



*Ben Nicholson 1933*

# SHAPE JOURNAL

QUANTUM DISENTANGLEMENT

THE SECRETS OF QUANTUM PHYSICS / ASCENT TO UNDERSTANDING / ISOLATED EVOLUTION

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## Quantum Disentanglement

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**Preface:**  
a bit of a tangle

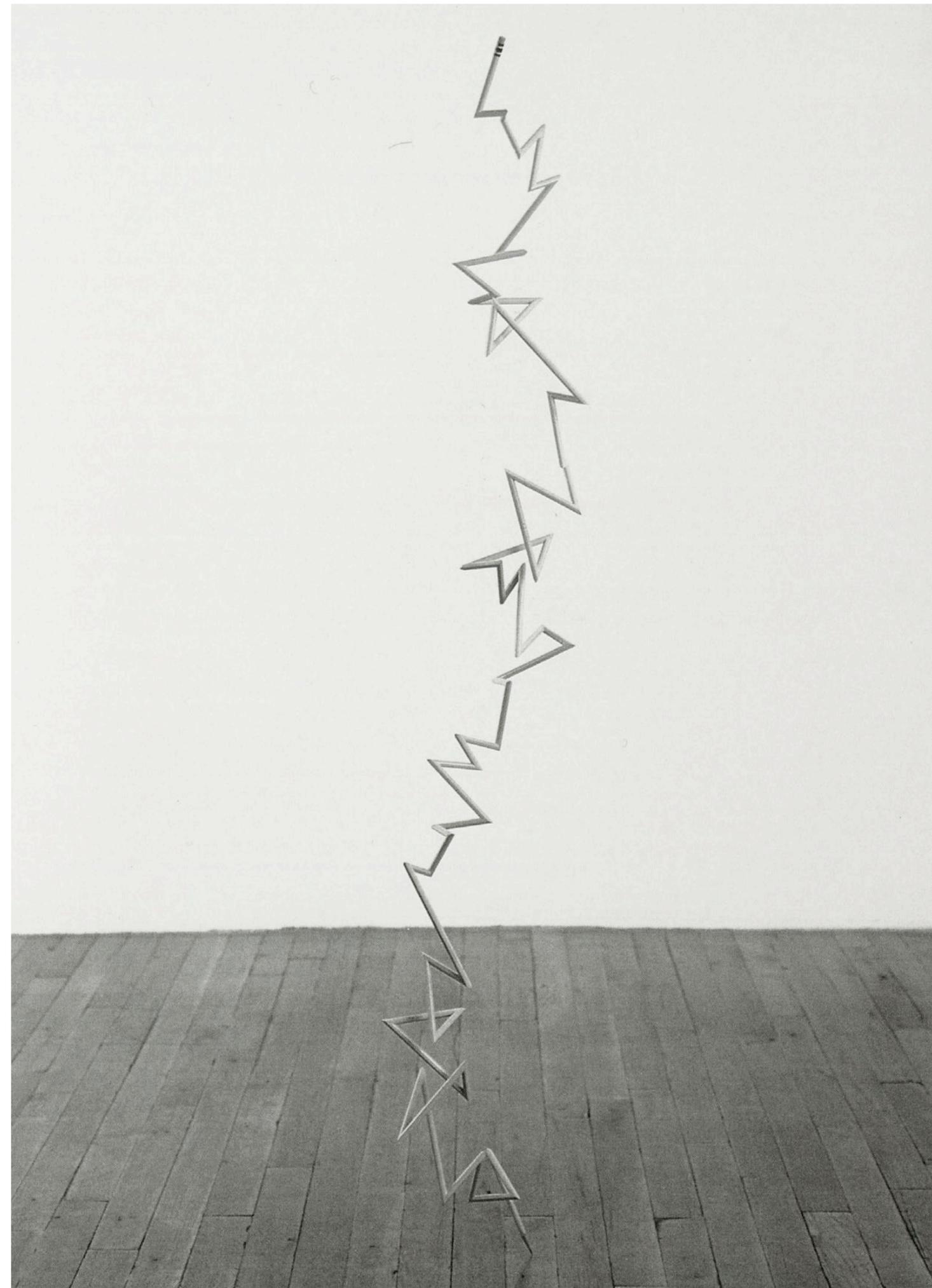


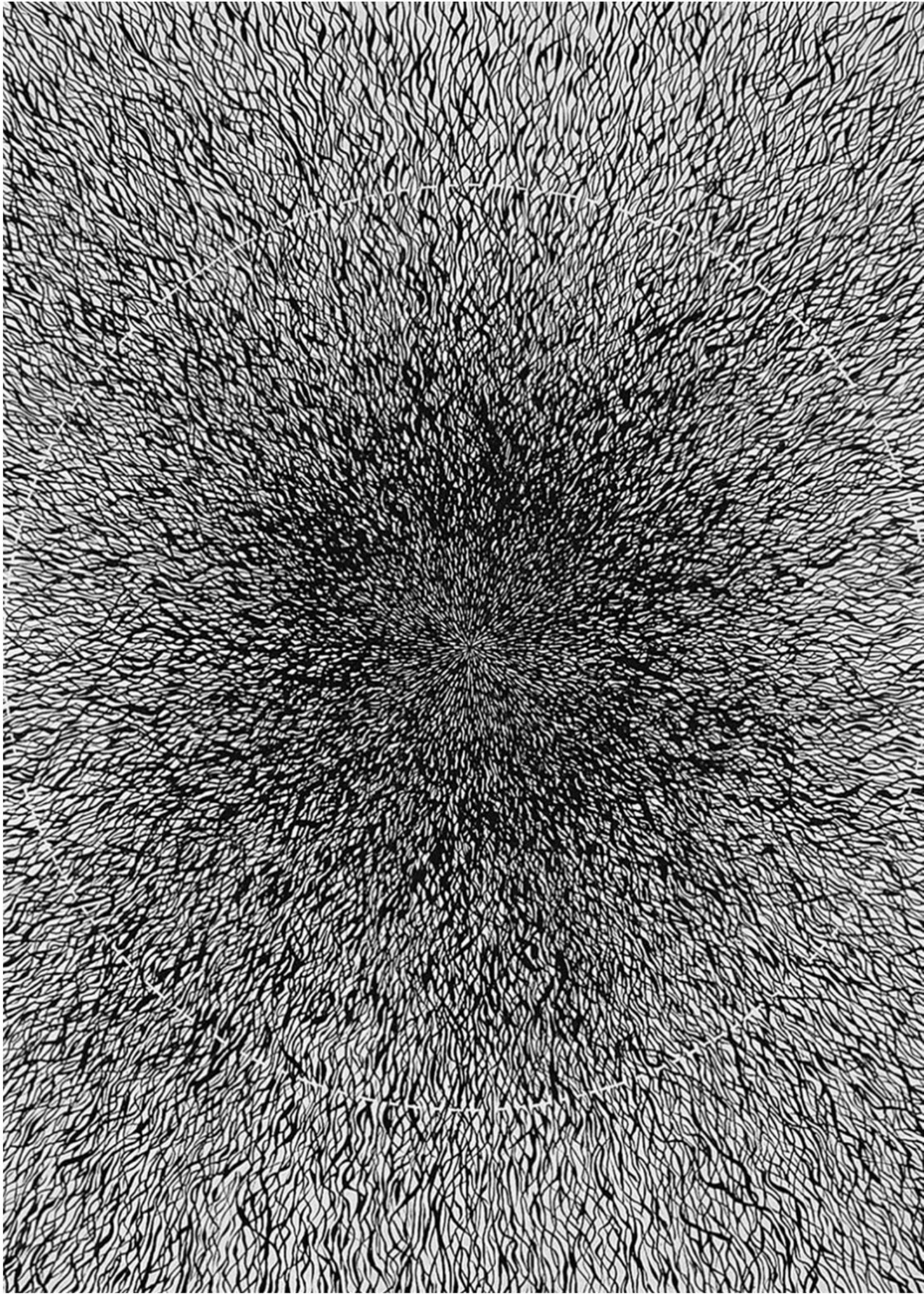
Welcome to Issue 41 of Shape Journal. This edition is a collection of essays and reviews on Quantum Entanglement, and why the concept is almost certainly nonsense.

I have been working on picking apart these ideas for several months now, and a Special Issue is in the pipeline for early 2016, with the working title *Entangled Universe*, which will aim to debunk this area of "Physics" once and for all.

Until then I thought it would be a good idea to collate here my earlier attempts to tackle this mess, many of which have already been published on the blog and in previous issues, as an introduction to this work, and for many, an introduction to the concept of Quantum Entanglement itself.

**Jim Schofield**  
Dec 2015





## Review: *Quantum Weirdness is Reality*

### A Quantum Tangle

What Bell's Inequalities are about, is not what is claimed. It is about formal descriptions of reality and not the material world itself.

In so-called *Quantum Entanglement*, the assertion is that in measuring one of an entangled pair of particles, it influences the quantum state of the other, even if they are a million light years apart, and it does this literally instantaneously (obviously much faster than the speed of light, at any rate).

For any ordinary mortals reading this, I must point out that the believers of this "magic" are sub atomic physicists - and this kind of drivel is pretty well par-for-the-course in those quarters.

