

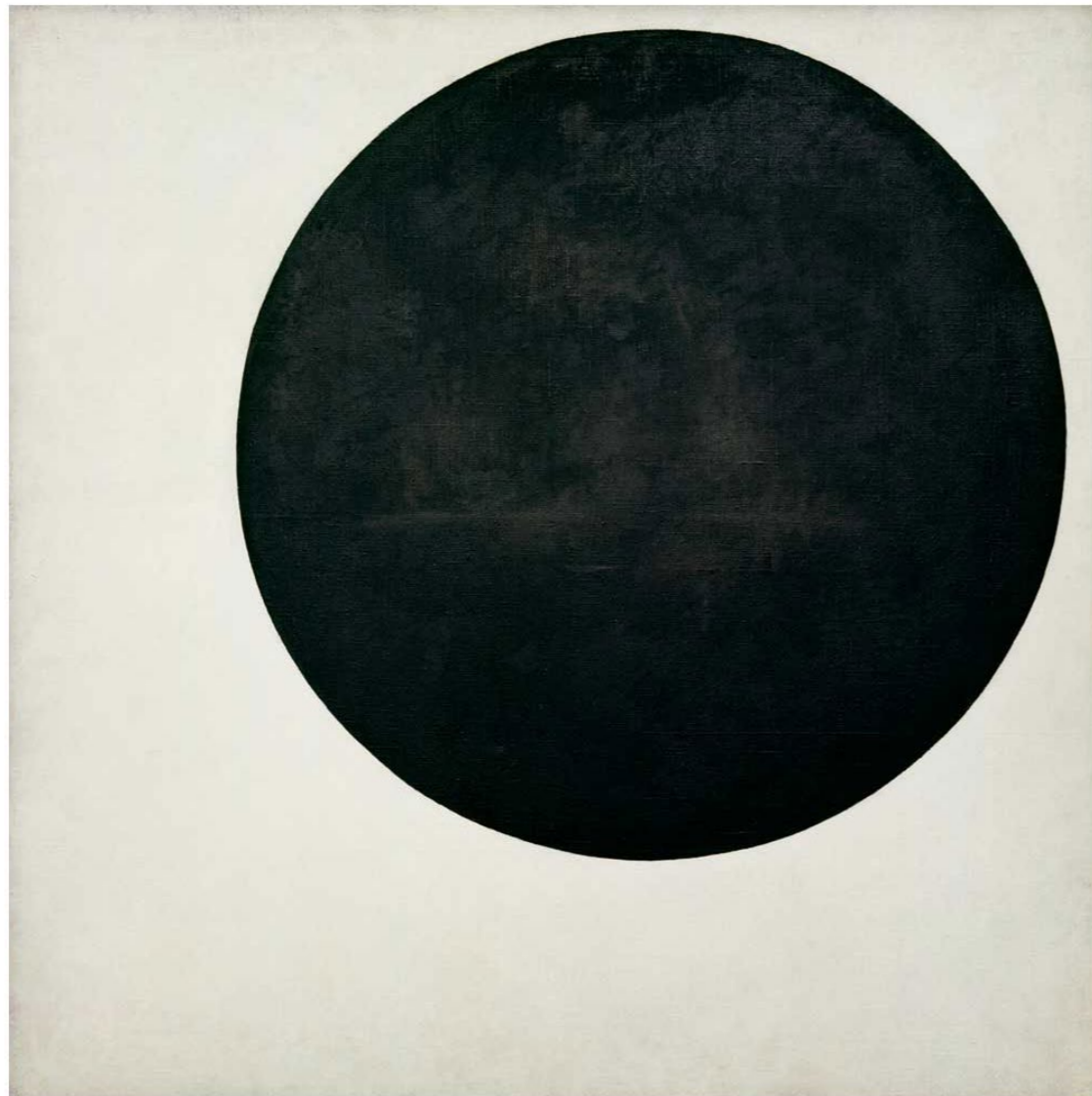
SHAPE JOURNAL

BIG BANG DILEMMAS

**THE UNDERLYING PROBLEMS / HOLISTIC ALTERNATIVES / THE PROBLEM WITH MATHEMATICS
WHAT HISTORY OF THE UNIVERSE IS POSSIBLE?**

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Big Bang Dilemmas

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Big Bang Dilemmas I

The Underlying Problems

Considering that the main evidence for the Big Bang is certainly the varying Red Shifts of light from distant Galaxies, it is remarkable just how far theorists have been able to develop their account of such a totally unobservable and definitely unsubstantiated *Event*.

Indeed, even the most avid Big Bang advocates are aware of the holes in their efforts, and, without further evidence, are forced to rely solely upon their, seemingly, infinitely-extendable tool - Mathematics, plus a significant helping of pure Speculation, to deliver anything approaching consistency.

There are various alternative ideas for the actual cause of the Big Bang, but, once it had occurred, the general consensus is that all-that-remained, on the completion of that Event's initial phase, was Pure Energy and absolutely nothing else. Indeed, this assumption has immediately-required yet another truly colossal, subsequent Event - the original Creation of all Matter, as, apparently, a product of Pure Energy alone.

NOTE: the Higgs' Boson highlights the major problem of this idea. For, it has to be a discrete gobbet of energy-only (like a particle, but not a particle) - otherwise we would be explaining the Origin of Matter with Matter!

Now, other different Bosons - considered to exist elsewhere, are used to attempt to explain forces by an incessant swapping of such entities between affected particles, to deliver exactly the same Mathematics as did the old-fashioned, totally-disembodied forces affecting such particles.

Of course, such ideas cannot be stretched to vastly-separated particles, at cosmic distances: they seem to be strictly "local" phenomena, in order to allow that incessant swapping to even be possible.

Now, returning to the crucial "actual Origin", we must, as scientists, dismiss the idea of a Singularity being the

source. For, such are merely expressions of absolute failure by purely Formal (mathematical means), and sink or source wormholes to parallel Universes are similar inventions.

Clearly, if anything like a Big Bang did occur, it would have to be physically-explained - that is in terms of prior-existing Matter and Energy.

Now, this, so far at least, is merely a kind of muse, rather than any alternative explanation, so it will be zooming off along various diversionary paths, which are very likely to be red herrings!

For example, the problem of the existence of both Matter (which abounds everywhere) the problem of both Matter and its exceedingly rare opposite Antimatter, that should, according to its current theory, have been created in exactly equal amounts.

Now, this particular anomaly isn't alone!

