if the concept of the nature of Reality is changed from one in which everything is maintained throughout such a transition, to one in which they are clearly not.

A pluralist (Whole and Part) way of considering Reality has to be replaced by a holist approach, wherein innumerable factors ebb and flow, and at a transition, no longer display their conflux as certain identifiable key variables.

They no longer survive, and the factors have re-organised into quite new, never-occurred-before entities – and will have to be the elements of any discussion of things at the new Level. Sense will be possible within the New Level, using the new entities, but will be impossible when it is attempted using the entities of the previous Level. They are no longer as they were!

The whole spectrum of Levels consists of new worlds at each Level. The attempt to explain them all in terms of some common, fundamental forms is understandable as an objective, but impossible, because even if you “find” your choice of “basic” units, they will be cancelled out, by the discovery of a still lower Level below them. The substance of Reality is only revealed in its manifestations at the various Levels. The entities at a given Level are just as real as those at any other. Those occurring only in Life are just as real as the elements in Physics, or those appearing in Thoughts.

Reality is NOT Wholes built out of Parts (except trivially), but manifestations which come into being in new Levels and vanish in subsequent ones. It finally becomes clear why Hegel insisted on the central role of what he called **Becoming**. He was talking about the transition to a new Level. It was hidden in his work, because he could only address these questions by studying Thought, and there the Emergences and their consequent new Levels come thick and fast, and we lose sight of their profound significance because of their frequency.

Now, if such an approach to Reality is correct, the whole purpose and method of explanation in Science becomes impossible. Explanation is possible while entities continue to exist, but are meaningless both before they have ever existed, AND after they cease to exist as such at the next Level.

Now, the usual, and quite understandable criticism of this approach is that the various Levels involved DO NOT vanish once they have been superceded. They continue to exist! So the conclusions cited above are rejected.

But there is a mistake here. What happens is that the Levels form a hierarchy. The lower manifestations at a certain Level can still exist *at that Level*, while simultaneously, at a higher Level; they no longer exist as such. If we FORCE the conditions to be at the lower Level, those entities will re-emerge there, but if we were able to “force” the conditions to the higher Level, those same old entities will be gone.

Reality manifests itself at different Levels in different forms: those forms are temporary and local to each Level. It would perhaps be more meaningful if we consider the substance of Reality as precipitating these forms as **necessary** from the tumult of relations that it consists of. We don't realise that the issue is not whether they exist at the lower Level, but whether they CAN exist at the higher Level. They don't!

The higher Level is looking at a higher System. Its entities and laws are ONLY meaningful at the higher Level. We cannot talk about **living** atoms, can we? We must begin to conceive that our simpler forms do not exist as such in the higher Level. We can make them reappear, but only by **destroying** the Level, and re-instating the Level below. (And sometimes, that is exactly what we do).

Think for a moment about the contradictions in sub Atomic Physics! Why do you think that they occur?

What are we doing when we seem to transform the nature of Reality in our experiments?

Could it be explained by my explanations outlined above? If not, I await your better explanation.

Now. I am aware that the vast majority of scientists will in unison condemn my position. I must apologize for my woefully inadequate position. But the appearance that I am abandoning Science is, of course, entirely incorrect. But I am abandoning the myth of Plurality. The trouble is that the assumption of Plurality IS the usual basis of all Science. Everything is analysed into Parts, and in turn these are then analysed into their Parts, and so on. It is our basic approach, and it DOES deliver useable results in appropriate circumstances.

It does NOT erect purely speculative explanations. We have built the modern World using Plurality, and prior to its realisation, we were incapable of any really scientific endeavour and application. Even if everyone was to accept my position, the fabric, method and productions of our everyday World would continue, but we would ALSO open up a whole new galaxy of possibilities. Our current approach is NOT the last word. It is NOT capable of delivering everything. Indeed, its inadequacies are already legion, and particularly in Modern Sub-Atomic Physics and Cosmology

(2,384 words)



The Myth of Cosmology (Maths-Led Science leads to Another Dead-End)

I was recently watching the latest instalment of the famed *The Sky at Night* programme on BBC TV, and along with the usual regular presenters (who are usually accompanied by a couple of prestigious visitors), though in this case we had the **Astronomer Royal Sir Martin Rees**, Science-TV star **Professor Brian Cox**, and a popular comedian/impressionist. Yet this particular mixed bag unintentionally punctured the usual atmosphere of *specialist knowledge* that usually pervades this offering, and instead they seemed to reveal *very clearly* that they were all talking rubbish. But it was a special kind of rubbish: it began to make some sort of sense when you realised that they were all either mathematicians or amateur astronomers. In spite of the emphasis on observing the Heavens, which usually put the majority of viewers at a major and justifiable disadvantage, it became increasingly clear that such an area of study was absolutely perfect for dealers in mathematics alone.

With the almost perfect isolation of each and every heavenly body, under the influence of the simplest of physical laws, the area is the closest you can get to that World of Pure Form alone that is the sole true realm of Mathematics.

In such an area you never do interventionist-type experiments – for the simple reason that you can't! And most of what you see (indeed “all of what you see”) would be more accurately described as having already “*been and gone*”. It is ALL untouchable Past History! Yet nowhere is it the usual type of experienced History, with a situation going overtly through all of its stages, as an available sequence. And this is because, on the one hand there was never anyone there to experience it and record it when it was happening, AND every single observation is **only** seen at a **particular place** and at a **given time** in the past. And as things change so slowly, nobody lives long enough to be able to watch such a single thing in its trajectory of change. It is always a rigid Still!

For, what happened immediately before at that observed position, and what will have happened after are *never* actually available, and undoubtedly connectable events?

Now, let us be absolutely clear! Such single snapshots of what amounts to a multitude of histories are absolutely ideal for mathematicians for a number of reasons. Such a record hides any Qualitative Change completely! Even when a Supernova appears before your eyes, you are in NO position to measure in dynamic detail, what is going on. And for the vast majority of normal Changes, absolutely NONE is available in any sort of sequence.

What you get is more like a series of dots (each from a separate and maybe a different process) being interpreted as a genuinely continuous graph of a presumed **single** process: they can ONLY be interpreted based upon the assumption of total and universal continuity and causality.

There is NO evidence for anything else.

And, in addition, almost any continuous-form equation can be fitted to some set of data or another. For the data are just moments *without dynamics*!

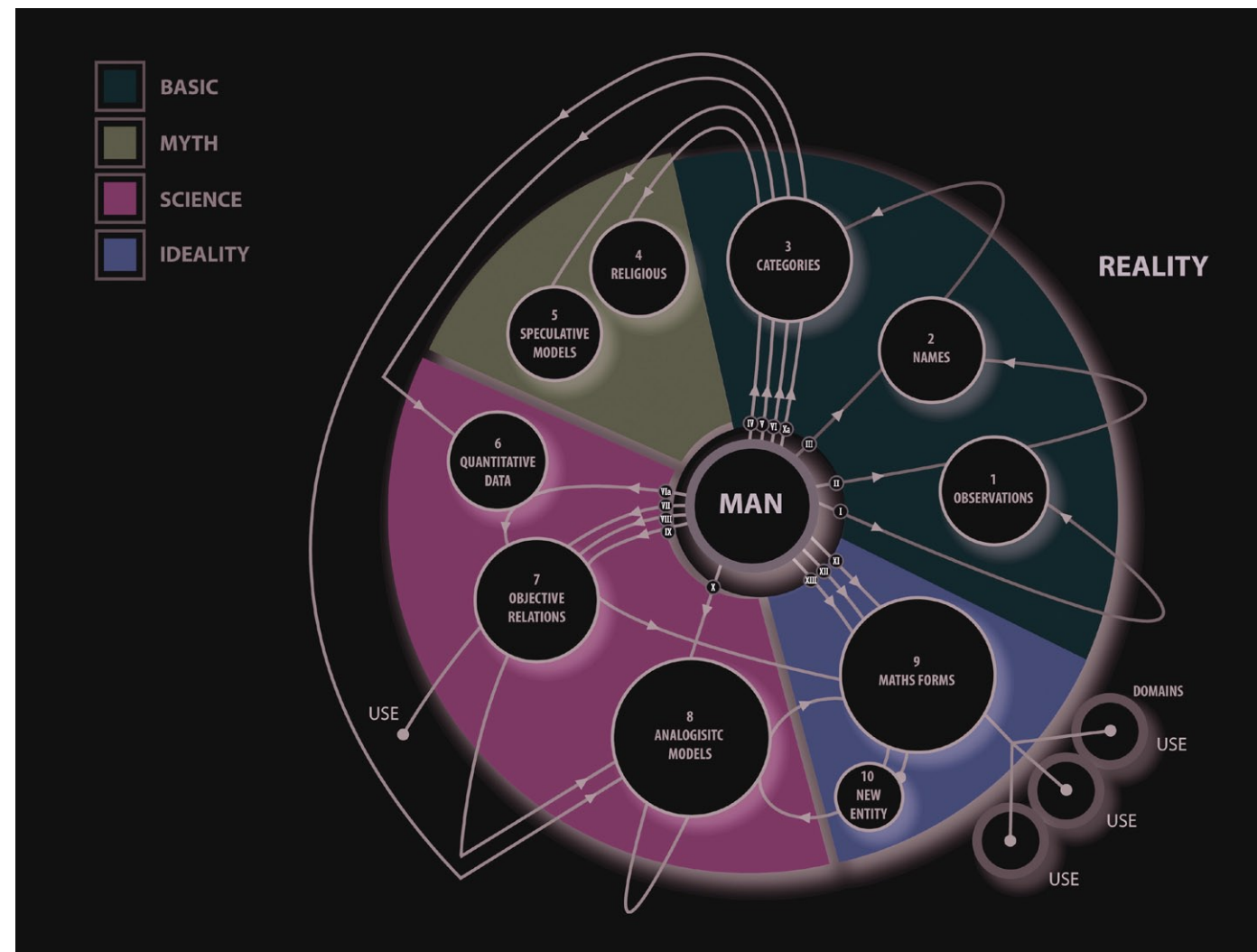
Now such a damning characterisation of Astronomy must seem both perverse and extreme to the enforced-passive imbiber of these expert interpretations, but those criticisms are not the imaginings of a complete amateur.

In a long study into the *Processes and Productions of Abstraction* (carried out as the first step in an attempt to reveal what actually goes on in Science) this scientist and mathematician discovered some crucial features of Mankind's attempts to both handle and understand the World around him.

One of the diagrams from this work is shown here.

Mankind's first intellectual achievement (long before anything that could conceivably be called Science) was **Mathematics**. But from the outset it involved major simplifications, and, indeed, abstractions. The most significant was that it revealed, extracted and studied **Pure Form** in total isolation from the Real World.

The triangles and circles of the Ancient Greeks did NOT exist as such in Reality, but only something similar (considering Form alone).



And by concentrating upon that Form and casting aside ALL concrete content, it was possible to *perfect* these Forms into *ideal* shapes, which could be encapsulated into completely studiable things – represented by derivable and manipulatable formulae.

They were abstracted into things that could be studied in their *own terms alone*.

But, let us be clear, the Forms that were studied were always perfected and idealised versions – the real World versions were almost always too complex and blurred by “noise” to be amenable for such study.

NOTE: Now if the reader is unconvinced, let him or her consider the diagram included here. For, though it is certainly not the last word on such things, it does show where mathematics *split off from* the alternative scientific methodology, in the sequences of abstractions that were developed.