However, when it comes to actually "confirming" this phenomenon, they must measure one entity and then the other, or even simultaneously to prove their case. My concern is, "How do the experimenters know a change has been made to the other one of the pair?" For, if you measured the first, then it would immediately influence the other member of the pair. Clearly there is a problem here.

[Quantum weirdness proved real in first loophole-free experiment](#) by Jacob Aron, New Scientist (3037)

Do they regularly measure them alternately or simultaneously to attempt to establish a pattern? Questions arise even for those who support the theory. How could you ever know what the undisturbed state of either one was?

You can't of course! So what do the "believers" say?

They insist that prior to measurement they are both simultaneously in "all possible states at once" until you actually measure one of them, which then forces it into a particular one of those possible states.

Such ideas recur throughout this theoretical stance: it is the basic myth of superposition once again! This concept states that a particle (before measurement) is simultaneously in all possible positions (like a wave), but with a fixed probability of being in each and every one. And, this remains the case until we measure its position, and by doing so, fix it into a single possible position.

Now, though this is totally counter-intuitive (and most probably wrong), it does allow statistics to be used over a number of cases, and the statistically arrived-at answers do indeed match certain observations in reality.

The mathematicians make it all work by taking a Wave Equation and associating probabilities to all possible points on the wave, which are interpreted as being probabilities that the particle is in each possible position.

Notice that this method cannot deal with the position of a single particle, but can give overall estimates of a whole group!

As a physicist myself (and one who was originally a mathematician), I have a name for such methods - I call them frigs! They are mere tricks. Such techniques are often used in Mathematics as clever ways of arriving at hard-to-find solutions to purely abstract equations.