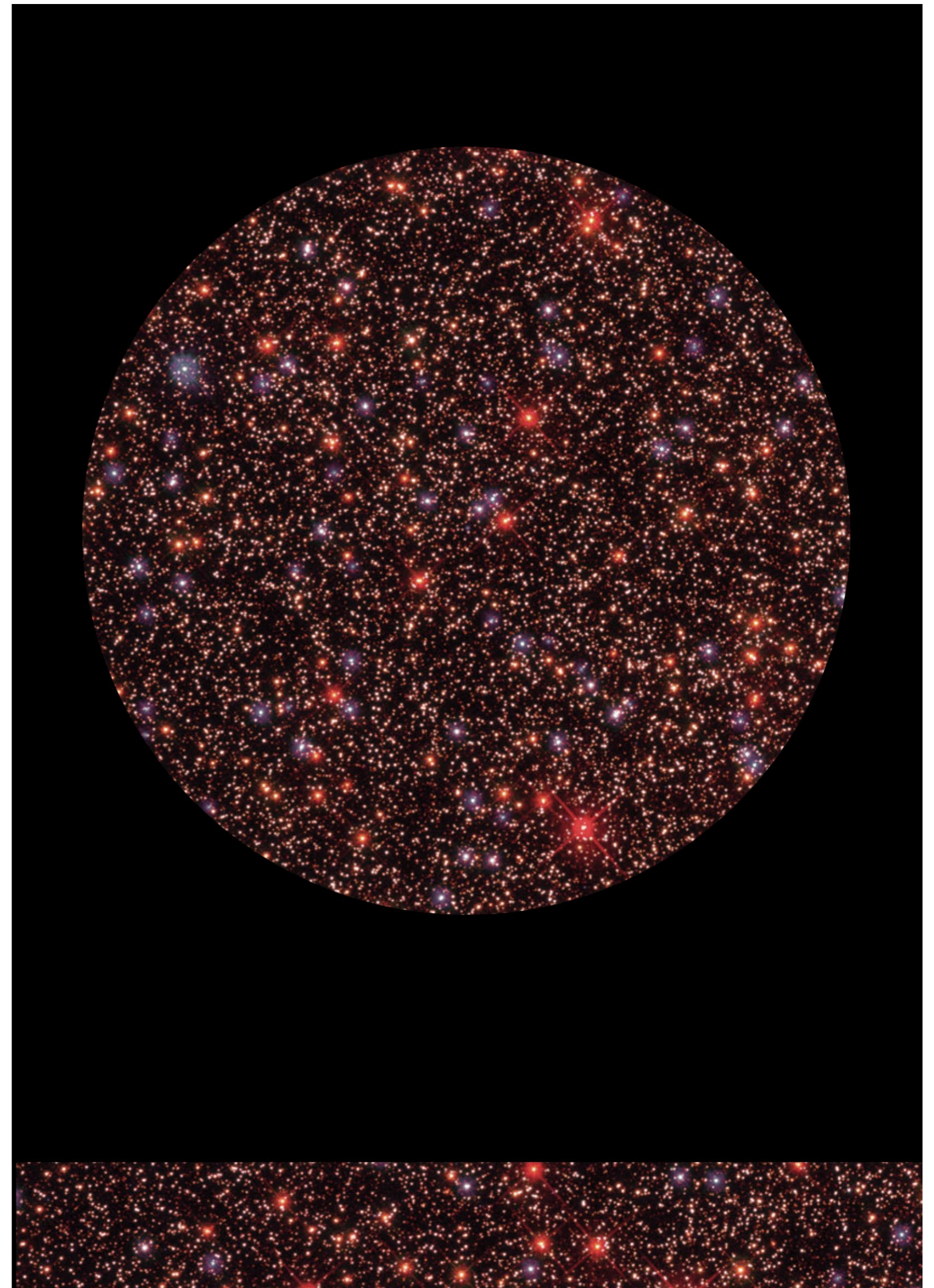
Evidence from High Energy Colliders seems to indicate that Matter and Antimatter always mutually annihilate one another on contact - delivering Pure Energy alone.

Now, all this produces a further series of alternative conundrums. Quite apart from the survival of mainly Matter and very little Antimatter, we also seem to have a possible mechanism for the Big Bang itself!

Couldn't the original, Cataclysmic Event be the mutual annihilation of vast amounts of Matter and Antimatter?

But, that would require both Matter and Antimatter as the cause of the Big Bang!

I have an explanation for all these anomalies! It is the inevitable theoretical consequence of the Major retreat in Sub Atomic Physics - embodied in the Copenhagen Interpretation of Quantum Theory: for that marked the





final abandonment of physical Explanations, and the subsequent sole reliance upon Mathematical Relations - Equations as the ultimate drivers of all Reality.

Admittedly, the prior philosophic stance of both Reason (Formal Logic) and Science had always been compromised by an eclectic and contradictory mix of incompatible philosophic contributions. that historically had been "worked around" by the oldest stance of all - Pragmatism - by employing the tenet - "If it works, it is right!".

Since the Greeks, the idealist stance of Mathematics was, remarkably, an improbable, but somehow, made-to-be-compatible bedfellow of the materialist stance in dealing with the Nature of Reality. And, to compound the felony, the Greeks chose to promote Plurality over the opposite stance Holism - adhered to by their contemporary in India - The Buddha.

Two possible routes had, therefore, been arrived-at, literally at the same time (around 2,500 years ago), and while one defined Thought and Science in the West, the other defined Spiritual Behaviour and Religion in the East!

But, just as no breakthrough between these two was ever achieved in the West, and ever greater Contradictions and Crises continued to occur: in the East there was also no development of Politics or Industry, for the problems were NOT misunderstanding, but very different yet also profoundly flawed premises.

The problems of the Sub Atomic Physicists were consequent upon their flawed premises, and hence impossible to transcend without an almighty revolution in those unquestioned assumptions.

Hegel's Revolution

Some 200 years ago a solution seemed to be at hand with Friedrich Hegel's breakthrough in finding the source of consequential contradictions as residing completely in inadequate premises, and he even devised a means of transcending such caused impasses.

But, Hegel had a grave disadvantage!

He was an idealist, and his whole Subject-of-Study was limited to Thinking about Thought, so his findings were only about ideas.

So, he and his philosophic stance were incapable of generalising his discoveries to the very areas that had produced his precious Thoughts - concrete Reality itself! His student Karl Marx knew that the solution had to be a total switch to the alternative materialist stance, and he did begin this process with his studies of both History and Economics.

But, his consequent conversion to active struggle for Socialism, meant that most intellectuals (almost exclusively from the privileged classes) rejected him and his ideas politically, and the necessary revolution generally - across all disciplines, was never completed.

Indeed, the central problem was still entirely untouched - namely Science! Though, over the next century, large sections of the World became committed to Marx's programme politically - Russia and China followed his objectives. But, the necessary completion of the crucial philosophical tasks was still never carried on.

Literally no major additions to Marx's philosophical objectives were undertaken after Lenin's Materialism and Empirio Criticism over a century ago.

So, the problems we are encountering in Sub Atomic Physics, and consequently, in Cosmology too, are based upon the still unresolved inadequate philosophic stance of western thought in general, and its consequences at the supposed bottommost levels in Reality, AND, in the earliest developments in the Cosmological History of Reality.

Hegelian Impasses still occurred, and increasingly regularly in Science, but were "got around", by experience-based Pragmatism, even though rationally they were never established as correct!

The problems accumulated at an ever increasing rate as Science delved, ever-deeper, into the Nature of Matter, and finally the prior compromise was mortally wounded, and the scientists involved, disregarded Einstein's opposition, and plumped instead for idealist Mathematics, and its "apparent universal consistency", as the essence of Reality, and the once primary banker of Explanatory Physics was abandoned, for ever, as useless.

They were wrong, of course! What really had to be done was the necessary radical transformation of both the prior, inadequate philosophy of Science, and its current,

Big Bang Dilemmas II

Possible Holistic Alternative Explanations

universally-applied, entirely-pluralist method. For, Plurality had always seemed to philosophically-validate the Key assumption that eternal Natural Laws (a totally idealist idea) solely determined everything in Reality.

Clearly, abandoning such a fundamental premise was really enormous, and effectively also undermined the whole Scientific Method of both organising and carrying-out investigative Experiments, and then devising appropriate pure forms as THE determining reasons for what had been revealed.

So, perhaps we can now return to the Big Bang problems, and address them from a very different stance. The main problem will be the inability to experimentally investigate what we are trying to explain. We must proceed without recourse to mathematical speculations, so how can we do that?