Indeed whole philosophies were erected based upon such idealised conceptions, and the explanations of all things were sought in the “ideal” and the “perfect”, which were soon regarded as the **Essences** of Reality itself, and therefore this approach could only be totally *idealist*, for they began to consider that these Forms actually *caused* real World phenomena. And this being so, as soon as a Form had been revealed, it was not *only* necessary to refine such basic causes, but also to use them as the only way to accurately **predict**, and that was a unique kind of power to those who knew how to do it.

Yet, we must be absolutely clear, **all** that was involved was the **Nature of Pure Form**.

Now if such Forms were totally and permanently integrated with their concrete sources, then it would deliver a very important route to Science – the actual Explanation of why things were the way that they were.

But that was never the need for mathematicians.

The power (and the weakness) of Mathematics is that though it is universal, and can be both revealed and used in countless areas of Reality, but it is also only *temporarily* true. It doesn't remain true in a given context forever, yet the forms appear everywhere in the behaviours of very different phenomena.

Each is a pattern, and a product, of something else. It *causes nothing*: it itself is *caused*, and then only imperfectly. To depend on it *only to understand* Reality is a major mistake.

And there is another important feature of Mathematics, which really throws the cat among the pigeons.

You can legitimately *invent* Forms! You can extrapolate from Forms extracted (with idealisation) from Reality, and consider modified versions, which differ in almost any respects you select. The inventions of several Non-Euclidian Geometries are of this nature. And though occasionally some of these can find a home in relations in the real World, they, even then, have the same *ideal* nature.

A clear example is to do with “Dimensions”!

Mankind found a wonderful way of encapsulating a Form over a whole given range, by plotting sets of values of variables upon a Graph. A subsequent line in 2D, or a surface in 3D could contain the whole gathered set of data (plus even more?), and the application of Geometry to these “possibility spaces” was very useful.

But, in doing this, we were using concrete Space as our “ground”, and this has only 3 dimensions. But many phenomena in Reality involve more than 3 variables to cover the extracted relations. Indeed, it is conceivable to have any number of such involved variables. Mathematicians keen to extend the use of Graphs to all such relations invented 4D space (and the rest). They couldn't *plot* their data, of course, because they did not have enough *real* Dimensions, so they extrapolated the algebraic processes, which could be derived from 2D and 3D graphs into higher dimensions. The only trouble is that they believed that these dimensions could also be real!

A crucial step was Einstein's Space-Time – with 3 dimensions of Space and 1 of Time, and immediately the 4th Dimension was established as *real*! Indeed, many things could be derived from this new 4D “space”, particularly concerned with Gravity. And an important step had been made in confusing two different Worlds – Reality and Ideality. And the differences between these were not only dimensional.

Ideality contained *only Pure Form* and dealt only with purely formal relations, yet it began to be seen as the main purpose of Science to only find Equations – purely formal relations with any number of dimensions. The “proof” that these are not simply hierarchical is in the very different ideas of Truth that pertain in these Worlds.

In Ideality **Absolute Truth** is not only possible but actually deemed to be **essential**: it is the basis of all Theorems. It establishes the Truths of Form.

Yet in Reality and in its mode of study – Science, Absolute Truth is **never** available. The scientist deals instead in **objective content**, which can also be described as involving only aspects or fragments of Truth, or perhaps most accurate of all as being the sequence of temporary stages on the never-ending path towards Truth.

Now, why is all this important?

It is because the “new” mathematical scientists actually dwell *only* in Ideality, and **not** in Reality.

Do you need proof?

At this TV gathering on *The Sky at Night* the experts in turn brought up **Parallel Universes**, **Finite but Unbounded Space**, the **String Theories** of Reality (everything is entirely composed of strings of pure energy)

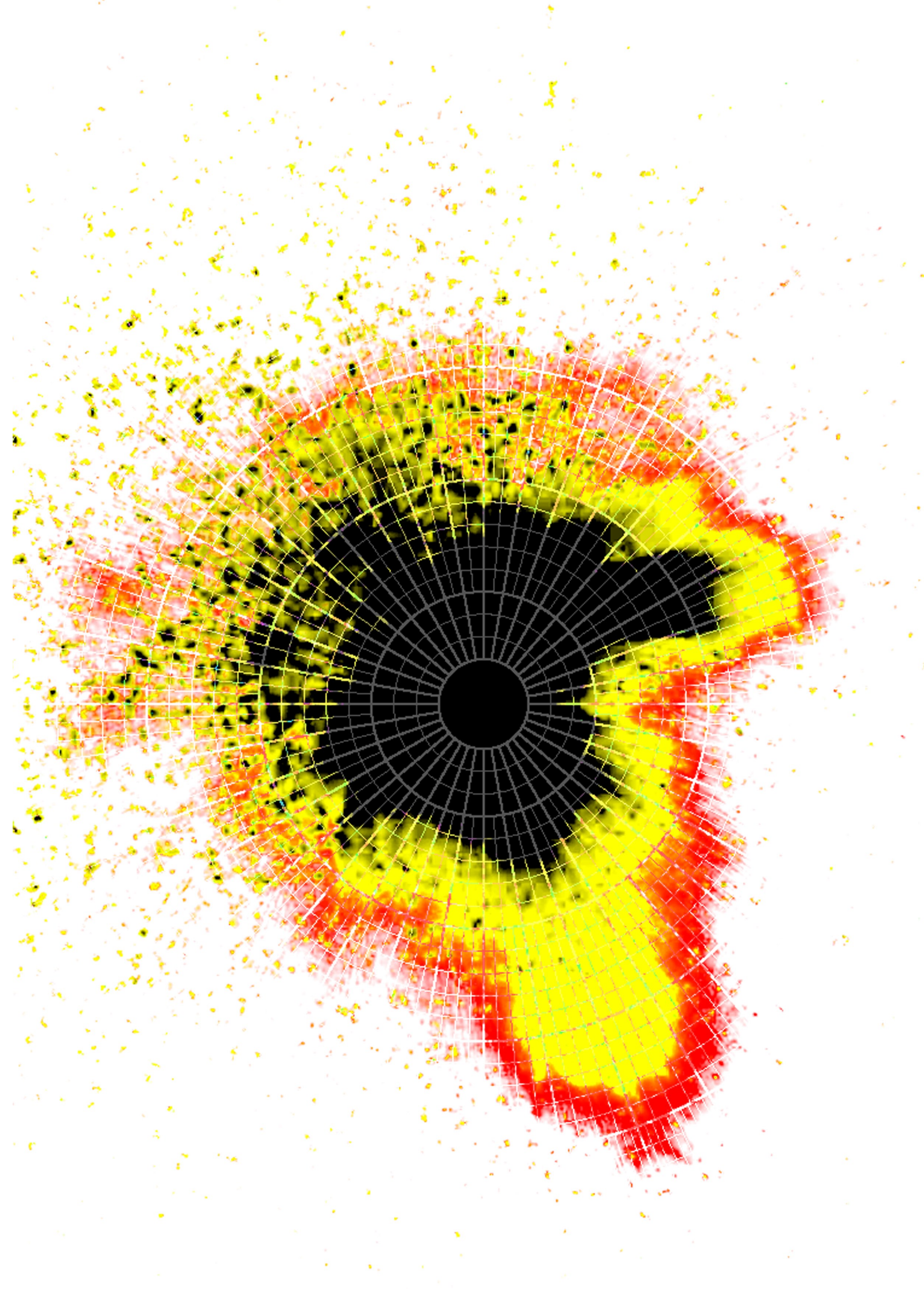
In addition they explained how the **Big Bang** happened, but occurred *everywhere at once* (it was just that everywhere THEN was all in one place – termed a **Physical Singularity**) and much more of the same ilk.

Do you doubt where they are talking about?

Is it Reality? Or is it Ideality and their studies are mathematically based?

What do you think?

(1,646 words)



The Initial Explosion? (Look Dad, No Maths!)

Let us consider a real explosive start to the Universe!

Now, such a start could not have been the actual Beginning of Everything emanating from a Dimensionless Dot – the **Physical Singularity**, for such an event must have been the result of a prior existing Universe in its final death throes.

In a classic, frequently-described kind of cosmological process, that prior existence must have been in the final stages of increasing contraction, which though it would display relatively stable conditions throughout the bulk of this long process, would finally exceed the required conditions for maintaining that stability, and end up in an almighty and definitely terminal “coming together”.

The energy of that truly massive collapse, with all its diverse contents, including Matter, would produce the most stupendous concentration, and this would exceed all prior limits, and would therefore precipitate an avalanche of dissociations in which the vast majority of Matter being turned into Energy.

And this vast creation of Energy would deliver an enormous rebounding explosion, in which almost all Matter had been dismantled, and only disparate fragments would remain in the gigantic rush outwards,

Now, the reader might wonder, with justice, where such a full description has come from, and therefore dismiss it as unfounded speculation, but that it not entirely the case.

Firstly, the Event is considered as an extreme case of an **Emergence**, which occurs when a stable situation has finally succumbed to a legion of destructive processes, and, passing a minimum threshold careers downwards into a general and seemingly terminal avalanche of dissociation.

And, as in all Emergences, such a major collapse always appears to be heading for Total Chaos, and (obeying the **Second Law of Thermodynamics** to the ultimate degree) approaches the End of Everything – Chaos having replaced almost every single vestige of Order.

But again, as in all Emergences, that does not happen!

The recurring result of such initially wholly destructive phases in these Events is always the same – it isn’t Chaos at all, but a series of increasing processes, which deliver the exact opposite of the direction of the Second Law. For, the most important dissociations in such a collapse are always the very ones, which both endowed stability to the prior system, and also prevented any alternative creations of Order becoming established. Such processes would always be destroyed immediately and utterly.

But once they are no more, a very special kind of Chaos ensues.

With a total absence of such constraints, and indeed prohibitions, mutually conducive processes come together and increasingly proliferate, and they do that at the expense of any other neutral or even mutually competing alternatives. Thus, these new “systems” become the embryos of a new Order, which initially at least can grow without constraint.

Indeed, this kind of Chaos is **the** most creative situation that can ever occur, and in spite of the inevitable accompanying renewal of Second Law dissociation, elicited by the new fragments of Order, and though the earliest of these proto-systems are, in turn, bound to be themselves dismantled, the return will then again be to that intensely creative state and allows new and different patterns of nascent Order to again begin to appear.

But as with all such cycles, they are never exactly the same!

Slowly, each following system include other **non-productive**, yet **protective** processes as part of the overall system, and these with each new attempt grow bigger and more effective, and these later attempts persist longer and grow much bigger, until, finally, a new stable Level comes into being, which has all the necessary qualities to **persist!** The Emergence is over, and a new and richer Level has been established.

Perhaps surprisingly, these Stable Levels are not **progressive** in their subsequent behaviour, but, on the contrary, intensively **conservative** – this being due to the extensive and effective defence processes, which in the end ensured the system’s establishment, and thereafter continues to prevent any rival and alternative systems from ever establishing any sort of start.

Now, all these described properties have been derived from Emergences in general, which have happened infrequently, but significantly, ever since the actual Origin of this Universe, but, of course, always **within** it. For that Event was the most profoundly destructive in the initial dissolatory Phase, and reduced what remained to the most fragmentary and uncoordinated chaos that could possibly happen. In a sense, the prior Universe had been reduced to the smallest of fragments plus a vast amount of expanding Energy.

But, it was certainly **NO Physical Singularity!**

The greatest claim to probability must be that these speculations were NOT formal and indeed mathematical, but quite differently grounded on a whole galaxy of important creative Events, for which there is much present day evidence on a whole range of different Levels from the origin of Stars to that of Life itself, and even the crucial creative processes of Human Thinking.