So maybe you can see how they happened.

With this in mind we return to Quantum Entanglement - this totally counter-intuitive standpoint is described as having a before-measurement-particle only existing "as a fuzzy cloud of probabilities of all its possible states." And this is how they avoid the otherwise necessary infinite regress! Instead of an oscillation with each and every measurement, we are expected to believe that before measurement, such quantum entities are not in any particular state at all, but when measured an entity will suddenly be in a specific state, and its remote entangled partner will somehow be affected by this intervention too!

In other words, more generally, we can conceive of such things as particles, but nevertheless, often take such things that are as particulate as its position, as a quantum property, as if controlled by a wave. The trick involved, for it can be nothing else, is that of all possible positions in a wave represented by the probability of the particle being there. And this is, of course, complete nonsense, both in the way it is presented and used by these scientists.

Unless, that is, you consider there to be an actual substrate, filling all of space, which is both affected by, and can in turn itself affect, the enclosed particle.

In previous work undertaken by this researcher all the various anomalies of the infamous Double Slit experiments were completely explained away by the assumption of the presence of such a universal substrate - at the time called *Empty Photons*.

The idea of a substrate was far from a new supposition, it had at one time, been the consensus view. But a substrate was never detected, so the prior theoretical idea, known as The Ether, was permanently dumped as insupportable, despite the fact that James Clerk Maxwell, using his theoretical model of The Ether, derived a correct set of Electromagnetic Equations which are still used to this day.

Clearly, all the points made here must be addressed. In fact, this theorist suggests that the whole myth of superposition and multiple simultaneous states, was invented to explain the results of things such as Quantum Entanglement.

Now, the reader might wonder how scientists could be so influenced: for it runs counter to the basic materialist conceptions that are the key premises of Science. The actual reason for this is clear. They have abandoned Physical Explanation for Purely Formal Description. They are no longer physicists, for they have rejected the physical world - they are merely mathematicians!

Einstein's dismissal of Quantum Entanglement is encapsulated perfectly in his phrase:

"The Universe is real - observing it doesn't bring it into existence by crystallising vague probabilities"  
For such are most certainly, idealistic notions.

There can, however, without recourse to idealism, exist a hidden universal substrate with wave-like characteristics, and a sort of symbiotic relation between that substrate and physical particles moving through it.

It is the impossibility of answering my question about the "entangled particles" measurement that precipitates this monstrosity of a theory! The counter to that position by de Broglie, and later by David Bohm, about so-called "hidden variables" did not solve it, as these features were never found, no matter how detailed was the study of the particles involved.

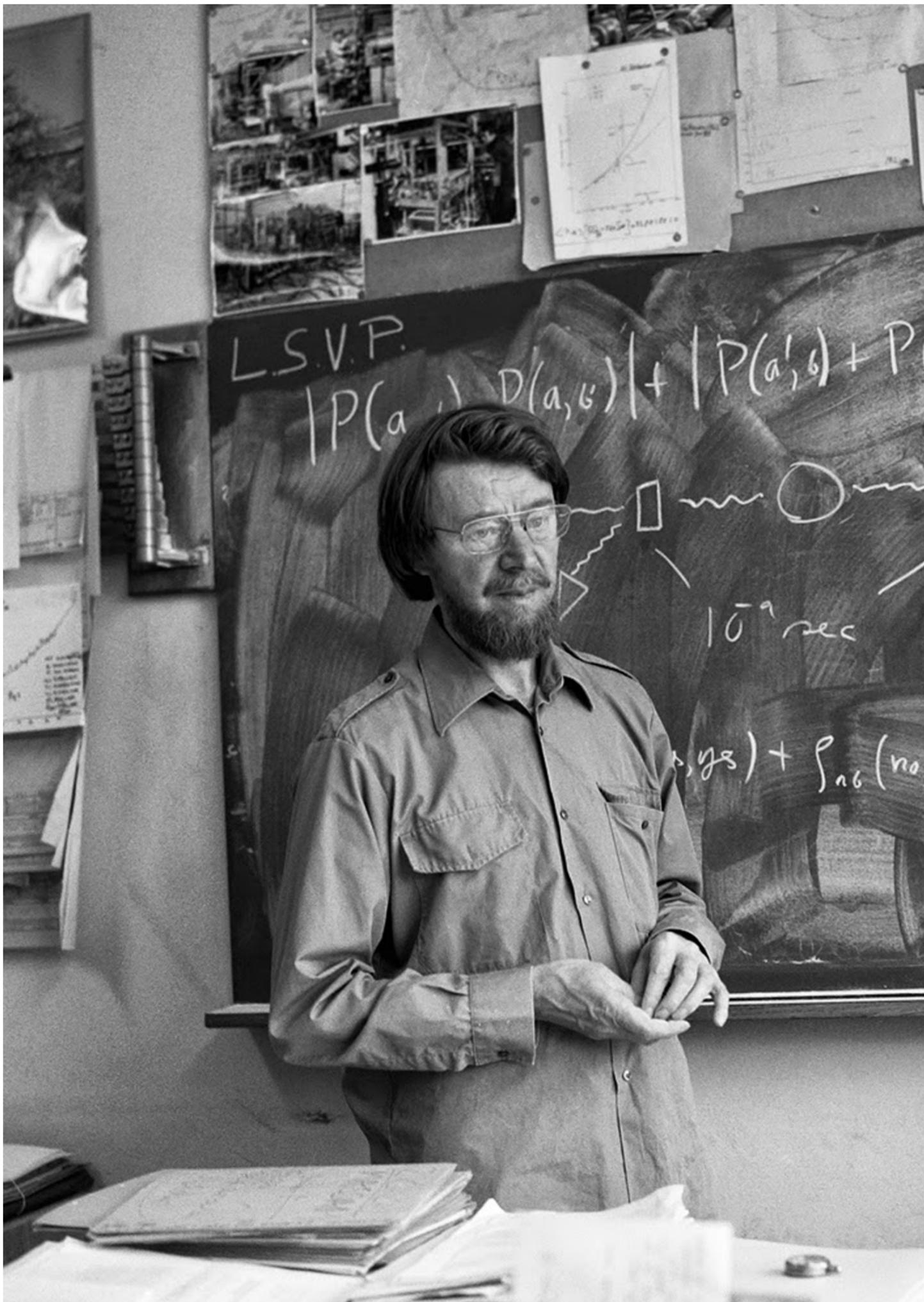
What was really needed to attempt to explain the sub atomic world was a separate substrate, involving a reciprocal and recursive relationship between a particle and its context. For then, and only then, can we have a passage of time between the initial influence, and then the recursive effect. The assumption of an intrinsic "Pilot Wave" meant simultaneous effects, but the role of a substrate as intermediary allowed this crucial delay.