Several methods present themselves:

The first has to be via a revolutionary redesign of the Experimental Method based instead upon Holist exemplars by scientists like Charles Darwin, Stanley Miller and Yves Couder.

While the second, perhaps surprisingly, has to be a total re-assessment of the existence and nature of a Universal Substrate.

NOTE: It is important to state here that such an undertaking is actually already well underway, and has achieved significant success in explaining all the anomalies of the famed Double Slit Experiments, while also delivering the Propagation of Electromagnetic Radiation through so-called Empty Space, both the phenomena of Pair Productions and Pair Annihilations, along with Quantized Orbits within atoms, and is now currently well advanced in demolishing Quantum Entanglement!

Now, as soon as the Copenhagen stance is jettisoned, which it certainly has to be, it means that all totally un-substantiate-able theories must be rejected.

But, this does not mean that well-informed-speculation is also banned: indeed, such is the lifeblood of an expanding and developing approach.

Only pure unverifiable inventions, and, of course, all constructs from outside of Reality are jettisoned. Whereas, possibly verifiable-or-dismissible speculations will certainly be essential!

Immediately, of course, the primary, indeed determining, role of Form will no longer be allowed. It doesn't explain anything: it is merely a simplifying and idealised description at best. So let us commence!

Even taking a tiny, concentrated area - composed entirely of Pure disembodied Energy, is clearly a no-no! If any such concentration is to be part of the theoretical beginning, it must first, and by already established means, have been got into that state by prior physical processes.

Perhaps, the first such theory was that which explained the tiny concentration as being due to a prior Gravitational Collapse - from a once widely spread distribution.

Such a process would infer that an initial widely separated Universe ultimately began to collapse under Gravity.

Clearly, that isn't a Beginning (which is the usual prejudice), as the widely spread situation had to come from somewhere.

Indeed, that theory can be immediately extended into a constantly oscillating Universe, which, over truly vast periods of time, has been, and will continue to be, alternately collapsing-and-expanding alternately forever.

Of course, the re-expansion would have to have a major-cause, for to expand so vastly would indeed require gigantic amounts of initial energy.

Even a collapsing Supernova generates a mammoth explosion, but to get an expansion, of Universe-proportions, infers a collapsing Universe to cause it.

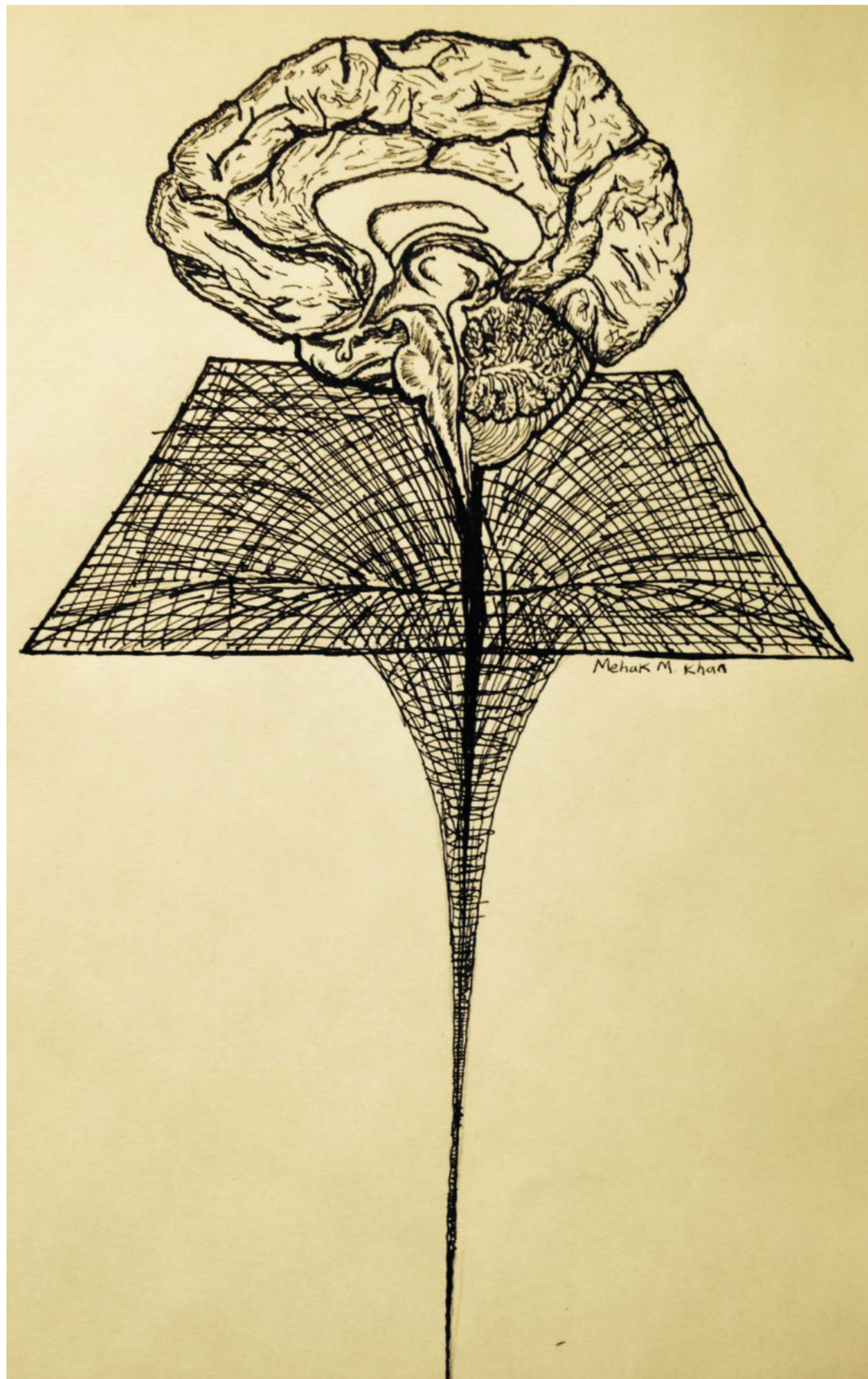
What the prior Universe was composed of would, of course, be important.

For example, if the collapse contained only equal amounts of Matter and Antimatter, then, according to current theories, their ultimate collision could by Matter/Antimatter Annihilation produce enough energy to drive the subsequent expansion. But, that is unlikely to be part of a regularly recurring, oscillation scenario.

A slowly-aggregating concentration of Matter, somewhat like in Fred Hoyle's Theory of Star Formation and Evolution, might have built a single truly massive star-like, concentration, which could go through similar Fusion cycles, until it finally collapses as a Universe-Supernovae - producing everything thereafter present in an expanding, and developing, Universe.

But, all such theories, involving such a prior collapse, would necessarily involve a considerable time of aggregation, from an early situation with very little at the concentration point, mostly due to only initially-nearby matter, bringing with them only small amounts of Kinetic Energy, to later concentrations contributed to from much further away, allowing far greater Kinetic Energy to have been generated during the collapse.

Indeed, as the overall destination point will be defined by local Matter NOT necessarily situated at that precise point, then later incoming projectiles could possibly pass straight-through, without collisions, emerging on the other side where it could, slow down to ultimately then be reversed in direction.



Thus, early on, a simple “glued-together” result might not be accurate, as some inward projectiles could end up coming-in from the opposite side: the target could therefore, by such means, be both emitting as well as receiving, multiple particles. Also, such passed-through particles might collide with incoming entities on the way out, and hence produce Halo or a more-slowly moving shell to complicate what is occurring.