Though the completion of this catastrophe was indeed by far the most destructive of any Emergence, it did still conform to the trajectory of a classic Emergence (taken to the limit). And clearly, with this alternative Model, it did not consist of Energy alone. Neither was it totally symmetrical, which was hard to get away from with the formal and purely self-sufficient version of the Big Bang. The rebound expansion, as with all actual explosions, would be usefully both essentially **inhomogeneous** and certainly **asymmetric**. It would have been an extreme case of those remarkable Supernovae, except that instead of a single large star biting the dust, we are talking about something almost incomparably larger.

This new conception, therefore, has TWO elements, which are absent from the consensus version of the Big Bang. First, it is a classic, if extreme, form of an Emergence Event. And second, it includes a classic, if extreme and literally all-embracing Supernova-type explosion. These two take us away from maths-led speculation, **Higg’s Bosons, Inflation** and the rest into essentially **known** territory.

All the insoluble questions as to purely **symmetric, energy-only** origins **vanish**, and are replaced by a mostly energy, but with some matter, Event, which must be asymmetric and therefore could, at a later stage, lead to aggregation. And we must not forget that though the usual “theory” of the creation of matter came from the observed phenomenon of **Pair Productions** that always seemed to require that the source high-energy Photon would also require the close passage to an already existing concentration of **Matter**. In one sense then, this alternative is closer to that original phenomenon than the Higg’s Boson extrapolation of current maths-only theories.

Clearly, we are still speculating. But what else could we do?

But we are not **formally** speculating – basing our extrapolations entirely on pure Form alone.

We have sound, known ground on which to speculate as to the Very Early History of our Universe. And, as will be seen later, this removes en-bloc vast areas of speculative rubbish and allows much more **reasonable** and indeed **real** interpretations of many observations of the Heavens which DO NOT tally with the current Big Bang Theory.

(1,181 words)

Creating the Early Universe (*The Experiment to end all Experiments*)

A great deal has happened in the World we inhabit, and Man, as a uniquely equipped thinking animal, has gloried in revealing what it is, and even was, and attempting to explain how it all happened.

Yet from a conceived-of span of a lifetime or two, the length of History has grown at an increasing rate, until now, Man can now contemplate the **Beginning of Everything**, which (with a surprising accuracy) he places at 13.7 billion years ago with the creation of the Universe itself!

And his audacity seems to know no bounds as he builds multi-billion dollar machines to “re-create” some of the first moments of that remarkable span – indeed, to recreate the actual moment of the first Matter itself.

The layman cannot but be amazed at such conceptions and expensive undertakings, and being unable to conceive of how anyone might possibly know what to do, retreats into his demonstrated ignorance and leaves them to it. It is an old performance of those who “can”, and an old reaction of those who “can’t”.

Yet, if it were revealed what connected thinking has led these investigators to this juncture, our reader might not be quite as impressed, or as admonished by it all. For the trail to the **Large Hadron Collider** is merely an ascent to *that machine*, and NOT a path to the Origin of Everything!

In considering 13.7 billion years of development, the scientists have ignored everything except what connects what they do now in the laboratory, with what “must have happened then”.

They subscribe to **Universal Reductionism!**

They believe that revealable causal links have connected everything right along that trail of development, and that each and every phenomenon can be explained in terms of its component Parts (*The Principle of Plurality*), so that ultimately everything that exists today, and has existed at any time throughout that vast History is analysable down ultimately to a set of fundamental basic and immutable components – for such a finite causal sequence **must** start somewhere!

They also believe that the initial elements will be (or will be closely related to) the “fundamental particles” that have been discovered in the last 100 years. It is not by chance that all the talk among those involved is about **Theories of Everything**.

But, why does it take billions of dollars to build their experimental rigs today?

They would say that it is because the energies involved at the start of the Universe were so colossal that to achieve them here and now necessitates such constructions, but that is not the whole story by any means.

The main reason is because Man still cannot deal directly with Reality as it is.

He must control a *chosen limited locality*, with total isolating constructions and powerful and diverse constraints to greatly simplify what can possibly happen, and so reveal the relations between a small number of the many Parts actually involved. This is the **Pluralist Scientific Technique**, which determines all of Mankind’s experimental set-ups. It is, of course, based on the idea of **Plurality** - the causal relationship of every **Whole** to its constituent **Parts**. It is his **ONLY** reliable method!

And by it, he has isolated, extracted and abstracted myriads of relations in all areas of Science.

And one further brick has to be brought in to make the required foundations complete. It is the assumption that what was revealed by these pluralist experimental methods is **exactly** what also pertains in unfettered Reality too. The relations involved are exactly-the-same, but acting simultaneously with, and somewhat blurred by, all the others.

But, both of these foundation stones of current scientific methodology are mistaken.

The World is not wholly Pluralist as is assumed, but in fact *holistic*. Plurality is a useful set of frigs, invented by Mankind to begin his investigations into Reality by simplifying it, and as long as the very same simplifications

CREATING THE EARLY UNIVERSE

are instituted when the extracted relations are intended to be **used**, then they will indeed work.

But, outside of Man's constructed Domains, everything both affects and indeed modifies everything else. The Parts dealt with by pluralist techniques are **not** those, which are integrated into actually existing Reality. Consider an Oil Refinery! Why is it necessary?

It must replicate each and every separate Domain that had been erected in order to extract relations so that they could be used and work! So the Refinery is a large collection of these, each for its own particular purpose! So, what is the **Large Hadron Collider**?

It is the pluralist experimental kit to cut Reality down to size, which can be both conceived of and indeed investigated. It could never reveal what actually happened, because it leaves out the myriad of Crises and Emergences, which are the real, content-producing Events in the History of the Universe. It assumes a continuous, unbroken strand of causes from then until now, and that is **WRONG**!

Primaeval Conceptions of the Development of the Universe

Now, it is remarkable that from observations of the Heavens and techniques for interpreting the results, Mankind has "reconstructed" what he considers must have happened and indeed when it happened to initiate this stupendous process. And, needless to say, to have any hope whatsoever of delivering anything remotely like what *really* happened, there would have to be some unifying principle, which, step-by-step, could be repeatedly employed to allow a backwards speculation to prior stages in this History.

And as it turns out there can be only **TWO** options for such a reconstruction. They are either eternal causal Laws acting throughout and successively producing more and more complications, level upon level until we reach the Reality of Today (this is, of course, Reductionism), which, at its most mechanistic was originally formulated by Laplace. Or, alternatively, Reality was from the outset purely holistic and things actually *evolved*! And such an alternative is very different because it is not merely additive, but creative – new things emerge via crucial Events in which things change in a qualitatively important way, and have global consequences! You take your choice!

But, how you make such a decision, must be determined by your position, your beliefs, and what you can see! And that cannot but initially be very restricted by our microscopic life spans (compared with the Age of the Universe), and our mostly very limited means of dealing with what we actually observe. We could, of course, do no other than *simplify* the seen Heavens, and manipulate our simplifications to, more easily, erect speculative explanations.

Of course, with increasing Knowledge and Control Man was indeed able to physically restrict some earth-bound situations, so that they became much easier to make sense of, and impelled Man to impose the helpful principle of Plurality (The Whole and its Parts) upon all of Reality. And this assumed that any found relations were *separable* from context, and could be extracted by appropriate means.

Clearly, the first step was to assume Plurality conceptually (in our categorisations and thinking about things). And Man even managed to arrange artificial Domains, which tailored local parts of Reality to actually deliver mini-pluralist areas. And these latter were a truly brilliant invention, because both in investigation, and in use, he was able to isolate, extract, abstract and even use relations from, and in, these farmed divisions of Reality.

Now, all of this, of course, would have profound consequences when he addressed certain areas of Reality, and most particularly in the actual History, in areas, which he could never actually access and therefore control. Such areas were clearly beyond his reach! And so he tried to re-construct and explain these without his necessary controls and constraints, both in his investigations of the area, and in his conceptualisations of what he could only passively see! He had to *assume* a great deal and *speculate* even more!

Principles, which were entirely appropriate within the usual specially, erected and constrained Domains; he HAD to apply well outside their realms of Applicability.

He therefore was forced to construct a History based on "small islands" of the present!

The proof of this stands out clearly in his current Cosmology! In his Accelerators (and now in his **Large Hadron Collider**) he gradually gathered together a Zoo of what he considered were the Elementary Particles – the building blocks of all material things! And doing exactly what I have described above, he then applied all this to his "History" of Reality back to the fabled Year Dot. Do you disagree?

Sub-Atomic Physics – as conceived and carried out by The Copenhagen School of physicists, was carried directly over into Cosmology "exactly" as it was used within the tiniest of environments.

And, thereby, these people for the first time were able to provide experimental "evidence" (found in earthbound experiments), which could be used to construct a Reality from its supposed Birth! Now, any characterisation, such as I have ascribed to the current consensus on Cosmology, will NOT be wholly coherent, for in unavoidable ignorance, it can only be fragmentary, and the usual solution is some form of supposedly temporary eclecticism: things are added to the overall mix which "don't yet fit (but presumably will in the future). The alternative to this seemed to be only Laplacian determinism straight through from the Big Bang to today, and only the most unimaginative merchants were able to subscribe to that. No, a compromise had to take our thinkers closer to Reality. Yet, as such, these *essential incoherencies* stood out like sore thumbs, and somehow they had to be "smoothed into" the more deterministic whole. And this was achieved by always having an **alternative narrative**, an explanatory approach that had decidedly holistic elements, and even entertained ideas of the Evolution of Reality.

As far as I am aware, there isn't a single approach, which does not include such incompatible fragments.

For example, theorists frequently talk of distant eras when the "Laws of Physics were different".

Now that does NOT gel with Laplacian determinism, does it? But, as to how these "eras" changed into one another, there was NO mention. What separates these eclectic thinkers from Emergentists is that *only* the latter make the study of these transformations **crucial**. They alone concentrate, not on Stability, as do the majority, but on its regular (if rare and episodic) demise and total transformation. They even denounce the prevalent idea of continuous, incremental change accumulating into qualitatively new entities and relations, and instead limit true innovation entirely to these cataclysmic episodes, where the old stabilities **end**, and wholly new Phoenixes arise from the seemingly terminal ashes of a necessary destruction.

And this is not a merely academic philosophical difference.

Indeed, it changes the Science, and the techniques involved, and even the renowned Scientific Method.

The whole methodology of Science here-to-for is inadequate to deal with such creative dynamics. The tidy and reproducible conceptions and phenomena of *farmed*, pluralist Science cannot be maintained, if the subject of study is qualitative change in an evolutionary way. For things change whatever you do, and such changes are innovatory – they actually create the wholly new – like **Life** itself! You cannot *farm* such Whirlwinds!

But you may be able to understand it!

And the oldest and soundest techniques give us a place to start: we can use analogies and metaphors from Reality itself – we map one real trajectory in Reality onto another, and we attempt to begin to develop the **Forms of Qualitative Change**, and they are profoundly different to quantitative changes.

About 200 years ago, **Hegel** already "knew" what was necessary.

He correctly criticised determinism, and in particular, Formal Logic, with its insistence on the **Identity Relation**, which effectively prohibited Qualitative Change. He in total contrast attempted to construct a wholly new Logic of Change (which he called *The Science of Logic*) by studying his own Thought! But, neither he, nor Mankind, was at that time equipped to carry through this stupendous undertaking to any sort of conclusion.

But, surely the situation is now very different!

Though we still have to scale precipitous heights (mostly self-constructed by our pluralist predecessors) we surely have sufficient revealed ground to precede.

2,023 words)

The Nature of the Primary Cataclysmic Event (The initial phases of the Big Bang?)