It is the formal, and even stilted nature of the mathematical physicists' thinking, that draws them inexorably towards the Copenhagen myths, and unfortunately away from reality.

Niels Bohr's insistence that the Quantum States "explained" things that classical physics could not was false in the first part, while true in the latter condemnation. In fact neither approach could explain our observations. Bohr's position was descriptive of certain forms, but not in the least bit explanatory. Forms do not explain! They can describe reality, but they don't even do that perfectly. All equations are descriptions of idealised forms, they are not even accurate descriptions of any natural part of reality, they are always approximations, simplifications. Those forms can then only be applied back on to areas of reality that we have carefully prepared, or farmed into experimental domains. Here lies the role of technology in all our investigations. The form's validity is then confirmed by successful use in these domains.

The battle between the two standpoints embedded in Science was never resolved, because both sides of the argument subscribed to the same belief - that equations represent reality as it is - an obvious fallacy when you stop to think about it. Both the classicists (such as Einstein and de Broglie) and the new school mathematical-physicists (Bohr, Heisenberg et al) were completely





wedded to form. Even Einstein's Relativity, and Space-Time Continuum were crucially formal ideas.

So, in spite of a small section of physicists refusing to embrace the Copenhagen Interpretation of Quantum Theory, these remnants (in the 1960s), after 30 years of argument, required a final means of settling the dispute. And for the Copenhageners John Bell's suggestion was a godsend.

But he did this using only the purest basic forms of Mathematics, to which both sides mistakenly subscribed. Bell used Set Theory, and its embodiment in Venn Diagrams to "do it".

Now here had to be the most inappropriate "proof" concerning anything in concrete reality, for it only dealt in idealistic laws, and this was to prove what reality really was, and to do it by this means alone!

Bell used this method to construct a set of inequalities which could be clearly demonstrated in Venn diagrams, and as such, he had to be handling fixed things: no qualitative modifications or evolution of those forms could take place, as it was impossible by such means. It would be accurate to state such a basis as the premises for Mathematics and Formal Logic only.

Bell used these as a basis for tests about reality. He used his Inequalities to set limits, and if in concrete reality they were clearly exceeded, then the claims of the opposing realists were "proved to be wrong", and Quantum Entanglement was proved correct.

Many will have noticed it was a proof which only really convinced the faithful! This kind of "proof" was reality to them, it was their everyday modus operandi. But this gave the Copenhageners the result they required. The vast majority of physicists now claimed Quantum Mechanics victorious, and Realism finally defeated.

Bell had generated his required test using Formal Mathematics, and, as that was the "Essence of Reality" it simply must deliver a valid and correct test. But the actual conclusion of this method should be no, you cannot prove the nature of concrete reality solely by resorting to Formal Logic. Only other forms are provable solely by Mathematics. And only phenomena consistent with Formal Logic are provable by the methods of Formal Logic! Nothing else is possible in either case.

Nevertheless, though all experiments seemed to support the idea that Bell's Inequalities proved the Quantum Mechanical position to be true, the fact that it wasn't correct actually refused to go away. However, this recent Dutch experiment mentioned in New Scientist was supposed to settle the dispute forever...