Now, of course, such ideas naturally involve a whole series of assumptions, but as Yves Couder so brilliantly demonstrated in his fairly recent “Walker Experiments”, previously unthinkable constructions are possible, which both undermine and subsequently explain physically phenomena previously only “explained” formally via the mathematics of the Copenhagen Interpretation of Quantum Theory.

But, what will be required here will certainly not be the usual maths-based speculations that dominate this area of Cosmology, today!

NOTE: Purely-formal so-called Singularities, with suggestions of Parallel Universes in extra, unobservable Dimensions - possibly connected by Black Hole sinks - turned into Wormhole conduits between them, just have to be discarded as mere diverting Science-Fiction, with absolutely NO explanatory value whatsoever!

Even the concept of a real Beginning, poses more questions than answers. And, actually dedicating your professional life to wrestling with such imponderables, entirely within the physically. non-existing World of Ideality is more of a Comedy than a Tragedy - “You’re studying WHAT? You’ve got to be kidding!”

As a long-time dedicated Mathematician, myself, I finally realised that Pure Forms do not drive the World, they merely describe it, and always even then in both simplified and idealised ways ONLY! In spite of a remarkable ability in Mathematics, I switched to a discipline that had a much better chance of explaining the Real World, namely Science. And, Modern Physics’ deterioration into becoming merely a Branch of Mathematics, was a major and debilitating retreat!

So, clearly, what this paper addresses is NOT the Origin of Everything (usually the remit of Religions), but instead a consideration of the actual physical Development of the Universe, which could indeed be eternal, or, at

least, have NO initial moment of creation - preceded by absolutely Nothing! Of course, such questions of real Qualitative Change, and, indeed, the necessarily included “Creation of the entirely-New” can never be addressed by our current philosophical stance in Science, which from its inception (involving several alternatives) in Ancient Greece, has always been based upon certain never-questioned assumptions - the crucial one of which is undoubtedly The Principle of Plurality.

As many thinkers have realised over the centuries, but never conclusively formulated, that Principle replaces true Creative Development with mere Complication - based upon a number of fixed (indeed eternal) Natural Laws, which by simple addition, in varying amounts, are supposed to produce absolutely Everything!

Such a Stance was realised by the German philosopher Friedrich Hegel to be incapable of really dealing with Qualitative Change, and he determined to develop an alternative to Formal Logic, which he called The Logic of Change. He also proved the inadequacies of all current Thinking via his study of the emergence of Dichotomous Pairs of contradictory concepts - due to flaws in the premises of Formal Reasoning. He was able to show, conclusively, that traditional reasoning was regularly brought to a total rational halt, or impasse, by these flaws, and allowed a continuation beyond that Gap, only by experienced-based Pragmatism, without any rational resolution.

Big Bang Dilemmas III

A Completely Different Philosophy

As inferred in both the earlier papers in this series, the crucial transformation of the consideration of these questions actually necessitates a complete and self-aware change in our Philosophic Stance. And that isn't as simple as it looks!

The Philosophy upon which Science has been built since its inception, and throughout its consequent History, is NOT a coherent, consistent or comprehensive stance.

It is, in fact, an eclectic mix of contradictory positions glued-together by Pragmatism - which was the initial stance of our Hunter/Gatherer forbears - basically "If it works, it is right!" .

Now, aspects of an alternative have already been mentioned, in those earlier papers, but it has become clearer, with each contribution, that without a fuller definition of that alternative, the same mistakes will be made again and again: we just have to be clear on our ground!

To fully define the problem, we have to go back some 2,500 years to the intellectual beginnings in Ancient Greece. Remarkably, in quite a short period of time historically, the Greeks laid the basis for Mankind's future intellectual explorations via a series of Thinkers and Philosophers. They included Socrates, Plato and Aristotle among many others.

It was they who established Reasoning, initially to do only with the simplified and idealised Forms (Shapes or Patterns) recognised in Reality. They developed not only a General Discipline to describe these Forms, but also a series of means of establishing relations between them and the further revelation of many more. These Theorems enabled the building of the first coherent intellectual discipline -involving what were termed Logical Proofs - Mathematics, which, in turn, led to a more general means of reasoning. which became known as Formal Logic. Such mammoth gains were themselves built upon the burgeoning Knowledge of Mankind -

based upon the Processes and Productions of Abstraction. NOTE: As you can imagine all these stages will require understanding, but it cannot be dealt with in full here. So, the writer will give references, where necessary, to direct those interested to more detailed and extensive accounts elsewhere.

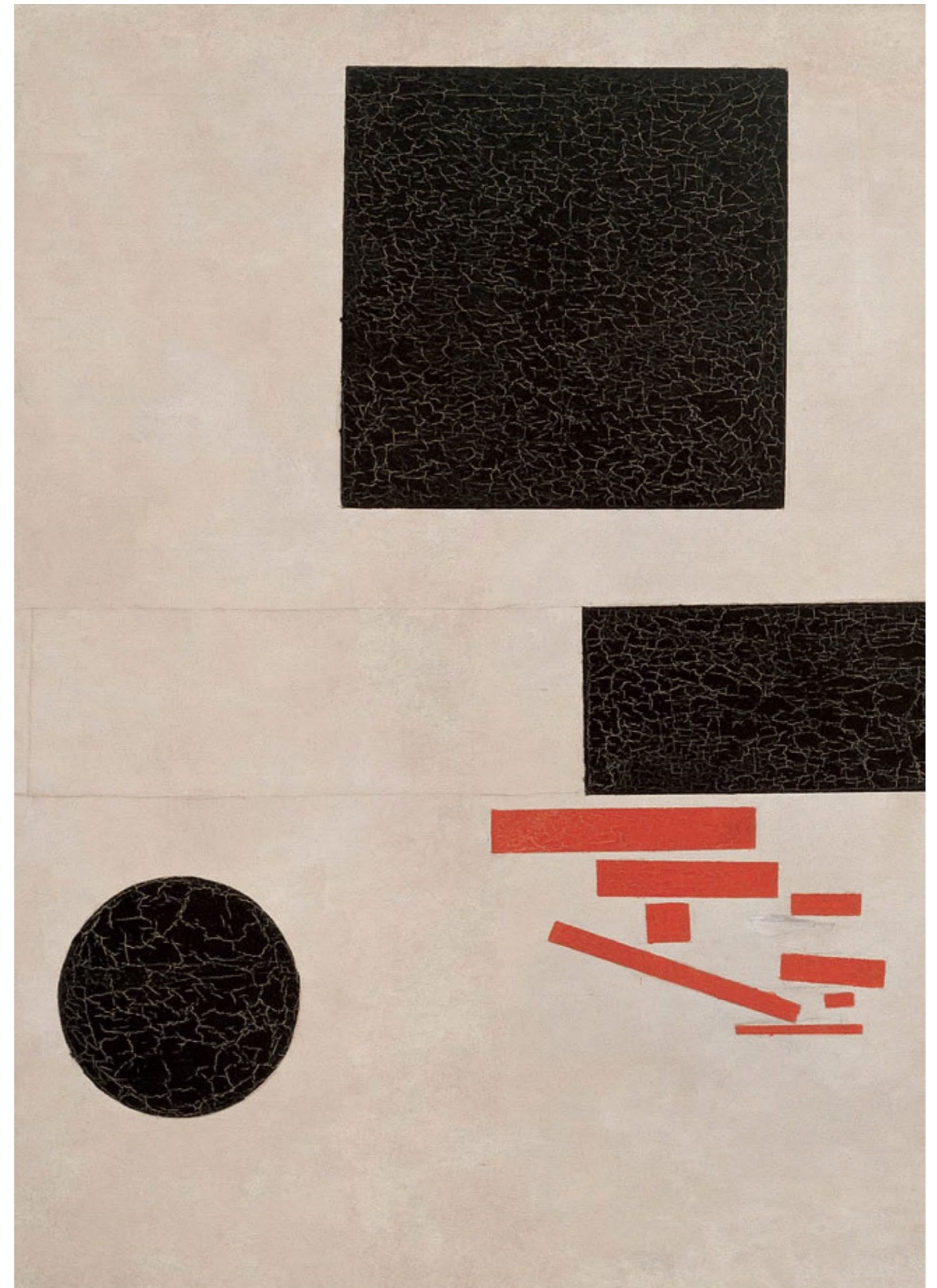
[See the *Processes and Productions of Abstraction*, by this author available elsewhere in this Journal]