Recent musing on Empty Photons and their now extinct, but presumed, primaeval parent forms (the Filled Photons), pose questions about the origins and evolution of such entities.

If, as is universally assumed, the Start of Everything was The Big Bang, then something prior to, and causative of, that Event must then have endowed the situation with certain properties.

[But the full considerations of that pre Big Bang scenario is another major question, and cannot be pursued to any extent here.

Nevertheless; a few assumptions will, doubtless, become necessary]

So let us draw some conclusions about the nature of the Big Bang itself!

Such an Event is without any doubt whatsoever the most prodigious Qualitative Change in the History of the Universe, so it cannot be dealt with by employing a couple of unfounded assumptions.

It could NOT, as is now the consensus position, have emanated from absolutely NOTHING!

Nor could it stream through a supposed Wormhole in

the fabric of Space to allow the channelling through of

Pure Energy from another Universe!

The ONLY reasonable assumption that we can make about such an Event is that it is a special Cosmological version of an **Emergence**. And from our knowledge of Emergences that have occurred since that time, we can assume that, as with them, a prior balance of processes which were integrated into a self-maintaining Stability, was finally tipped beyond its threshold of sustainable balance, and precipitated a wholesale avalanche of positive feedback, and hence a self-increasing dissolution of all the processes which delivered that Stability (as is always the case in all Emergences).

Whatever was that prior Stability would be totally destroyed by such an initiating phase of the Event. Thus, instead of the current total absence of any reasons for the Big Bang, we would instead be seeing it in terms of something we do know about, though clearly in this case it would indeed be an extreme case (appearing nowhere else)! For everything that has occurred since is presumed to **Start** with this Event!

NOTE: To those unfamiliar with it, we must explain that all of these ideas are derived from the **General Theory of Emergences** (by this author), which was developed from all sorts of Emergences brought together in an attempt to deliver the most general description of what features must be involved in such Revolutions.

There, for the first time, the sequence of Phases, which seem to be essential to such an Event, have been both described and explained, and must relate in some way to this – the biggest such Qualitative Change in the History of Everything.

So, in spite of its gigantic size and stupendous effects, as always in any Emergence, **something** must have survived the initial cataclysm.

Indeed, such Phases are NOT dissociations of everything that existed prior to the breakdown. They are mostly to do with the **Dismantling of Order** and this is selective (very **Second Law** in Nature) in that it is precisely those processes, which defend the Stability via self-maintenance and countering alternative systems so that they actually bite the dust. It is a kind of **Structural Filleting**, largely leaving basic individual productive processes alone, but totally removing their skeletal systems of control and defence.

Thus, such an Event does NOT dismantle all processing, but crucially the stability in which they all function together in a coordinated way. The “detritus” left will **still** be rich in these processes, but they will **not** be ordered into a generally coherent overall system.

THE NATURE OF THE PRIMARY

CATACLYSMIC EVENT

This “**Return to Chaos**” is NOT a return to a primaeval basic condition at all. In fact it produces **the richest uncoordinated situation**, packed full of creative possibilities – very different to the usual conception of Chaos.

The question is, “What would it be that, surviving the greatest calamity in the History of our Universe, survived to form the basis for all future developments?”

So, once again drawing upon the Theory of Emergences, the Big Bang cannot merely be a big bang.

It must start with an initial cataclysm, and then, via a period of alternating creations and dissociations, finally arrive at a self-maintaining Stability, which both *proliferates* its Forms prodigiously, but is also highly **conservative**. The Early Universe would stay-the-same for a long period of Stability before that Level is compromised and precipitates yet another Emergence. We cannot be dealing with a sequential hierarchy of mere complication, but a sequence of structural and **new content** Revolutions. The new qualities of the Universe are built by Emergences.

Now, some clues are evident!

Certainly **Energy** must have come through the cataclysm. And as the prior state was some sort of balance, it would have had to have had some entities with their inter-relating forces. The clues as to what could have been can only be found within vestigial (primaeval) Energy. For even Pure, disembodied energy (radiation) has both electrostatic and magnetic elements within it, and itself exists as a “*kind of balance*”.

For NO oscillation can occur without a balance of forces resulting in a stable “**zero**” or “**Rest State**”, so that energy pumped into the system merely causes oscillations about that rest position at greater and greater amplitudes as more and more energy is included.

But, what could possibly *contain* such a microcosm of Reality? What is involved?

We are told it is Energy and Energy alone, but that is almost impossible to conceive of, when NOT involved in some physical material containing system.

Our commonest vehicle for energy is Mass in one form or another, but apart from this there is only (as far as we know) Radiation – and that is said to be an oscillation about NOTHING, propagated by NOTHING, yet capable of transferring energy with certain qualities across the whole Universe.

Not much there for us to work on, is there?

Now, the usual problem with such impasses in Mankind’s attempts to understand Reality, occur because his assumptions (though initially fruitful and leading to important gains) inevitably run out of steam, and crudely display their inadequacies.

The reason we are stumped is that we have shot ourselves in the foot, and can get no further, using our set of premises: they are inadequate to the necessary task!

Our assumptions, as usual, are by no means the Full Story, but only a temporary **construct** containing vital *objective content* (and hence valuable thus far), but have finally betrayed their inadequacies.

Our musing on the Early Universe is clearly predicated upon what we have extracted from the present State and Level of our Universe, and **cannot** be true for its earliest Phases.

Let me attempt to clarify this with an example.

Once we have atoms with nuclei and “orbiting” electrons, we also have **Energy Levels** for these electrons. They can be promoted UP to higher Levels, and can be demoted DOWN to lower Levels with both directions involving transfers of Pure Energy into, and out of, the atom.

Now this energy, when *separate* from the atom, must be in the form of **Radiation**, and must bear the *stamp* of its origin within the atom. The energy levels will have determined the frequency of that radiation

It is, after all, how we determine the content of distant stars! We investigate their spectra of emitted radiation and match it to know Elements from experiments on Earth.

BUT, we **don’t** find energy *without* this stamp!

It dominates all observable energy!

No other kinds seem to exist!

But we may be misinterpreting complex mixes of radiant energy as being entirely composed of these atom-sourced types, when some of it, is not that at all, but *remnant primaeval energy*.

Yet our theories say that there must have been a time when there were NO Atoms, and hence no electron orbits and no energy levels. What would this primaeval energy look like, and what would be its source?

Remnant Primaeval Energy is most likely to be found in positions where it would not have the chance to become something else in subsequent Emergent Events. For example, the absolute furthest extent of our Universe, is likely to be just such a place. Long investigations by this author into answering the question, “*Can We See The Edge?*” were certainly fuelled by the realisation that such boundaries must be crucial in understanding the Universe and its Creation.

Now I could replicate this type of reasoning many, many times. And the reason is that the Universe is NOT composed of eternal entities obeying eternal laws! That is the usual assumption, but it is, in fact, incorrect!

It actually **evolves**! And that will include the creation of the wholly NEW. Is not Life here to prove the case, and Human Consciousness too?

So, when dealing with the Early Universe we cannot merely extrapolate backwards from what pertains today, assuming a continuous strand of causality throughout. Our usual assumption of Reductionism is neither eternal nor universal. It is invariably *local*, and applies only within the localities of a given Level.

Now, this does make the Science of the Early Universe somewhat different! So, confronted with such an unknown situation, what do the physicists do?

They do what they simply have to do, and make assumptions about what might pertain at that un-investigatable time. And, as you might guess, they can only come up with a single candidate, which made the period what it was, and that is **Primaeval Energy**.

Now, as to any properties of that “source of everything”, the only difference they can conceive of from present day Energy is merely its **Size** and its *concentration* into a much smaller volume! Everything else about it is assumed to be the same as now! There has to be sufficient Energy to create everything that exists today in our Universe, including, of course, **all the Matter** too. Such amounts of Energy when considered in this way are almost inconceivable. If a 2 cm. piece of Matter can, in a Nuclear bomb, produce such a vast outpouring of energy as was evident from their use in Japan and since that time, the amounts of required energy as the source of all Matter, simply zooms off any conceivable scale.

Now, they certainly need to know more about this colossal amount of Primaeval Energy, so they decide to *make some*!

They design a whole escalating series of **Particle Accelerators**, and use them to smash particles together, but thus far the energies involved have been far too small.

So they finally design and build the **Large Hadron Collider**, which is so powerful that they actually expect to *create Matter* from Energy (in the form of the **Higg’s Boson**) actually within their machine.

Do you think they will succeed?

So all of their experimental design is not only based upon present day common entities and forms of energy, but somehow they expect to use these to re-create the Early Universe (in miniature).

Their idea is somewhat like using modern living thing to re-create the earliest organisms as they first appeared on Earth. Clearly, they simply cannot succeed!

The Universe is NOT all of a single uniform nature throughout. On the contrary, it contains, and always has contained, different **Levels**, which are added to with each and every new **Emergence**. The Universe can ONLY be conceived of as an *evolving entity*, and then NOT achieved by a continuous series of incremental developments, but ONLY via tumultuous Events termed Emergences – the ONLY situations in which the NEW are ever created, to appear in the consequent resultant Levels that Emergences always produce. And these are not only self-maintaining, but also and necessarily prohibitive of any potential rival systems in embryo.

Life itself is the reason why new Life cannot separately appear from non-living Matter. And whenever these Levels continue to exist as such, no further developments are ever possible. They have to begin to be significantly undermined and then dismantled for the NEW to emerge.

Yet, **such** is the impossibility that these scientists hope to overcome. Using only what they can – presently existing things, they hope to smash their way back to the Origins of Everything, Can anybody tell me why this is considered to be “a magnificent undertaking”?

By smashing entities together at the most incredible energies, they are hoping to actually *create* in microcosm, not only the conditions of that Early Universe, but they then expect this to be sufficient for the necessary Emergences to happen *under their hands* to tell them all they need to know about the creation of Matter. You would expect that, with such objectives, vast researches will have already been undertaken into gaining as much Knowledge as possible about Emergences and Revolutions, which we know have happened much closer to our time.

But that is **not** the case!