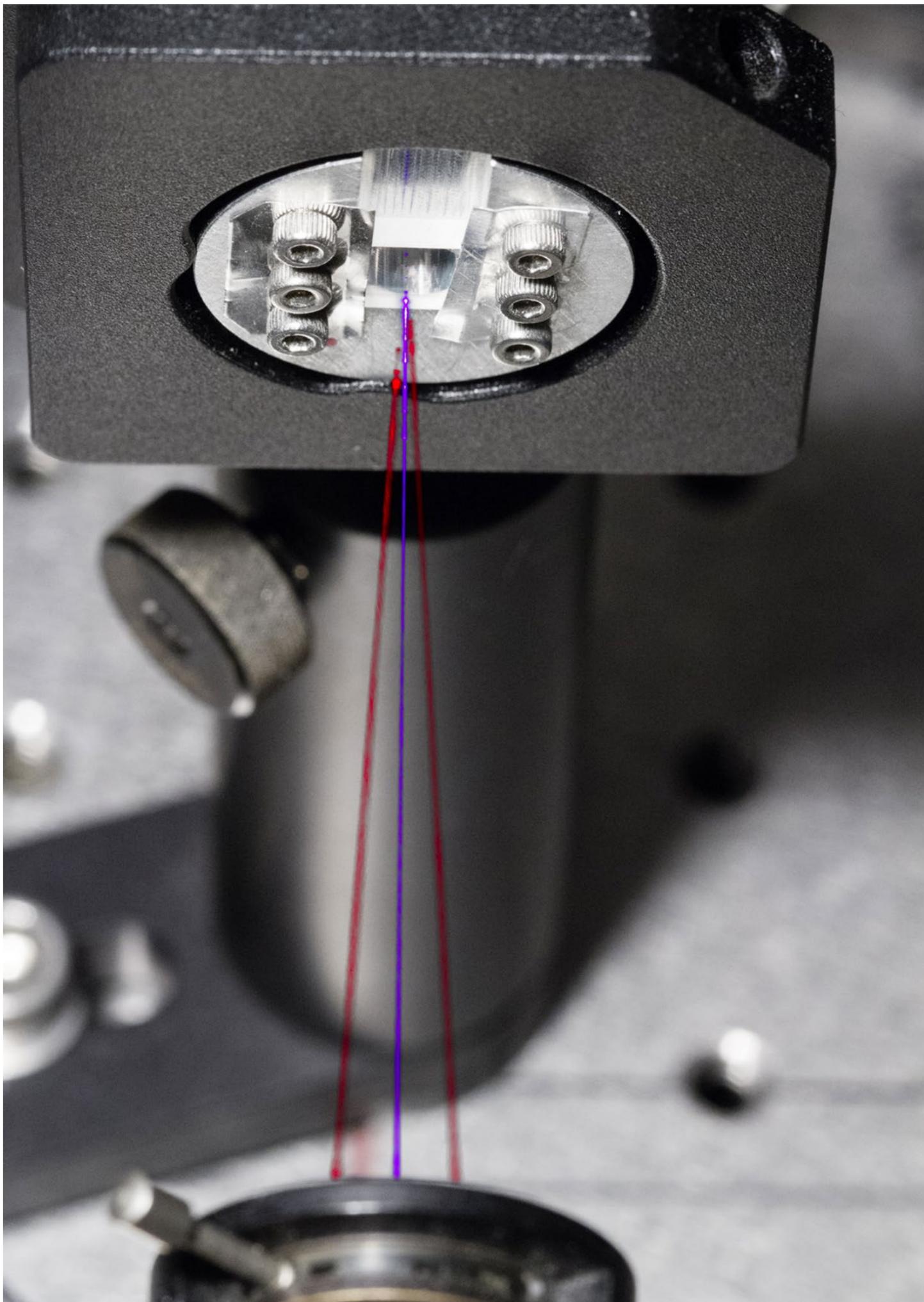
The test was proved over many productions of Entangled pairs, and it was the statistics of the many runs overall result that delivered the required answer to Bell's Inequalities.

So, what had actually been achieved? It was his formalisms that were proved correct! He had suggested a test for his Formal reasoning, not for any feature of concrete reality.

Lots of so-called "loopholes" - all put forward by scientists who actually agreed with their opponents on the mathematics involved, turned out to be not only wrong, but entirely inapplicable. But as they came from the same camp in their attitude to the primacy of form, proving things in these loopholes was inappropriate anyway. They merely corrected their formal mistakes - absolutely nothing to do with concrete reality at all! All the Dutch group achieved was the defeat of their opponents on Formal Reasoning only.

However, it is easily proven that by the means he used, Bell's Inequalities can only be used to address Ideality - the world of purely formal relations. They don't actually mean anything in concrete reality at all!

I concur that this condemnation of the precedence of Form over Content is still not enough to debunk these ideas. The most crucial principal in all such experimental investigations, both classical and Copenhagen school, is the cornerstone of all formalism and all analysis - the Principle of Plurality. This view of the world sees it as composed of many simultaneous natural laws, with different mixes of these happening in each and every observed situation. This can be drawn as distinct from Holism, which sees all things as inter-connected and inter-dependent, where Plurality sees only inherently separable component parts, which can always be deconstructed and analysed. Analysis can be made of any given situation, however complex, through isolation, simplification and control of those components, extracting the laws from the mix. Such methods are the basis of literally all scientific experiments.



This is all fine (and Science certainly wouldn't exist without such analytical methods), until erroneous assumptions are made about what this means - Plurality assumes that any law extracted in this way, is identical to that when acting in totally unfettered reality. And this is not true. In unfettered reality all "laws" are modified by their context. Realising this is the first step towards a Holist stance on Science. The objectivity of this position is confirmed by the fact that any law extracted by the usual method of farming and controlling a context for the experiment, can only be reliably used in that same context. The Pluralist view survives (and indeed thrives and dominates) because we are extremely adept at arranging for it, at controlling our environment, and this makes both prediction and production possible.

But, in theory, all reasoning using such laws as the actual components of reality, is bound to be wrong. Pluralist laws and techniques are pragmatically extremely powerful, but theoretically greatly misleading.

It isn't just specialisation that leads to scientific teams consisting of experimenters, theoreticians and technologists - all of these roles are actually differing standpoints, and all are essential to the Scientific process. But they will contradict one another! Disagreements are unavoidable, and dead ends are likely in many scenarios.