Remarkably, concurrently with the above mentioned Philosophers, there existed a dissenter, also a Greek, named Zeno of Elea, who even then was finding contradiction in the systems being developed. He recognised that alternative concepts such as Continuity and Discreteness could lead to major problems. He managed to use these means to generate insupportable contradictions in reasoning, and published them as his Set of Paradoxes - they included his Achilles and the Tortoise, The Arrow and The Stadium, and these are available on the Internet too.

Yet, in spite of the validity of Zeno's criticism, no-one thought it worthy of further investigation, for all were well-experienced, after almost 200,000 years of getting round such problems using Pragmatism - you just had to remember exactly which-and-when each alternative could be effectively used .

But, the eclectic amalgam of contradictory stances was to persist for millennia. The Pluralist-based mix of Pragmatism, Idealism and Materialism could not but lead to difficulties of itself, but, of course, this could only be compounded by Man's clearly incomplete Knowledge of his World, and his always insufficient and often erroneous premises, would always lead to the additional problems.

Indeed, the German Philosopher Friedrich Hegel began to uncover a seemingly infinite series of impasses in Reasoning, which emerged as Dichotomous Pairs of



contradictory concepts. He managed to track some of them down to mistakes or omissions in the assumed premises employed, and even developed a method of finding the culprit errors and correcting them.

But, only to fairly quickly arrive at the next impasse, with its own Dichotomous Pair of contradictions. His discoveries though vital, did not solve this particular problem.

Clearly, Absolute Truth was unobtainable.

The best that could ever be achieved were improvements in the Objective Content - aspects or parts of the Truth. So, the purpose of reasoning, and even of Science had to be the striving for a regular improvement in the amount of Objective Content in conceptions and even in Theories.

Now, Hegel had come upon these discoveries when looking for something else!

He had long been aware that Formal Logic was incapable of dealing with *Qualitative Change*.

The Method had been developed when the prevailing wisdom was that things didn't change qualitatively, but only quantitatively.

The Principle of Plurality, though rarely stated overtly, only allowed eternal, totally-unchanging Laws to act in concert, without the context in any way modifying the Laws themselves.

Thus, such a system of reasoning could never explain real Qualitative Change, never mind the even more important Creative Transformations involved in actual Development.

It was clear to him that Formal Logic had severe limitations, and his task would be to develop a Logic of Change: he therefore aimed to develop a comprehensive Science of Logic.

It was, therefore, in his search for the means to establish such a revolutionary discipline, that he made his discoveries on Contradiction. And, his significant work upon the emergence of Dichotomous Pairs, and his suggestions for overcoming them, were clearly the main products of his primary research.

Now, in spite of his wonderful contributions, Hegel, himself, had a major drawback.

He was an Idealist Philosopher.

He always started with, and limited his investigations to, only Human Thought. Indeed, he always considered his basic research area as Thinking about Thought.

He was convinced that all the answers he sought would be available there - and nowhere else! Instead of seeing Man and his Consciousness as products of an evolving Reality, he saw Reality as a product of the Thinking of Man!

In one sense he was completely correct, but in another, more fundamental way, he was very much mistaken.

His stance, though with a certain validity, was like studying Reality ONLY via what he could see as Reflections in the Mirror of Human Thought.

Science, as such, did not figure in his Stance: it was merely another thought-based discipline, encouraged by another source of information.

NOTE: He was somewhat similar to modern day physicists whose mirror is the Thought-devised Mathematics as their sole means of explanations.

The glaring inadequacy of Hegel's means, in fulfilling his own research objectives, was very soon apparent to his best follower, a certain Karl Marx, who decided that though Hegel's contributions were revolutionary, they could never be brought to full-fruit, without a wholesale transfer of absolutely everything to a solely Materialist Stance.

But, let us not get too far ahead of the actual trajectory of developments with Hegel.

For, the simplified-tenets that are said to encapsulate his Philosophy, are things like:-

Thesis - Antithesis - Synthesis
Extremes meet!
Quantity into Quality

Indeed these, when coupled with the prevailing stances of the majority of people, actually mean something very different to what was originally intended, and which Marx was certain could only be fully achieved with a change to a Materialist standpoint.

The carried-over contributions are usually termed Dialectics, but Marx was adamant, he re-titled them Dialectical Materialism, and spent the rest of his life applying it, not only to Thinking, but to History, Economics, and even Mathematics, and though potentially it was to be applied to Science - that was never achieved by Marx - he was rather busy building the Working Class International with its own immediate vital objectives, and never got around to the primary philosophical task - its application in The Sciences.

One of the added objectives here, has been to help readers of Marx's many works to more clearly identify his version and use of Dialectics.

It is, therefore, suggested that Marx's 1843 Critique of Hegel's Philosophy of Right, and particularly his Introduction, is an excellent place to start, to see just how opposed he was to the consequences of Hegel's Idealism, as well as to interpret exactly what Marx was doing in this important early piece.

His unusual "dichotomous-phrases" may, initially, be just interpreted as his chosen poetic means of expressing himself, whereas, in fact, these seemingly contradictory pairings are meant to elicit a deeper consideration of how different premises can, quite clearly, lead to almost opposite meanings for the very same things.

SUGGESTION: in the above mentioned Introduction, the reader should attempt to re-interpret Marx's contradictory phrases via the tenet of "Thesis, Antithesis and Synthesis" - to throw light upon Marx's dialectical method.

And, the idea of "Quantity into Quality" can be badly misunderstood, if the modern technique of switching between laws when some crucial threshold is quantitatively passed, as used in literally all Simulations - for that is NOT what was meant at all!

Indeed, that purely-pragmatic "frig" is actually a pluralist trick to overcome otherwise impossible impasses!