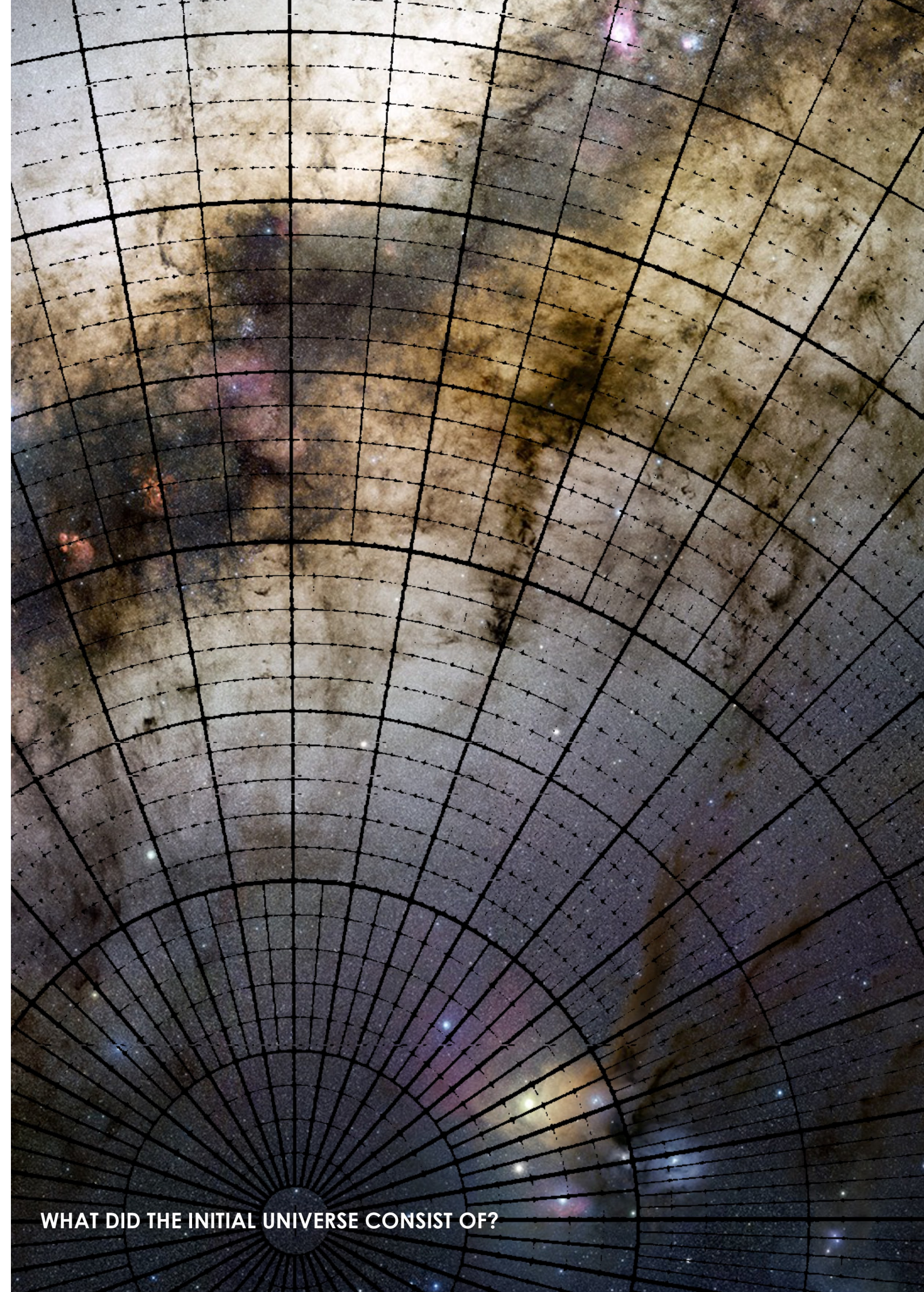
They don't believe in Emergences!

Life occurred (according to them) *smoothly* and *naturally* directly out of the “right conditions”, as indeed did Human Consciousness.

They do believe in Plurality and Reductionism, which “gives” them a causal chain all the way back to the original fundamental entities. Indeed, their previous smashing adventures have delivered much detritus from the collisions, within which they are certain that they observe fragments from the earliest times in the Big Bang. All they need (they assure us) is the **Higg's Boson**, and the path to the first Matter will be crackable.

I wonder if they will take a bet?

(2,234 words)



WHAT DID THE INITIAL UNIVERSE CONSIST OF?

What did the Initial Universe Consist Of?

Let us consider the “contents” of the Initial Phase of the Universe!

And clearly we have no choice but to first address the most widely held ideas of its composition. Let us attempt to consider the potentials of a situation consisting entirely of Pure Energy and absolutely nothing else!

Now, this is a very odd assumed initial composition, for the idea of just Energy with absolutely no Matter, and hence no material structures or receptacles, does look awfully like what is also supposed to be the end point of the Universe – totally unstructured Chaos. Does it not?

It makes you wonder why it has become the consensus opinion?

Could it be because anything else would require an explanation, and that in turn would have to look to what preceded this remarkable Event, while formless Pure Energy cannot be explained – so it isn't?

But, we are supposed to be considering the whole of Everything - the origin of all that has happened since that time, including ALL that is material, with stars and Galaxies, and the miracle of the Origin of Life, not to mention the even more miraculous appearance of Consciousness.

Why would speculators of the Origin of Everything settle upon Pure Energy as the Source?

It can only be because our Thinkers on this intractable problem are happier with such a starting point: they think that they can do it! Their concepts and methods might well be able to construct a believable trajectory from there, while anything else would surely NOT be scientific enough to reveal such important truths, and might even end up with supernatural alternatives, God forbid!

No, they decided Pure Energy is better.

“We have all sorts of equations which deal with energy (radiation being the most important, so we will certainly have a place to start! “

But, I'm afraid that I am inclined to the exact opposite viewpoint. In answer to the question, “What would be the possibilities inherent in such an initial Universe?”

I could only come up with the very different answer, “None!”

A wholly self-contained Universe with zero outside influences, composed only of Energy could surely have absolutely nowhere to go, and nothing to do! How could anything NEW arise? And let's face it, these theorists actually think that too. They would certainly HAVE to have *something else* to add to this situation, and they did! The suggestion had to be changed somewhat. There must be a “*changing* content” at the very least. So, though absolutely Nothing was said to have preceded the Universe, somehow constrained within the Dimensionless Dot – A Physical Singularity, they could add something else. It was the Big Bang!

NOTE: Before we go any further we must tackle their initial conception, the **Physical Singularity**.

What is that? Well, it is derived from *singularities*, which occur in equations, and in particular in their illustration in the form of Graphs. As graphs are a purely formal representation of an **Equation** (as generalised), they must involve some sort of “Range” – over what ranges of values can we apply this equation?

Well, there are two answers to this question depending on where you situate your relation. In the real world, there are always limits to the applicability of any relation.

Whereas, if considered as an abstract generalised form (an Equation), there will be NO LIMITS: the equation will be (theoretically at least) applicable all the way to infinity (in both directions). And such “endpoints” are termed **Singularities** or more usually **Asymptotes**.

They exist in the world where Pure Form *alone* exists, which is not Reality, but **Ideality**.

Now, if you are unaware of this realm, it is really quite close. It is where all Mathematics and mathematicians dwell! It is the realm of Pure Form, and this includes all relations and equations taken ALONE, without concrete contexts and limitations. Does this help?

Now, these considerations are vital. When taken entirely *by itself* any equation is interesting, but totally useless! “But, surely”, you may well interject, “we use such equations all the time and with great success”

Well, No we don't! If anyone takes such an equation and tries to apply it somewhere or another in the Real World, it will inevitably fail. Have you tried it? It was only possible to extract such a relation but first of all severely limiting the context, so that most involved factors would be removed, and a very limited Domain established in which worthwhile measurements could be taken. That would allow a reasonable relation to be extracted. And, in the hands of the Mathematicians it could be generalised, so that the very same Form could fit many different Domains containing very different phenomena.

Finally, to make such an equation *useable*, the very same conditions in which it was first extracted would have to be replicated. Then a real measure of success would be possible.

Indeed, Science was historically unable to develop until Mankind had accumulated enough Knowledge and Techniques to erect and maintain such Contexts – they were termed the necessary Experimental Conditions. Now, this was not mere Technology. Mankind had for millennia began to divide the World up into Parts. And most of these were self-evidently individual and relatively permanent manifestations of Reality – such as animals, people, mountains and rivers. But, such could never be the subjects of *formulate-able relations*. So, when the whole schema could, and did, arise, which we termed Plurality, (where every Part is in fact a Whole, in itself, with *its* own constituent Parts), the World was considered to be *analysable* into such a hierarchy of Parts.

But, this was a construct!

Reality has many appearances, which can be used to talk about various aspects of it, but such Parts are difficult to relate formally.

So, Mankind had to *change* Reality!

And he did it by constructing his ideal experimental conditions – those in which his named Parts were always clearly visible and available, and could therefore be investigated.

Such Domains were actually very specially isolated and controlled “islands” – separated from external influences, and with many factors held completely constant.

(Only in such circumstances was it possible to observe, extract and then abstract relations into generalised equations.) Man had found out how to modify sections of Reality into islands that fitted his pluralist conceptions, and it worked! As long as the same conditions were indeed replicated in use, his derived equations would work consistently and reliably.

He could *predict* using his formulae, and hence both *plan* and *produce*!

Now, these elementary points have to be described, for they are NOT the conception of most of Mankind, and that includes, perhaps surprisingly, the scientists too.

Though all of what I have described is exactly how analysis proceeds, equations are extracted, and production is organised, the background assumptions of what is actually happening are very different to the actual situation.

The whole methodology as described above is considered to be merely techniques to reveal actually existing relations with Reality-as-is. Each extracted equation is considered to be a *real and separable component* of Reality. And the reason that we cannot cope with them in unfettered Reality, is believed to be because so many of these relations are acting together, and they are thought thereby to “blur” what is happening, and thereby *hide* the individual *driving* formulae.

From being a wonderful, pragmatic technique, Plurality became a definition of the way that *things are*, and that, I'm afraid is wholly incorrect!

Now, the reader may, with justice, wonder why this writer has strayed so far from his initial topic – The Nature of the Initial Universe!

But, by now, the reasons for this must be becoming much clearer.

It proposes a Reality, which is NOT pluralistic, but essentially holistic. The rich variety of Reality is not composed of *separable* components (Plurality). Indeed, all factors in a situation modify one another to produce the real (concrete) and observed outcomes in unfettered Reality.

The Whole also contributed to the nature of its Parts.

We cannot merely analyse forever until we reach the ultimate Parts, because the elements are themselves changing along the way. Any Top-down analysis implies a simple Bottom-up causality, and that is simply not the case! So, the conceptual journey to the ultimate Parts (the so-called Elementary Particles) is impossible, for such a concept assumes the separability of all the Parts involved, and that is NOT true!

It is only the presence of diverse mutually affecting factors, which, as various Wholes, deliver the different phenomena.

This is very different from Plurality, which in its most primitive form, had only four contributing elementary Parts, namely **Earth, Air, Fire and Water**, and was presumed to produce everything by merely adding together different proportions of just those four *separable* elements, and absolutely nothing else.

Is that not precisely and philosophically what we do now, except that we recognise many more Parts, and in some form of hierarchy?

Now, if we are limited to starting with nothing apart from **Energy**, what could we possibly make?

The answer has surely to be, “Nothing at all!”

The starting point of the Universe consisting initially *only* of Energy just has to be a Myth. How does anyone seriously consider it?

Well, it may be entirely natural if the forms isolated, extracted and abstracted into Laws, are actually considered to be **Primary** – that is they existed FIRST!

After all that is very close to the usual conception. They are termed **Natural Laws** and are frequently considered to have existed even before Matter – sort of waiting in the wings, to be activated “when required”.

Yes, if you ask any proponent of the usual conception of the Early Universe, they will explain that the Laws of Physics existed First!

All happenings of whatever kind could only occur in total conformity with these pre-existing “Rules”

The obvious question, “Where did those Laws come from?”, has no answer for pluralists, unless they resort to a pre-existing, not-of-this-world designer – indeed a God! But a holist meanders into none of these kinds of cul de sacs. These people see all laws as produced by Reality in process and development.

Reality evolves physically and produces its own forms at every single stage. It is the particular conditions that produce the laws, and they *change*. They change because the core process, in real development, is that of **Emergence**, which alone produces the wholly new, and with such additions of the “new”, how can any law be eternal?

Such considerations though not usually stated explicitly are always there, and the very different basic standpoints produce very differently explained Worlds!

So, we have as serious thinkers to take these two incompatible alternative standpoints, and see exactly what affect they must have upon the Origin and Nature of the Universe.

Could the initial content be entirely Energy?

Must it have had diversity from the outset?

An aside must be inserted here!

What is **String Theory**, and how does it relate to the current discussion? Well, I will not attempt to plumb

the depths of this idea, but I will state categorically that it is ONLY about Energy. By this Theory the whole of the Universe is, at base, still composed only of Strings of Energy. And this gels very well with the idea of Energy being Primary. Instead of elementary particles being the basis of everything, which despite its evident flaws is Materialist. The String Theory has these Strings of Pure Energy at the base, which clearly puts it in the Idealist camp.