#### Postscript

This paper concentrates upon the underlying bases of the methods and reasoning used in postulating Quantum Entanglement. Despite the fact that I think this torpedoes Quantum Entanglement from the word go, QE forms the last line of defence for the regressive Copenhagen Interpretation of Quantum Theory, which must be defeated, so a job must be done on it!

## Review: Al’Khalili’s Sleight-of-Hand Analogies yet another “proof” of quantum entanglement?

In the first instalment of Jim Al-Khalili’s series on BBC 4 entitled *Let There be Light! The Secrets of Quantum Physics*, he tackles the long-standing argument between the position of the Copenhagenists and that supported by Albert Einstein, on what is termed Quantum Entanglement.

As is usual in this area of Physics, analogies are used to attempt to “solve” (though really only describe) crucial anomalies in Reality.

So, here Al-Khalili uses playing cards to represent what is supposed to happen with Quantum Entanglement at the sub atomic level. And, by a series of modifications, ends up with an experiment, using two simultaneously caused quanta of light, which are, “therefore, entangled”, and he looks at their polarizations, to see if the idea of entanglement is “correct”. But, he defines the test as being a dispute between the two contradictory explanations of a certain case of the phenomenon – one by the Copenhagenists, and the other by Einstein.

So, Al-Khalili asserts one must be right, and the other must be wrong! But, I have to insist, “Why should they be the only considered possibilities?”

The way Al-Khalili puts it, one answer proves the that the Copenhagenists are right, and that the phenomenon is totally inexplicable physically, while the other (Einstein’s) proves that the two photons’ properties were fixed when they were created, and no inexplicable link between the two would be necessary.

Al-Khalili uses his described Laser Set Up with photons, but insists that we see it in terms of his analogy with the playing cards, so how might he be misleading us? Can the playing cards change, or are they fixed? Clearly, we are persuaded that they cannot change, all by themselves – that would be magic – especially if the change was due to a measurement made elsewhere, at the other case. But this is also misleading us even more!

Our quantum entities are not playing cards that are fixed forever - they were created (in the more usually

used example of Pair Production) modelled here by the split light into two photons (and considered to act in exactly the same sort of ways with regard to quantum properties), and the assumption of that creative process being the production of two massive particles from pure energy alone, is made without any chance of it being mistaken.

NOTE: We cannot continue such a discussion without questioning Al-Khalili’s many, quite definitely questionable assumptions. He refers to a photon, which we are to accept as a disembodied quantum of pure energy. Then, also, in the alternative argument, two particles can be created out of just such a high-energy photon. No possible substrate is assumed to be involved in these phenomena, and finally, in conclusion, that separated entities can be still instantaneously linked, no matter how far apart they get. These are not to be questioned. They are assumed to be totally unassailable. What do you think?

But, this theorist (Jim Schofield) sees the area very differently. The phenomenon of Pair Production is due to the dissociating of a known-to-be-physically-existing unit (not pure energy) in a universal substrate, made up of large numbers of these, each consisting of two mutually orbiting particles, of one electron and one positron, which can also hold and transfer internal quanta of energy by the promotion of that orbit. It has been observed in colliders as the Positronium - in it’s stable state we call it a Neutriron. (By the way, this assumption also solves electromagnetic propagation through space, and all the anomalies of the full set of Double Slit Experiments – a supposed cornerstone of Al-Khalili’s set of assumptions embodied in the Copenhagen Interpretation of Quantum Theory). Finally, this alternative also stands upon very different holistic grounds, which means, “Everything affects everything else!” and also “Nothing is eternal!”

So, if our Pair were linked (synchronised) at their joint point of creation, and, thereafter, were in-step-evolving from there on, then both Einstein’s and the Copenhagenists’ assumptions (both of which are entirely pluralist) and requiring both eternal laws and

eternal entities – must be wrong. Al-Khalili’s presented alternatives are not intrinsically opposite, so that one or the other must be the truth!

It is, on the contrary, an example of a classical Dichotomous Pair of concepts, due entirely to common, yet wrong, premises, by both sides of the argument. The contradictory pair was entirely due to their mistaken common premises (embodied basically Plurality for both sides).

And, as the philosopher Hegel clearly demonstrated, a sound critique, and then a necessary replacement of those erroneous premises, would remove the seeming contradiction, and allow the impasse to be transcended, and a consistent and better theory to be possible, while opening the door to further developments too.

Effectively, both sides of the argument were determined by the same errors, and hence no resolution would be possible without those common and false premises being removed and replaced with something closer to the truth.

Now, such alternative reasoning may sound to be something of a circuitous route, but it is far superior to the thing it replaces. Let’s face it; the premises of the Copenhagenists mean that certain things just cannot be explained physically, and we must not even try! And, as long as we have an overall, formal means of getting what we want, in a given situation, then we must be satisfied with that.

NOTE: The final part in the experiment to test Bell’s “thought to be final proof”, was that if there was NO built-in relation between them, then the overall results, in his analysis, would be “more than 2”, whereas if there was an in-built relation (as Einstein insisted) the overall results would be “less than 2”. But, this is really only testing between the two options proposed by the Copenhagenists and Einstein, and consistent with Formal Logic. Yet, with a non-pluralist, changing situation, that test would not be appropriate. The tenets of Formal Logic would NOT apply! The thinking is entirely pluralist, hence it must have the supposed,

totally underlying laws – independent of context – the same happening in all circumstances – in fact they must be FIXED! Whereas, that will certainly not be the case at all – and the holist stance is bound to be much closer to the truth than the pluralist.