And, of course, the modern prosaic interpretation of "Extremes Meet" has become the myth that

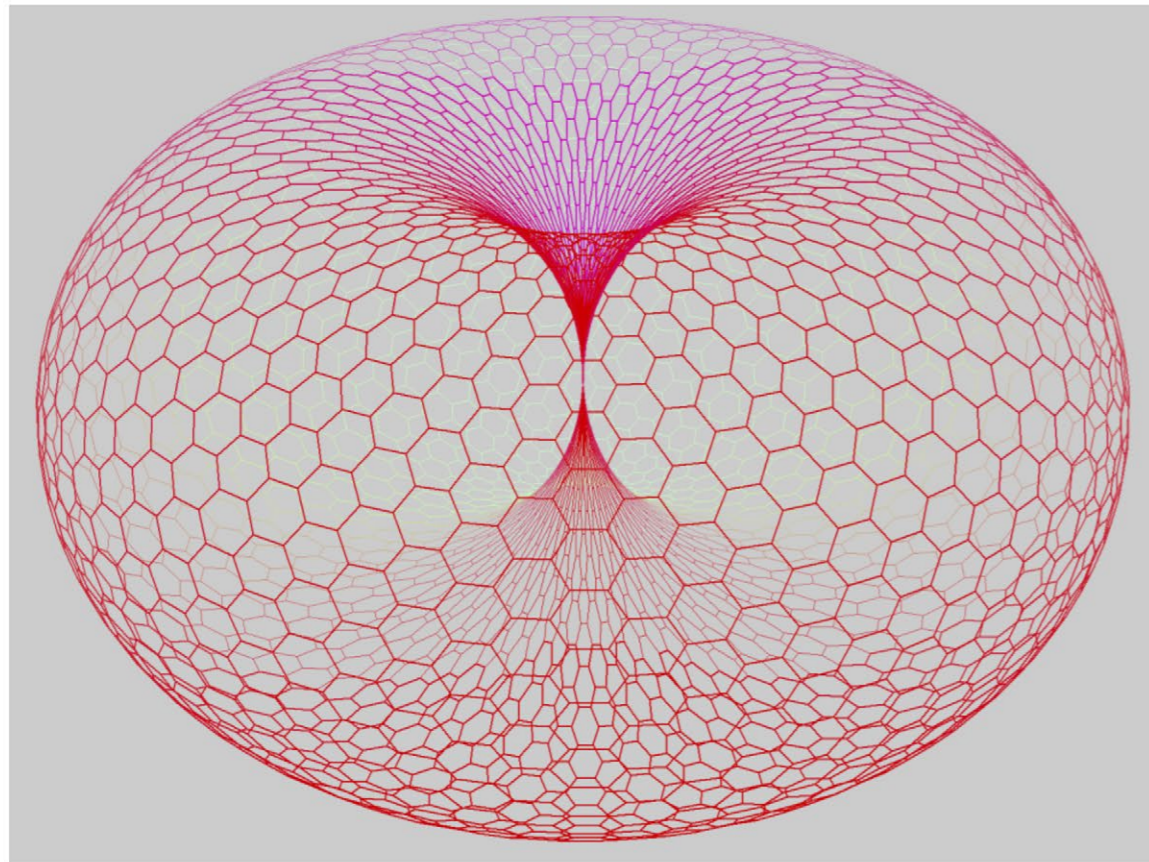
"Communism" and "Fascism" are just as bad as one another in extremis, which is pernicious nonsense - for it was a comment upon the results of a dissolution of maintained balances in Stabilities, and NOT a value judgement on political stances.

Well, clearly, we have necessarily diverted far from our original problems concerning The Big Bang. But, it was essential!

The ground and methods have to be as sound as possible, and neither of these is even remotely approached by the current collection of Cosmologists.

And, the almost completely bare situation considered vital in addressing such questions, would produce NO conversions, without the above discourse on Philosophy.

Perhaps in a Fourth paper in this series, we can begin to construct something better!



Big Bang Dilemmas IV

What is the Problem with Mathematics?

Having repeatedly denounced Mathematics in the way it can, philosophically at least, be seriously misused, that must be balanced by also making sure that its definite assets are both clarified and justified.

For, Mathematics was also, and still is, very clearly, a magnificent achievement of Mankind.

So, what is the critical problem?

The finding of mathematical relations - Formal Relations, did, indeed, involve the discovery of Mankind's-greatest-tool in the revealing and formulating of Reality's evident Patterns and Shapes.

And, as such, it revealed a wholly new kind of Abstraction, which dealt only with the large variety of different forms and their quantitative relationships, and was, henceforth, available, for Man to use such relations to achieve some fruitful and desired outcomes in real World situations. Nevertheless, a major error was frequently made when going further, and actually attributing Cause to these relations, which is, I'm afraid, impossible!

Many years ago, in his investigations into the Processes and Productions of Abstraction, this theorist was able to show exactly how purely Formal Relations could facilitate the by-passing of the final crucial stage in finding concrete causes for phenomena, and proceeding, instead, directly to effective use of such relations.

The Diagram opposite was one revealing result of that research.

Notice that all the previously-revealed Processes of Abstraction had always included an essential confirming loop - *back into Reality*, before proceeding with the next abstracting-step, so that the primary objective of finding actual causes could then be achieved.

But, the New Phase in Abstraction (see diagram), which was created by this new-type of process, I decided to append the title of Ideality - uniquely produced by such a by-passing of that crucial Confirmation-in-Reality-loop, which meant that the Purely Formal extractions were mistakenly seen as Objects-in-themselves, and used as a different and alternative basis for further research, as well as, and most importantly, still being used effectively to produce desired outcomes in Real World situations.

Now, in spite of the dangers; this innovation also turned out to be remarkably valuable, for it vastly extended Mathematics, and enabled its uses in ever wider situations.

BUT nevertheless, when used to deliver the "Ultimate Causes" of phenomena, it not only terminated the search for the real concrete causes, but replaced the primitive, intuitive materialist stance, with another totally-idealist misconception.

NOTE: Idealist Religion was already well established in Mankind's account of the Nature-and-Causes of Reality, so Mathematics merely extended such Idealism into formal relationships too.

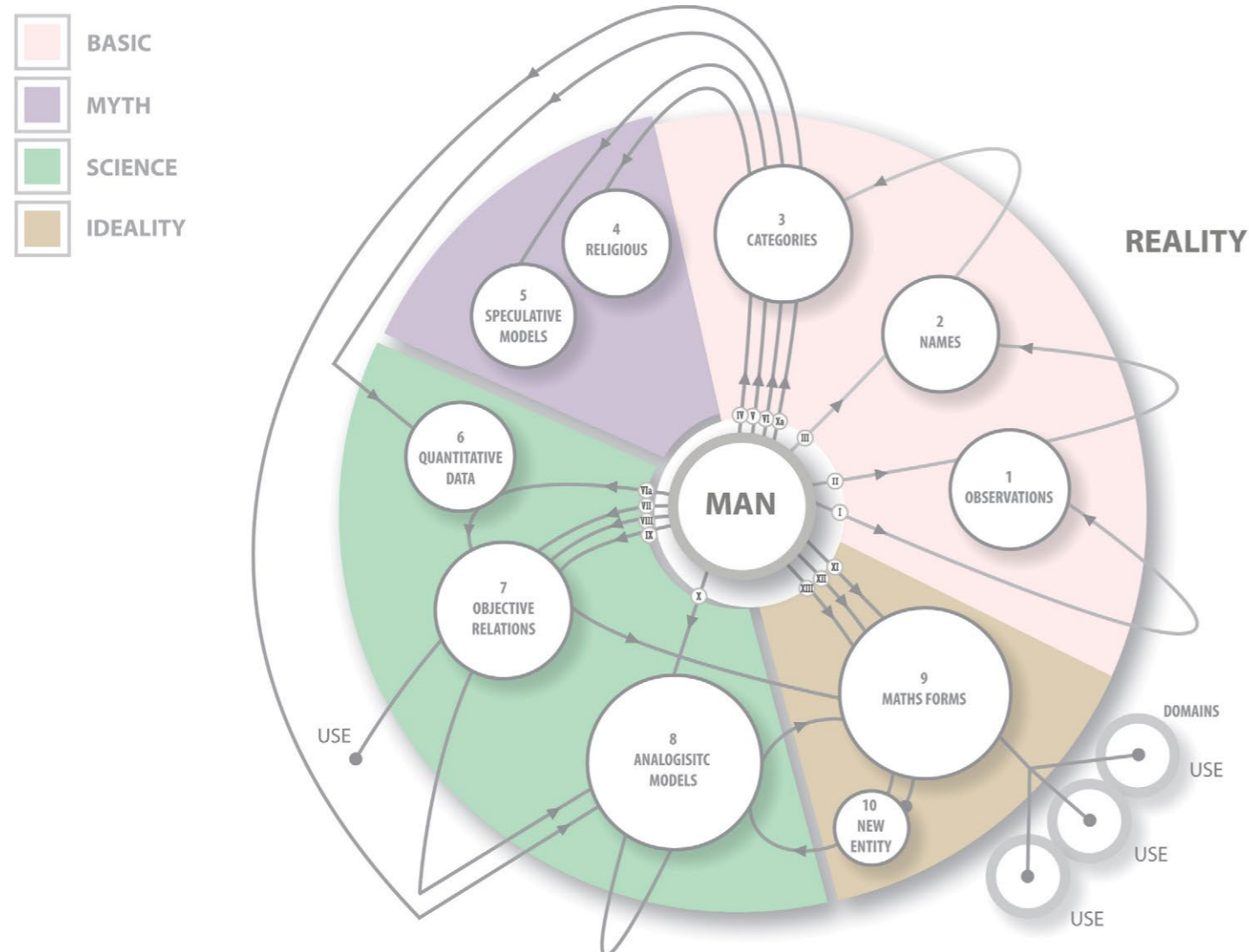
Yet, pointing out such misconceptions in a condemnatory way is, if applied historically, both nonsensical and pointless.