Now all of this has to be very difficult for ordinary mortals living in a real World. Much of it sounds totally insane. But that is because you are not a Mathematician: in Ideality - the World of Pure Form alone, ALL is abstract-able into formal equations. Indeed, it is only there that everything can be *proved*, one way or the other, as **Absolute Truth**.

Now whom are you going to believe?

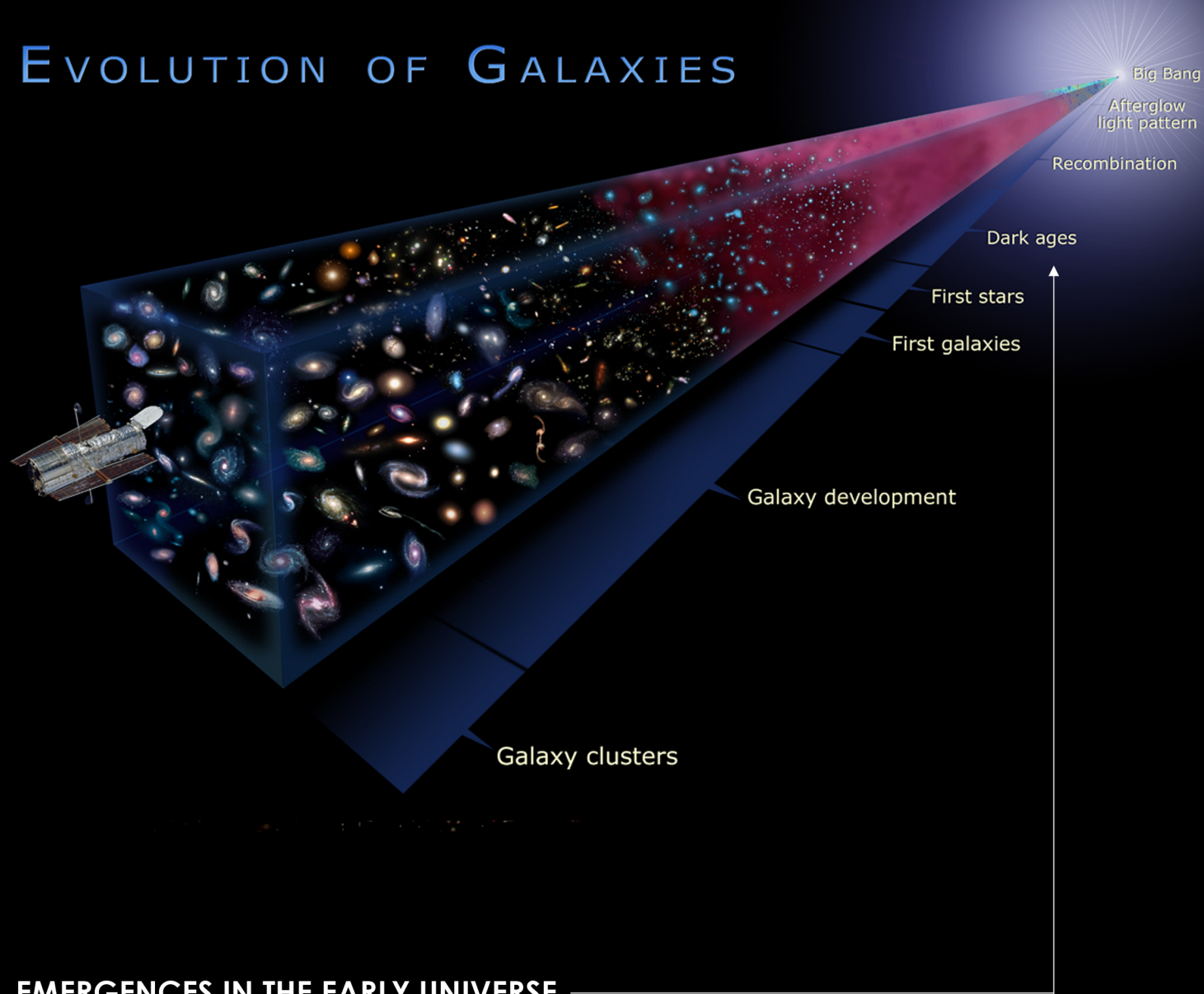
If you struggle to even conceive of Energy without an intimate association with Matter, then do not despair! Just join the rest of Humanity living in Reality, and leave the magical myths to those who are convinced that they actually live in The Perfect World - in Ideality.

Now, all of this philosophical stuff is vital, though you will have noticed a glaring absence of detail about alternative contents at the real Origin of the Universe. And the question must be, “If we have to attempt to suggest what was present, and what happened then, entirely in a holistic way, we do have difficulties.”

The pluralists, by their contrived experiments, deliver separable components, at level-below-level, which conceivably could, in the limit, deliver initial components. But, in a holist World, such straight through “Parts” would NOT exist! Whatever “parts” there were would be changing throughout, as are the Laws, at each succeeding Level. So, though the pluralists’ task seems much easier, it is also bound to be INCORRECT! While the holist’s task is horrendously more difficult, but much more soundly based.

How can we approach the latter?

(2,175 words)



EMERGENCES IN THE EARLY UNIVERSE

Emergences in the Early Universe (When Every Qualitative Change was for the Very First Time)

Let us (for the moment) assume an energy-only start to the Universe. Now, if that start was from a so-called **Physical Singularity**, I have absolutely no idea of what that can mean *physically*, and hence I am at a loss to know from what initial entities and relations the initial processes and systems of the new Universe could have been composed.

NOTE: For students of a holistic view of qualitative changes, these early changes would be remarkable in that every single one of them would have never occurred before, so that each and every one would involve what are termed **Emergences**.

So, along with everyone else, I can only assume an intensely concentrated First Phase. And this will mean that the mode of existence of the energy will be consonant with those conditions, and therefore, perhaps, the next Phase will be wholly determined by the rapidly decreasing concentration of that energy.

Perhaps, as in the Changes of Phase in Matter at our own present Levels, the energy will be able to change mode in some way. Yet as long as the content remains ONLY pure energy, I cannot see anything else happening, and can only conceive of an absolutely **symmetrical** emanation from the original highly compressed “moment” of Pure unadulterated energy, as some sort of **Radiation**.

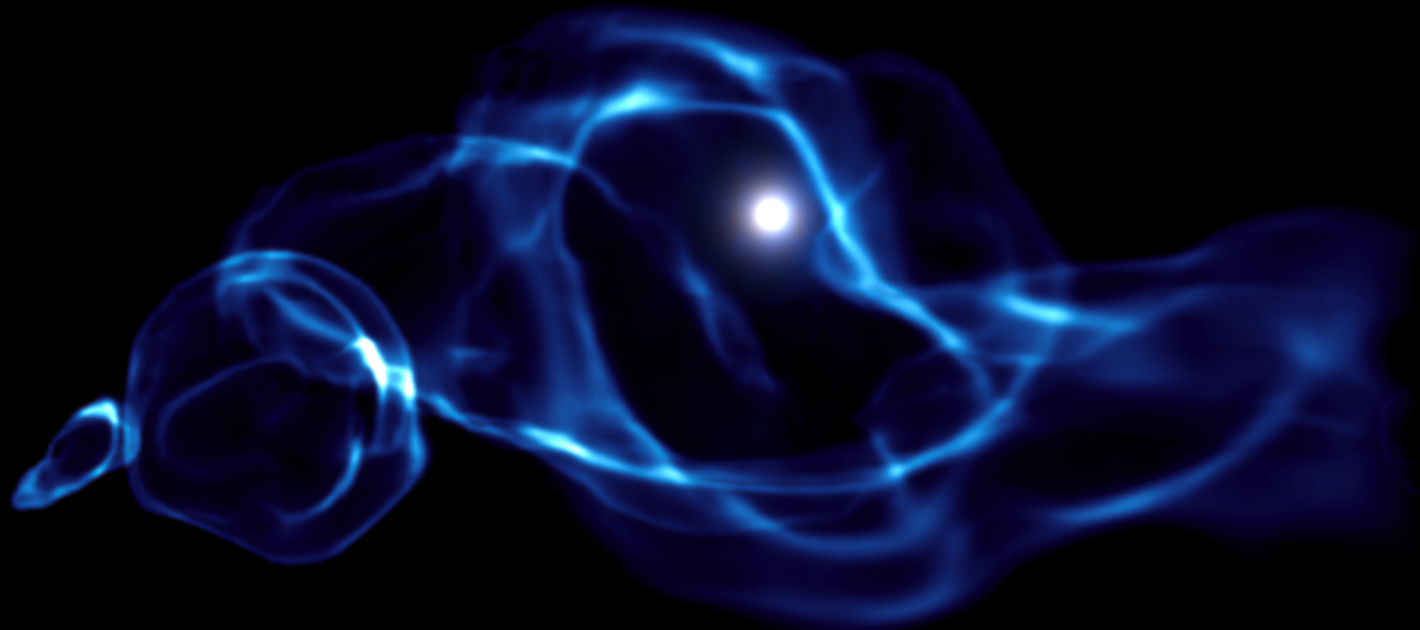
NOTE: Now the supporters of the consensus view of the Big Bang must also have been aware that these suppositions were highly likely, and have developed an alternative story, which includes a totally inexplicable Inflation (to spread things out more evenly) and the idea of the creation and expansion of Space itself. These are frankly totally speculative frigs designed to get from their chosen starting point to what certainly occurs much later.

Now, whether you take the usual consensus view or any other alternative, you are immediately faced with the question, “How does the contents of this Dimensionless Dot “extend” beyond that “vanishingly small initial Universe”? “How does it get out and conquer the Nothingness beyond, or alternatively actually *create* what we term Space.

We are told that it does the latter: it creates Space from the outset. Of course, we are pressed to ask, “What is the difference between the Total Nothingness prior to the Big Bang, and the created Space, which succeeded that Event?”

To help us to make any headway at all, let us suggest a few possible initial steps.

- PHASE ONE: Within the Physical Singularity!
- PHASE TWO: An Initial expansion mode.
- PHASE THREE: “Paving” the Universe (creating Space?).
- PHASE FOUR: Creation of the simplest forms of Matter.
- PHASE FIVE: Emergence of Charge
- PHASE SIX: First Nucleons and electrons
- PHASE SEVEN: First Atoms
- PHASE EIGHT: First Molecules
- PHASE NINE: Aggregation gets under way
- PHASE TEN: Bulk of Matter localised into Aggregated Centres
- PHASE ELEVEN: First Stars and Planets appear
- PHASE TWELVE: Beginnings of Galaxies



Now these are, of course, pure speculation, and the actual appearances would have had their individual “births”, but what is certain if you accept that all of these will have been for the first time ever, then each and every one will have been an **Emergence**, (unless, of course, you subscribe to the assumption that Reductionism extends uninterruptedly right down to the actual Big Bang).

Now, these developments must be one thing or the other. If they are strictly reductionist developments caused by eternal laws, those have to be spelled out in detail. But, if they were indeed Emergences, what has to be delivered is how each Event was precipitated by the undermining of a prior Stability by the initially gradual reduction of the maintaining and defensive processes of each Stability, unless a cataclysm of dissolution resulted in something approaching “total chaos”, which would be finally conducive to a whole range of innovative processes which could come together in possible new proto-systems.