As with all pluralist experiments, they are set up specifically to reveal a given pluralist law, and one, which, to the holist, is anything but that. It is, in fact, totally determined by the context of the experimental set up. It isn’t a fixed Natural Law at all.

Finally, the whole World of Formal Logic, of the Principle of Plurality, and Form as Cause is certainly mistaken. In the end, its laws are those of the World of Pure Form alone – Ideality, and NOT of the real subject of Physics – Reality.

And, to cap it all, the assumptions used were, at the time of their establishment, historically unavoidable.

Mankind didn’t come into the World already ideally equipped for such problems. They have had to develop them from scratch over millennia, and the posing of the problem in that way was the only thing they could do at the time.

## Review: A Non-Ideality Context?

The article entitled [Entangled Universe](#) by Anil Anathaswamy in New Scientist (3046) ranges far and wide both in Quantum Theory and in Relativity.

Of course, in such a small paper, as in this critical response, most things have to be taken as established elsewhere, and thus, accepting such proofs as are available, they are here related together purely in a purely formal way – as has always been the case, since its origins in Quantum Theory in its initial triumph in 1927 at the Solvay Conference.

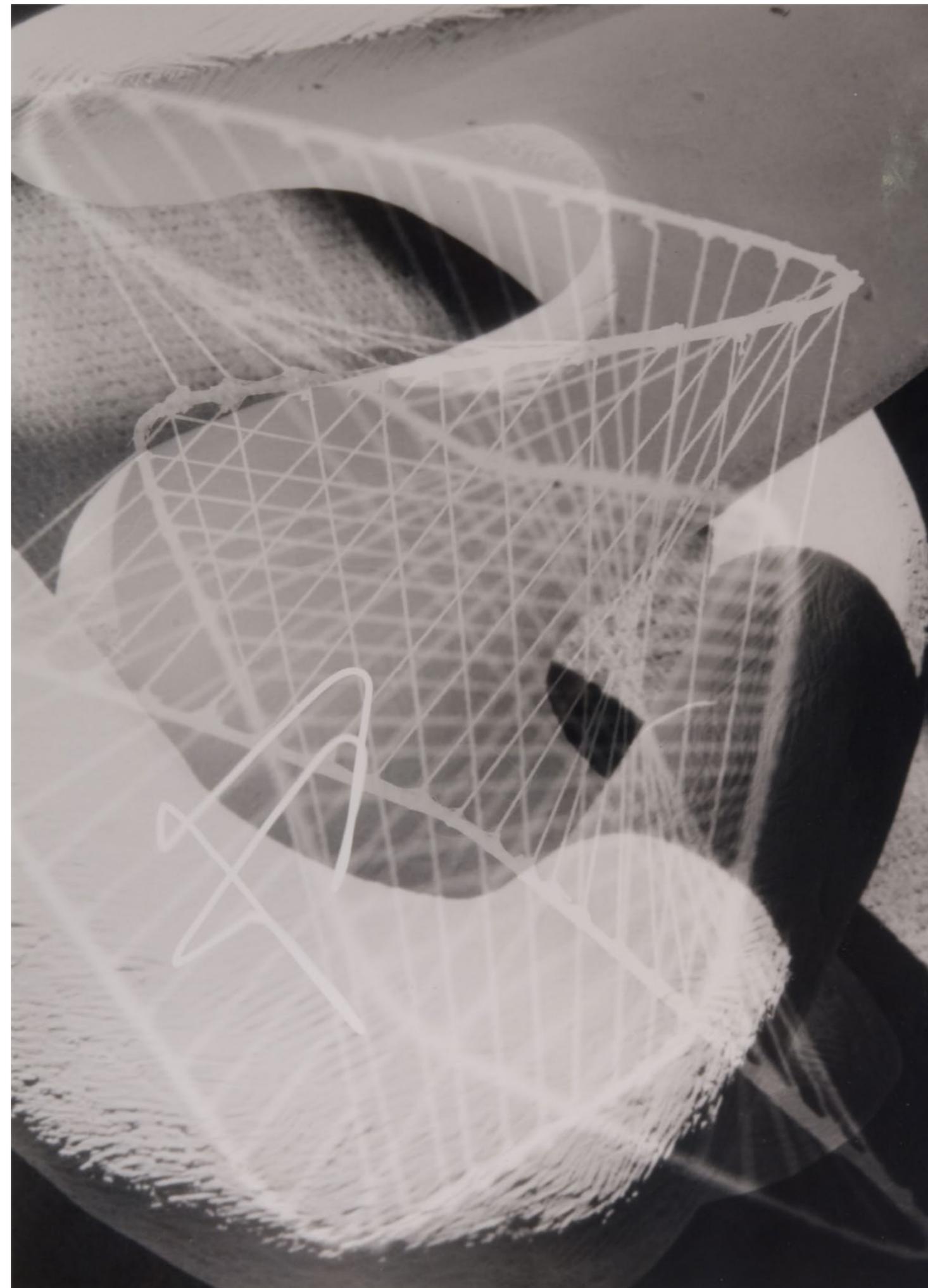
Now, elsewhere, the writer of this paper, theorist, Jim Schofield, (a physicist who disagrees profoundly with the current stance of Mathematical Physics), has proposed various physical situations to explain aspects that are dealt with very differently within the currently dominant stance in Quantum Physics.