Man, as the first living creature with the evolved-abilities to consider such things, had to find his own meandering path towards Truth.

It couldn't possibly be direct: it would always be a learning-process, where errors were as important as correct steps forward in slowly constructing reliable methods of thinking.

As V. Gordon Childe, the Australian archaeologist, so aptly made clear in his book *Man Makes Himself!*

So, we have one of the many occurring dichotomies unavoidable in Mankind's Development of Thinking. For, Mathematics turns out to be both a remarkable and developable achievement, while also a misleading path,



when it comes to a real explanatory understanding of Reality.

Indeed, in my specialist area, Physics, the philosophic “wrong turn” with the subscription to the idealist Copenhagen Interpretation of Quantum Theory, has pretty-well condemned Sub Atomic Physics to a complete Dead-End, theoretically!

While, in Politics, the failure to carry over the revolutionary contributions of both Hegel and Marx to the crucial area of Science has led to the evident decline in Theory in the Revolutionary Movement, if not in the purely-naturally caused Revolutionary Events - such as the recent Arab Spring, then certainly in any effective carrying-through to success.

As a physicist and Mathematician myself, I have been involved in research in both areas, but it has taken a lifetime of experiences in both these and many other very different areas to finally be in a position to tackle theoretical questions long prohibited from resolution, by the clear inadequacies of my supposed Marxism, and, consequently, of the philosophical and methodological means to overcome the usual crop of Impasses and dichotomous conceptions unavoidable without a transcendence of the situations caused by flawed premises and inadequate methods.

Big Bang Dilemmas V

What History of the Universe is Possible?

Having, to an extent, addressed the grounds for this undertaking, we must now embark upon the task from a very different basis to that which is most usually employed.

From this point on, Mathematics, as the discipline of Pure Form alone, is relegated to once more being only a useful tool, and the avowed intent must be to physically address all the questions posed, and to do it solely on the basis of a Dialectical Materialist philosophical standpoint.

Clearly, such an undertaking will not be straight forward, due to the millennia of illegitimate amalgams of alternative, and indeed contradictory, philosophical stances, and the current universally-established dominance of a totally idealist, purely mathematical approach.

But, that is not to say that the current stance isn't also peppered with many anomalies that demand a physical explanation, and hence transcendences of every single one of these impasses.

The starting point, for this physicist, was absolutely clear: it had to be in the current Sub Atomic Physics that were the basis for Modern Cosmology. And, in that area, it had to be an addressing of the ill-famed Double Slit Experiments!

For, it was upon the perplexing set of contradictory results, from these experiments, that the old theories seemed to be finally and conclusively wrecked.

The inexplicable switches in behaviours between what seemed to be, at one moment, Wave-based phenomena, while at another purely Particle-based phenomena, yet occurring in exactly the same contexts.

For, this had led to the major retreat embodied in the Theory of Wave/Particle Duality, and the final total

abandonment of Explanatory Physics, for thereafter, Probabilistic Mathematics, was the only way investigators could find to deal with such anomalies.

The very subject of the investigations, which had been directed towards the Double Slit Apparatus, seemed to switch the very nature of the situation between involving an extended Wave, and being, instead produced by a shower of Particles.

Yet, a solution was possible!

Such explanations had been used for centuries and seemed adequate, but were finally scuppered by the Michelson-Morley Experiment, which seemed to prove that NO Universal Substrate actually existed - and the classical explanations of such phenomena required the presence of such a substrate to deliver waves as part of a joint process.

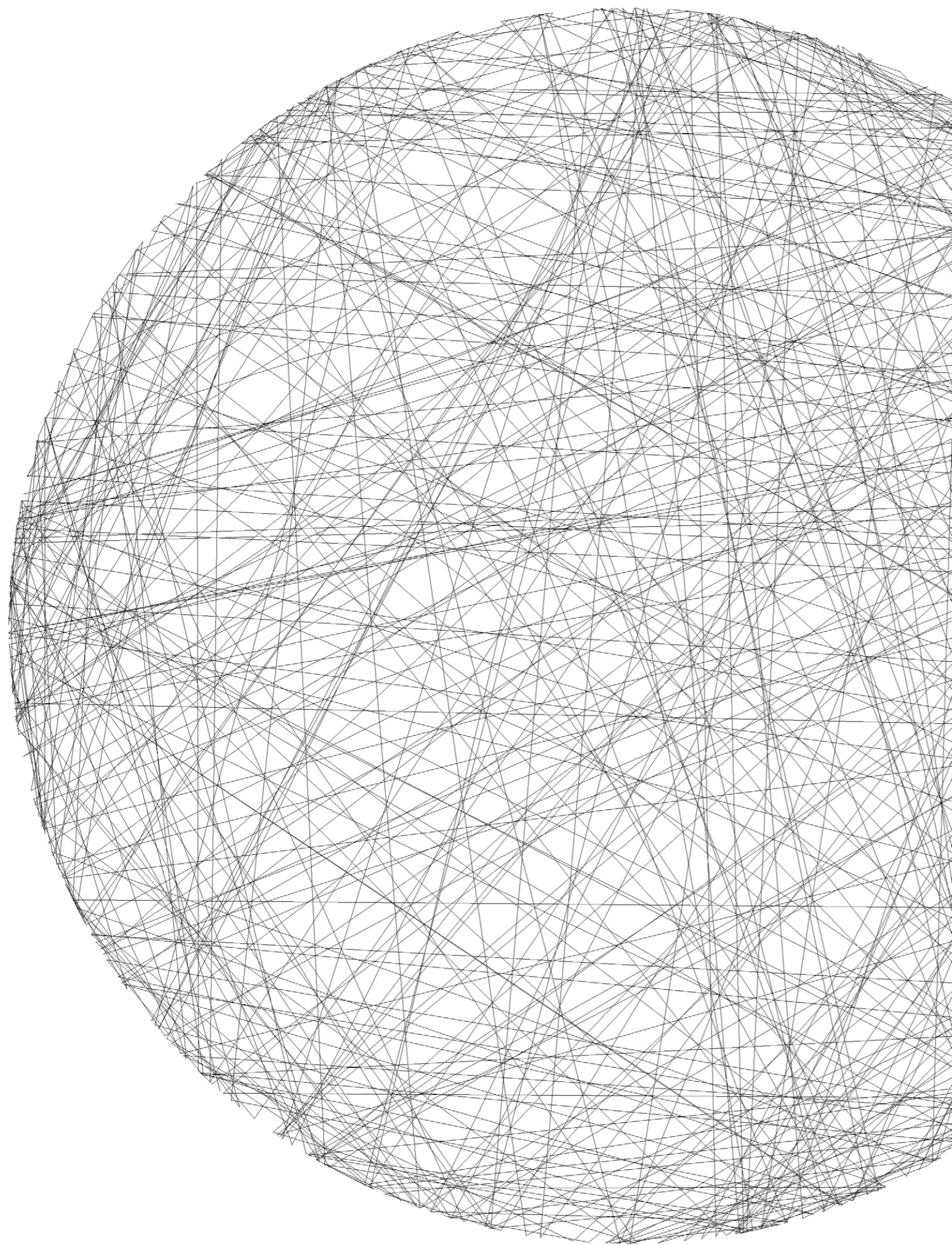
At the “Macro Level” such amalgams of actual substrates and moving entities were everywhere, and had led to the Classical theories.