The forms of explanation involved in these alternative approaches are entirely different. One is of the continuous application of pre-existing Laws and their *complication* into “new” forms, while the other requires both the definition of each Stability and its subsequent demolition. And these are also demanding of consistent approaches. If, as is repeatedly insisted upon in the usual scientific standpoint, the over-riding process is one from Order to Chaos (*constantly moving downhill*), they have to explain how the exact opposite seems to be happening all the time as the Universe develops.

On the other hand, only the new suggested standpoint integrates the Second Law essentially into the process of Stability breakdown, AND also defines the situations in which the exact opposite Law dominates. within the most vital Phase of the whole Emergence Event.

It is admitted by all (I presume) that many of the developmental processes of the early Universe cannot be demonstrated, and have to be what might be called Informed Speculation, but why the overall Second Law of Thermodynamics is suspended in the consensus view is certainly NOT explained, while its role within an Emergence Event is fully explained (along with its opposite) in the *Theory of Emergences*.

Now, we all are aware that what underpins all classical and current Science is the principle of **Reductionism**, and sequences of cause and effect could be strung together, but though these are legitimate within a Level, there is absolutely NO evidence that they continue right through these significant developmental Events. The partial truth of Reductionism is taken as proving the Whole Truth of that principle through the history of the Universe.

YET, not a single such transcendent sequence has ever been demonstrated. We are asked to take on trust alone that such is the case everywhere and at all times.

Yet does anyone doubt that there is a Level of Reality, which we can call Life?

And that within this Level there are Entities, Relations, Processes and even Laws that did not exist before the **Origin of Life** on Earth. And if the usual position is correct and the postulation of Emergences is wrong, then where are the current creations of Life carried through by our scientists.

There are NONE!

What is clear to Emergentists is that each new Level is created via an Emergence Event, AND, most crucially, that not a single new Law at the newly emerged Level can be explained solely from Laws at the preceding Level. Not a single one can be so explained.

Indeed, even though some fragments can indeed carry over, they are transformed by the Event; they would be dissimilar to those fragments before the transition.

And the reason is clear: Laws don't make Reality. Reality makes Laws. The new versions are what they are because of their mutually affecting existence with all sorts of others in the new Level. They are NOT just a summation of lesser relations,

They are crucially defined TOP-DOWN by their **full context**.

The old ways assume **Plurality**, where all the Wholes are determined by their own *separable* Parts. While the new ways are based on **Holism**, where they are determined, and themselves determine interactively, all their accompanying processes. Crucially these are **NOT** separable, as with Plurality, and in addition, determinations are **NOT** just bottom-up, but also side-to-side and even top-down.

And to those who ask “Why doesn't this happen all the time?”, which seems to be a fair question.

The answer is that most of these determinations are prohibited within Stability by the current dominances and their maintaining and even aggressive defending processes. The only time that these are no longer “in charge” is after the cataclysm of the first Phase of an Emergence.

The seeming “end-point Chaos” of this Phase is actually THE most creative environment for significant qualitative Changes and new inter-relations ever.

Now, this alternative is a very young Science.

Just as the old pluralistic Science cannot give all that is required in all circumstances, in holistic Science it is worse.

There are as yet only a few holistic techniques for investigating Reality, but they ARE proliferating.

All sorts of research is being reported where these “policemen processes” (particularly within genetic materials) are being revealed, and new methodologies are being put forward, such as the one for a new version of Miller's experiment, and the quality contributions of scientists such as Nobel prize winner Hunt and Ryan with his studies of the role of viruses in speciation of higher organisms.

So, what does all this mean in terms of the future development of Science and the answering of Questions such as the **Big Bang**, the **Origin of Life on Earth**, and indeed the first appearance of **Consciousness**? The answers will not be found by attempts to re-create the major Revolutionary Changes of the past (as is hoped for with the **Large Hadron Collider**), but by the ever more detailed and revealing study of the Events termed **Emergences**. For without a new Holistic Science based on these Events, the crucial questions will NEVER be answered.

So, perhaps we should drop all the **Physical Singularity** rubbish, and re-consider the Big Bang as some sort of giant Supernova? And this turns it away from all the multidimensional Mathematics-based stuff, into an Explosion!

For, then, things would be very different, and the creation of Matter would NOT be necessary – it would already exist from some prior Universe, which finally “plug-holed down” to some amassing concentration, which finally passed the final Threshold, and blew up!

No longer do we have to have a mathematical Tail wagging the “physical dog”.

BUT, and this is essential, we must **not** simply return to the old pluralist ways to look for answers. We must most certainly take the holist route, and consider that an almighty Emergence took place.

Now, in Evolution it is by now generally accepted that instead of an internally generated “implosion” with the demise of a prior Stability, resulting in an colossal positive feedback descent towards chaos, (This could, instead, be externally generated (in many of the Evolution cases by catastrophes such as meteorite impacts) by such substantial bodies, and this replaced the First Destructive Phase of the Emergences, and then carried on with the usual Emergence from there.

So, our Universe –sized collapse, could well be for Physical reasons (as with novae and supernovae, but the effect would then be to pitch everything into the most enormous Emergence – so enormous indeed that the usual descent towards the Nadir of Dissolution, could be taking the situation even closer to absolute Chaos Somewhat like an energy-only beginning maybe?

Now, if this were the case this Singular Initial Emergence could look very different from how the Big Bang consensus views it.

It could be considered as a very, very big, *yet standard*, **Emergence**, with all the usual Phases.

Thus we would get a cataclysmic dissociation of the prior Stability! (Yes, that does mean that there was something prior to the Big Bang). And this collapse accelerates down to a seemingly minimum random state, as usual with NO structural constraints remaining: they have all been totally dismantled! As usual it will seem to be heading for random Chaos, and this time much more so than in an ordinary Emergence. But, as by now you will be expecting, that final and irretrievable result does NOT happen!

As always the total lack of all stability constraints allows all sorts of processes to re-emerge but it will NOT be as before! This time we have the Daddy-of-all-cataclysms, and the Nadir is the lowest possible it could get, without losing all possibility of the usual following ascent.

There will be very little left, and the lack of controlling constraints mean that absolutely anything can happen, consistent, of course, with the lowness of the minimum point reached.

It will almost be like starting again from scratch. The usual conducive sets of processes will appear, but from a very low level.

NOTE: Such a situation was intimated in this author's paper *Truly Natural Selection* (see **SHAPE Journal**).

Mutually conducive pairs and then sets of processes begin to proliferate at the expense of mutually contending processes, and the composition of the primaeval mix begins to change, but hey will be from a truly primitive base on this very unusual occasion.

Indeed, in such a primitive, uneven and probably limited residual mix, the most basic of mini-systems will arise, and as the catastrophe plummeted so low, it is probable that these will be happening all over the place with different forms. So, a first ascent takes place and competition among alternate mini-systems will gradually select the "most-fit" proto-systems. But, immediately this is motoring forwards the ubiquitous **Second Law** will come into action and begin to undermine the new systems. The "progress" will reverse into a new decline, but NOT as far as the previous basement, and the constructive forces will again cause another burst of competition and development.

Now, for a better description than this fair mangled version of what happens in an Emergence, the reader should consult the **SHAPE Special The Theory of Emergences**, but the bare bones of what happens are perhaps becoming clear in this very special version *The (seeming) Origin of the Universe*.

Now, criticism can be made of this scenario, but it was derived from known Emergences that have happened since, and the elements of such an Event are very generally conceived of and investigated.

At such a stage of Analysis, NO actual contents are even suggested. It is an exercise in Dynamic Form playing out as a series of qualitative changes in a trajectory from **Crisis**, through **Dissociation** to **Order**.

Clearly, it could not be left there! To do so would put us in the same erroneous state as the mathematicians: we would be considering ONLY Form, even if it was both dynamic and qualitative rather than static and quantitative.

And, in the same way as the derivation of an Equation, being only the first step in attempting to understand a situation, the same would apply here. In both cases *concrete* participants have to be considered. So, what may have happened in this Initial Emergence, from the point of view of content?

What can be seen as a termination *within* a never-ending explosion? The Universe continues to expand; yet within its history there can be no doubt that many, many innovations have happened, and much of that history has been a relatively stable continuation of established processes.

The End of the First Emergence is NOT the End of the Expansion! It must be when occurrences within the earliest part of that expansion **Change the Game significantly**. What might these be?

(2,427 words)

Emerging Stars *(The Appearance of the First Star was an Emergence too)*

The Scientific Method involves the technique of applying an already extracted Law to a purposely wider or indeed different area of application to see if it fits, and then by careful manipulation of the variables, seeing just how far the Law can be applied, and modifying it somewhat when it doesn't exactly fit, or dumping it if it appears to be incorrect.

NOTE: But, you have to beware"

The real scientist knows very well that the same **Form** will very likely pertain in widely different, and, indeed, unrelated, areas, and never makes the mistake of seeing the Form as **primary**. But, in the modern world, where equations have replaced Theories as the main objective of Science, that sort of mistake can, and does, happen.

Now, the *Theory of Emergences* is perhaps more in need of such a treatment (as the Scientific Method) than most others, because any constructed experimental basis is entirely non-existent, and The Theory has been put together from fragments of "experience". It does not conform to the usual Scientific Experimental Technique, because it is a *holistic* conception, and must remain so.

Most scientific Laws are decidedly *pluralistic* (analytic – based on ideas of the Whole and its *separable* constituent Parts), because that is the basis by which they are isolated, extracted and finally abstracted into a general formula. Holistic Laws are very different: the most famous being Darwin's *Theory of Natural Selection*. Yet even the usual conforming kinds of Law, can never be *directly* extracted from Reality-as-is – that is from an entirely *unfettered* Reality. They have to be arranged for, by erecting specially designed environments, in which many factors are held rigidly constant, or even totally excluded, and, in addition, many other small and mutually contending factors have to be removed by *averaging*.

Such arrangements can indeed expose very clearly, and indeed *simply*, what appear to be crucial relations, which can then be fitted up to standard equations by the study of detailed data, obtained, *from that special set up*, over given ranges of values of certain key parameters.

It is a well-trying methodology, **but** it could *never* be applied to Emergences! Indeed, such revolutions are never under anyone's controlling hand! They are both very rare, and totally holistic, and hence are impossible to treat by such wholly pluralist methods. Darwin's Origin of Species by means of Natural Selection was also of this nature, and his many decades of work were his attempt to establish its "truth" **without** any possibility of applying the usual scientific experimental techniques. His work was qualitative, not quantitative, and he certainly couldn't *evolve* anything **as proof!** Indeed, what he did was NOT that impossible to arrange process, but a weak relation of it, which he had observed in cattle breeders and pigeon fanciers.

So, what do we do with our Theory of Emergences to establish its "truth"?

We must demonstrate its role (as currently understood) throughout some crucial dramatic evolutionary trajectory BEFORE any Life was ever present.] I have therefore chosen the Emergence of the very First Star.

Only after the rise of Sub-Atomic Physics could the question of the origin and development of a star from ordinary Matter be considered - until the experience with the Atomic and Hydrogen Bombs began to suggest a possible process. Starting with Aggregation under Gravity of the simplest atomic nuclei (those of Hydrogen) which consisted of a single positively-charged Proton [For at this time in the development of Reality, there was literally nothing else], it was speculated that, as a body grew ever larger, it would compress together, generating colossal pressures and temperatures at its heart, *until* the present process could not continue in exactly the same way, because the Protons began to fuse together to produce Helium nuclei with a consequent conversion of some of the Mass involved into prodigious amounts of Energy.

Needless-to-say, such energy was exactly what was required to ensure future fusions, and a Chain Reaction had to be the result. So, instead of a vast, totally inert ball of Hydrogen nuclei pressed tightly together, we now had a body emitting truly vast quantities of energy outwards at a prodigious rate. It had become a star!