But, with no such “enabling-partner” in many well known phenomena, the whole basis for “traditional-wave-explanations” was removed. All that remained were Particles in totally Empty Space!

It occurred to this theorist that an existing, yet undetectable, Universal Substrate might well facilitate a complete removal of all the Double Slit anomalies!

Of course, without a reasonable Theory for such an Undetectable Substrate, the suggested ideas would be immediately dismissed, and correctly so!

So, the immediate task was to attempt, theoretically, to devise such a Substrate, composed entirely of known particles - but related in such a way as to be totally undetectable.



Various Elementary Particles were considered, and the most likely pair of candidates were the electron and the positron.

Now, these, as possible partners in some persisting-union, were always dismissed, for being of opposite matter-types, as they were supposed to mutually annihilate one another on contact!

So, it was considered that they might avoid this terminating-fate by “mutually orbiting one another”. For, such an joint-entity would indeed be completely undetectable: it would have no net charge, or magnetic effects AND, crucially, it might also be able to hold a single quantum of electromagnetic energy, via the promotion of that mutual orbit (as occurs in atoms)! It could then be the fabled Photon!

Instead of a totally disembodied goblet of pure energy, we would have an undetectable, but physically-existing entity, which I named as the neutrutron. For this, when carrying a quantum of energy internally became the renowned Photon!

Now, certain well-established phenomena were consistent with such a particle. Both Pair Productions and Pair Annihilations fitted perfectly with this model, and, in addition, a bucket-brigade propagation of electromagnetic radiation via a Substrate of such entities was also conceivable. Finally, this very same particle had actually been observed in the Tevatron at Fermilab, and named the positronium though there considered as totally unstable!

Clearly, to perform as would be required for Propagation, these totally-neutral joint particles, would have to form some kind of connected Substrate, so this theorist began to look into the possible inter-relationships between neutrutrons when extremely close together. The results were remarkable!

At very-close distances from each other, the differently charged sub-particles, composing the neutrutrons, could affect one another “between units”, and an oscillating effect of alternating sinusoidal attraction and repulsion was quite possible as long as the units remained at such separations. So, if particles got within a certain distance of one another, they would stay there!

A very weakly-linked Paving would indeed be formed, which could not only perform Propagation, but at a constant speed, C , which was the speed of transfer of one quantum of energy between adjacent neutrutrons.

Now, thus far, these investigations have been totally theoretical, and considered in only a very limited way! The time had come to see if the concepts involved could explain ALL the anomalies of the Double Slit Experiments!

What was different to the situation addressed by current theories, was that an extra player had been introduced into the cast - The Universal Substrate (composed of neutrutron particles in a linked Paving).

Not only was a division of labour now possible, between very different players, but these could perform in different ways either wave-like or particulate. But, in addition, a recursive loop of Causes and Effects - with the initial cause affecting the Substrate, which then carries its received disturbances through both of the Slits to interfere on the other side. So, when the original “cause” finally arrives and passes through either of the slits, it would encounter the interference that it itself had caused, and then be affected-or-not depending upon its particular path through.

Even the changes observed at the detection screen, when any attempt was made to investigate the region beyond the Slits, would be explained by multiple disturbances, caused by that intervention destroying the prior interference pattern and allowing a straight-through path for the original “cause”!

So far, so good!

But, many more anomalies, would also have to be explained, and suitable confirming experiments devised and implemented, before the case could be considered proved!

Of course, the Double Slit Experiments are only a part of the arguments for Wave/Particle Duality, and perhaps the most important area of Copenhagen Theory that also must be explained physically are the many examples of Quantization! Could these also be explained by the presence of a Substrate. The perhaps surprising answer is, “Yes!”

For a Substrate, especially involving an easily dissociated Paving, will easily allow the creation of vortices, by the passage of moving bodies, and thereafter the possible two-way transfers of energies between electron-orbits and the vortices they both create and maintain!

Indeed, a theory has been suggested in which energy from an electron orbit, within an atom, would locally dissociate the Paving along its repeatedly traversed path, and create vortices - via energy transferred from the orbiting electron. The orbit would be reduced by this process, but energy from the vortices could be paid back, but only when the two rotations were harmonically related, would a stable situation be established, when transfers in both directions totally balanced out. Only certain radii of the electron orbits would fit the bill!

Now, of course, all this is entirely theoretical, but a recent series of brilliant experiments by the French physicist Yves Couder, which produced his remarkable, persisting "Walker" entities, entirely out of a substrate, applied vibrations and absolutely nothing else!

Indeed, by then adding a further rotation to his systems Couder produced Quantized orbits of his Walkers at the macro level!

Clearly, Couder's Walkers, moving through the substrate had created vortices in that substrate, and the very same phenomenon as was suggested for the atomic electron orbits, was also happening in the Walker orbits at the macro level!

Indeed, other close analogies were also revealed in the Walker Experiments that confirmed key theoretical suggestions concerning the role of a Universal Substrate in the creation and maintenance of Electromagnetic Fields by that Substrate. Couder had noticed that immediately prior paths across his substrate by a Walker, surprisingly became the preferred path of another Walker which encountered it. Walkers would follow each other "line-ahead", or arrange themselves in serried ranks. Something had been left behind in the substrate, which affected other Walkers!

Now as the Walkers' continuing persistence and moving would need energy - it must have been coming from the Substrate itself. Used-up energy as being replaced from elsewhere in the substrate - so a "flowing-in" of energy must follow a depleted path caused by the absorbing

Walker. And other Walkers would also latch onto such replenishing paths.

The analogy with the Universal Substrate is that all the energy required to set up and allow the energetic actions of Fields, simply MUST be provided initially, and replenished when used up ,from elsewhere in the Substrate, which must act as a Sink-and-Source for energy to be able to do this. Clearly, something analogous was happening in Couder's substrate in his Walker Experiments.

Now, such Macro-Micro analogues have scarcely been investigated as yet: Couder is, as far as I am aware, the only researcher in his field.

Once again, the declared objective of this paper has not even been started upon as yet. Such considerations as have been addressed above, always demand immediate attention. But, at some point, clearly in a later paper, they will be addressed. Clearly, sufficient theoretical altitude must be surmounted, for any true landscape to be correctly perceived, and properly surveyed and understood.



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