Now, this was a total transformation of the situation, and created a wholly new, never-before-in-existence Phase: an **Emergence** had occurred which transformed everything! A new substance, Helium, had been created (again for the first time ever), and was being increased a very rapid rate: the more was produced, the more energy was available to trigger the next round of creations. And along with the Helium there were also vast quantities of Pure Energy (which had been Mass) surging outwards in every direction. And the vast outpourings came to balance the vast gravity caused in-pourings to deliver a relatively stable Star! Nothing but an Emergence could have produced these new creations!

But, no matter how large was this new Star, it would continue as a finite size, and it would finally use up vast amounts of the collected (Hydrogen) Matter in its fusion processes. At some point the reactions would begin to falter, as the process would begin to run out of available Hydrogen, and be increasingly clogged up with a vast surplus of Helium. The balance between outwards energy and inwards Gravity would begin to subside and the Gravity would WIN! The Star would dramatically collapse: the star would drastically reduce in size, with a consequent massive increase in the temperature and pressure at the centre, and, at a certain point, the fusion process would recommence – this time using Helium as source in a new Chain Reaction. A new kind of star had been born, and once more vast amounts of energy would be produced from leftover Matter, and a new balance between Gravity and the outward rush of energy would be established. New kinds of element would be created for the first time - such as Carbon (C) and Oxygen (O). Indeed, what else could this be but yet another Emergence? Now classical scientists may not agree! They may compare these Phases with the Phase Changes in ordinary substances on Earth, such as the Solid, Liquid and Gas Phases. But, there IS a considerable difference – the changes are not reversible in Stars! Each major Event creates new forms of Matter, and because of this, they have to be categorised as Emergences.

Now, as will be shown, the same sort of “stepped-up” process will be repeated many times, and we begin to see a whole series of Emergences, which must have occurred long before any Life was created,

Our template for such Emergences has to be based upon that crucial and undeniable Event, which we term The Origin of Life on Earth, but is now been radically extended in the forms and conditions in which they can appear. Indeed, Emergences were the creators of our Universe – ALL the elements, which we would have designated as the building blocks of everything, turn out to have been themselves **created** by these natural calamitous Events in Stars!

And, as must now be becoming evident, beyond the first appearance of Life, there is its continuing **Evolution**. Surely, that too must be peppered with even more Emergences, as ever-new creations were added to our developing Universe. And it didn't stop there! Was not Thought the product of an Emergence, and Consciousness too!

Now, quite apart from the specific case of The Theory of Emergences, a more basic feature of Reality is surely revealed by this evidence. Not only does Reality itself, and at all Phases, EVOLVE, but it self-transforms without divine intervention, and it doesn't do it in pinheads! Though some changes do take place continuously in such tiny increments, these **never** continue forever, gradually transforming things in a continuous process into the **wholly New**! That is Incorrect! It never happens! And we have to ask, “Why is this?”

It is because the Universe is **holistic** as well as being hierarchical! Things affect one another, but change is of two types.

The first type does not require any transformation of the current overall structures, while the second type can only happen via totally transforming Revolutions.

But even that is much too simple a recipe. Indeed, it would be more accurate to say that current overall forms cannot cope with continuously accumulating deleterious changes, are undermined disastrously, and finally completely overturned in a cataclysm of dissociation, which appears to be heading **only** towards total chaos, does not end there! Surprisingly, such bottommost conditions in fact are considerably conducive to a wholly original and unrestricted new Build, for without the once entirely prohibitive processes of self maintenance that were fundamental in establishing the prior Level or Superstructure, the new situation allows literally anything to happen.

So, the myth that small, progressive changes gradually transform things into a new, and higher, overall system turns out to be a FICTION!

Indeed, the process is better described as the current Level (by gradual changes) being successively, and finally terminally, undermined, NOT by better alternatives at all, but by its own inherent shortcomings. The destroyer of the Old is certainly **not** Progress, but clearly Dissolution – “Rust Never Sleeps!” What Man has codified as the **Second Law of Thermodynamics** strengthens these cumulative, destructive effects, and the currently stable Level begins to **crumble**. What is contradictory about such processes is that it is just such dissolatory processes that make the wholly New possible!

For all Stability is maintained by self-defensive and alien-hostile sub processes: they enable a Level's initial establishment, and then its continuing persistence. But, they also **prevent** any real progress once a Level has been successfully established.

Indeed, though the New may spasmodically appear, here and there, it **never persists**, for it is constantly attacked by the processes of Level defence. Thus, even at the moment of its final Birth, a Level has already become **ultra conservative**. It would never have become established without:-

1. The full dismantling of the prior System
2. The creative building of alternatives
3. The integration of strong conservative processes, attacking all alien challenges.

We have to change our conceptions, and the first that must bite the dust, as nonsense is **Liberalism**. This expects and encourages progressive changes as the way that things can be gradually transformed into something better.

That is **never** the case! It ignores the nature of the overall structure. It is a wish-driven view of Reality. Real Qualitative Change does not occur that way. Indeed, every single such development is very soon turned into its very opposite, by dominant processes which are well entrenched within and support the current system. What you can be absolutely sure of is that any Stable system will only begin to lose its grip and deteriorate, but will never make itself self-transform into something better. Systems are NOT natural amalgams of new desirable features, which win **on merit**! They only occur when an amalgam of self-defensive and maintenance features are integrated into an overall system, and any still “in power” current System using its own entrenched such features will always (from a position of strength) destroy any such emerging emanations.

Unless, the incumbent System itself self-destructs, there can be NO circumstances in which a new Level can come into being!

The Phases laid down in *The Theory of Emergences* DO seem to be essential, and these are:-

1. The Destructive Phase
2. The Creative Phase
3. The Establishment Phase.

And the strength of the Levels when established is proven by their resilience and extended longevity compared with the duration of the rapidly occurring Emergence Episode. The Stability of the Level seems to be the ever-present Norm.

We actually invariably assume that **only** it happens! Each and every Emergence is viewed as a cataclysm of destruction alone.

(1,969 words)



STABILITY & CATAclysmic DISSOCIATIONS

Stability & Cataclysmic Dissociation

Radioactivity and the Atomic and Hydrogen Bombs established that all Matter is not necessarily internally stable, and that many elements when left entirely to themselves, without any external intervention whatsoever, will gradually dissociate into a more stable form, giving off energy and minor particles in the process.

NOTE: Such concrete facts do indeed throw light upon Stability, for even with Elements that have existed for many billions of years, it appears that they are NOT wholly stable, but at a certain rate are dissociating into something else. Radioactivity is therefore supporting evidence for both the Nature of Stability, and the fact that it is always (to some extent) constantly being undermined, and in special circumstances, when enough of that element is concentrated together, the dissociative instability will avalanche into the most cataclysmic demise of the whole heap in what is termed a Chain Reaction and replace that small pile of the element into an Atomic Bomb. You cannot omit this piece of evidence on stability from your general conception of it.

So, remarkable Matter can turn into prodigious amounts of energy in such circumstances. The original form was unstable.

Indeed, the result of concentrating a critical amount (The Critical Mass) of that unstable element in very close proximity can cause the process to prodigiously accelerate. For the products of each and every dissociation can also precipitate the early dissociation of many others, and the process “runs away” in an accelerating Chain Reaction.

Now, as far as we know, this is not true of all elements. Substances like Hydrogen, for example, seem to be remarkably stable. Though unusual forms of certain very common elements can be produced, which are indeed radioactive – even Carbon can do this.

Yet, also, by means of producing enough energy and pressure even super-stable Hydrogen can be persuaded to fuse to produce Helium, and even more remarkably, some of the Matter involved is converted to Energy in prodigious amounts. Once more, close proximity can cause another Chain Reaction and a hydrogen Bomb can result.

Of course, these discoveries raised innumerable questions, not least about the possible reciprocal relationship between Energy and Matter, and perhaps even more crucial about Stability and Breakdown.

Some idea of what these are, and why they happen, and what maintains them as such, must be the most important questions in the Universe! Yet such attempts are so profound that Mankind, though usually full of questions about the World around him, was, for the most of his History, too ill-equipped to even recognise these questions. He concerned himself with more available and amenable questions, which occurred without his intervention, and perhaps the most important was Fire!

This remarkably damaging phenomenon occurred naturally in electric storms when a tree was hit and set alight, and though in some circumstances it would start and end, with that single tree, sometimes it would cause a fire-storm with one area of fire spreading to other burnable things and this could escalate until all flammable things in the landscape were set alight.

Yet a burning twig could be picked up by its still un-burning end, and carried to a safe place (say on some rocks) and then “fed” with other twigs. Man had *his own* fire!

Such things were very valuable, particularly in keeping him and his family warm at night and in the winter, and they struggled to keep their precious fire alight. They also found out what else fire could do, and what could safely feed it and maintain it.

They also found out that their food (particularly meat from game) could be made much more palatable by a certain type of contact with fire.

It was even found later on that it could make clay into a kind of rock, if the fire was particularly vigorous, and later still with even stronger heat, certain rocks could be converted into hard, yet malleable metal.

Yet, all of these were at a different Level to the questions we posed at the outset, they were ways of turning one relatively stable thing into another, and what was actually going on was totally unknown.

Something almost spiritual attempts to make sense of the world.

Mankind embarked upon his questioning of his World and he began to intervene like no other animal before him. The conversion of one substance into another begat Alchemy, and ultimately crude Technology, but attempts to explain why such things were the case were impossible to deliver. Man was a technologist, but not yet a scientist. Many millennia were to pass before the question, “Why?”, could be both asked, and then attempted to be correctly answered.

But, with the events in the late 19th and early 20th centuries with respect to Radioactivity and Nuclear Power, the questions were finally on the agenda.

Of course, they were quite often not answered.

As the Nobel Laureate Laughlin said about the Manhattan Project of World War II, which produced the first Atomic Bomb, “*They knew How, but not Why!*”

They were still only technologists first and foremost in this new area, and only then, and much more rarely, did they attempt to raise their game to Science.

One remarkable line of thinking though, based on the work on nuclear matters, did lead to a remarkable set of theories about Stars. Though not entirely his, a valuable contribution was made in this area by the physicist Fred Hoyle, when he attributed the energy of our Sun (and hence of stars in general) to the fusion of Hydrogen nuclei into Helium. The idea was soon embraced throughout the scientific community, and this area of Physics was linked indissolubly with Cosmology – for it offered explanations as to why the heavens were as they had been observed for many centuries. Various types of stars and even super colossal explosions posed more questions, and the theories were forthcoming to explain these too in nuclear terms.

The relative exhaustion of Hydrogen to maintain the ongoing Chain Reactions was certain to occur at some juncture, and the question was, “What would happen then?”

It was suggested that the fusion into Helium would subside and Gravity would cause the star to collapse inwards. But such a seeming calamity would also increase both the temperature and the pressure at the centre of the star, and would consequently reach the values necessary for Helium nuclei to, themselves, begin to fuse together into new elements such as Carbon and Oxygen.

Other chain reactions would be precipitated and the star would continue to shine, but with a changing system of basic fusion reactions.

These sorts of calamities could be repeated several times – each transformation leading to the creation of a new element. And these could continue until Iron (Fe) was the final possible product.

Now, in addition to the observed varieties of stars, there were also gigantic explosions of galactic proportions. These were observed and named as Novae, and even Supernovae, and it was suggested that these final(?) calamities produced all the higher elements including those, which were significantly less, stable and displayed evident Radioactivity.

This contribution to Cosmology from 20th century Nuclear Physics was without parallel, yet the questions of Stability were still unclear.

What made these products stable?

(1,206 words)