His main, and clearly enabling, assumption has been the suggestion of the presence of an undetectable, but both affected and affecting substrate. And, with this addition, he has been able to fully explain all the anomalies of the famed Double Slit set of experiments, and also the propagation of electromagnetic Radiation through “Empty Space”.

In addition, such phenomena as Pair Productions and Pair Annihilations also fit perfectly into his conception of the nature of that Universal Substrate.

He is currently addressing the inexplicability of so-called Quantum Entanglement via the concept of synchronised development processes in pairs of particles created by the same single instantaneous process. And, his purpose in tackling the New Scientist article is also to criticise the ideas, therein, about relating the Space-Time Continuum and Quantum Entanglement as different sides of the same coin, and hence the route to a Theory of Everything.

Clearly, with other, elsewhere-elaborated research, attempting to explain the quantization of electron orbits in atoms (once again made possible by the assumption of an underlying substrate), it is becoming clear that a very different route to the purely formal weirdness of the presently dominant Copenhagen Interpretation of Quantum Theory seems to be clearly possible.





## The Ascent to Understanding

Let us make a crucial assumption about Mankind's understanding of Reality.

Let us start from its undoubted successes thus far, but also concentrate upon its undoubted inaccuracies, and with the purpose of facilitating the improvement, show its true erratic path from one set of assumptions to the next. For, it has never been, nor could have been, a mere accumulation of knowledge.

Man, certainly, has no direct access to what might be called *Absolute Truth*, for two sound reasons.

First, he hasn't evolved, genetically, to have such abilities, but predominantly to survive as a hunter/gatherer, largely on the plains of East Africa (for at least 90% of Man's existence as a species at any rate).

And, second, because, being highly intelligent and resourceful he has always been able, to varying degrees, to find useable approximations and pragmatic solutions, which enabled him, not only to survive, but also to reproduce and prosper to a remarkable extent.

Over the entire period of existence of *Homo sapiens*, he has found ways of solving problems, not only within his persisting, but limited, lifestyle, but far more generally.

Yet as Friedrich Hegel showed quite clearly, none of his conceptions were ever Absolutely True: Yes, absolutely NONE of them was ever that!

They are, however, increasingly accurate *approximations*, but are arrived at in such a way as to always dissolve into some impasse or other, which inevitably takes inordinate amounts of time to, somehow, be either worked around, pragmatically, or transcended. And, even when he does achieve such a significant transcendence, he, most definitely, will only advance to a development, which, in turn, will halt at the next inevitable impasse, and once again come to a dead stop.

Now, in such an account as this, it must be made absolutely clear, that the process of Understanding Reality is NOT merely only about the solving of everyday problems – for

with these he has always managed to make progress - for Mankind has always possessed an amazing pragmatism. They have always been able to find some sort of way! But, what are not so well developed, are Mankind's concepts of Reality, and his place within it – his Philosophy!

His grasp of the nature of Reality and even of his own species, has involved a much slower progress.

In a sense, the evident side of Man's intelligence is shown in his successes, say, in politics, where it isn't a profound understanding that leads to winning, but knowing how to manipulate people to your own requirements. And, that is, of course, very different from the objectives usually accorded to Science and Philosophy, though never completely attained.

So, what this paper will begin to address is exactly how people *think about things*, and find pragmatic ways of getting around many problems, and how, these methods fail them in the more important questions in Science and Philosophy, and more generally, as *Understanding*. For, there can be no doubt that they do!

The presumptuous writer of this paper, feels he might have an inkling of the problem. It comes from a lifetime as a scientist, a teacher, and also even a sculptor and a Marxist political activist. And, these varied contexts, at many different levels, have recently opened a few crucial doors to what might be profoundly significant. Let us see what they are!

The most significant processes developed by Mankind have undoubtedly been **Simplification** and **Idealisation!**

These have certainly empowered people in finding ways to solve problems for centuries, by actually seeing them in much more helpful ways. For, they began a process of getting an initial handle upon the nature of various, more accessible aspects of Reality.

But, at the same time, they have also, as an unavoidable part of the process, diverted Man from dealing with Reality-as-it-really-is, and instead enabled the extraction of only a partially true set of conceptions, of areas

of Reality, which were much easier to handle and use successfully. Nevertheless, these "handy-short-cuts" had the crucial feature that Hegel discovered of never leading to Absolute Truth, but instead delivering artificial constructions, similar to Reality, but incapable of being developed beyond a certain limit. These processes of Simplification and Idealisation did indeed reveal something of Reality, and, indeed, something that could be successfully used, but what was delivered was always both partial and distorted, and would always, in the end, lead to a seemingly terminal impasse, which often wasn't transcended for literally millennia.

Of the 200,000 years of his existence, Man was a hunter/gatherer, using only chipped (knapped) flint slivers for some 180,000 years of that history. Do you doubt that he had reached some or even many impasses, in that time, so that developments were severely limited for the vast majority of Man's existence? Yet, it was also during this same period that his species spread to literally all parts of this World, and survived in all of them, and even flourished in most of them!

Now, there has to be something about Reality itself, which enabled Mankind to learn to solve everyday problems, for most of what he has always been doing (and still does today) is the solutions of diverse problems that other animals are unable to tackle.

But, we always see Man's thinking from the high ground of the last period, which has lasted, at most, around 20,000 years. And, we never answer why, with basically the same brain and genes, it took Mankind so long to begin to climb that final slope to get to where he is today. It is the intention of this thinker to try to tackle that important question, and see what the answers mean for the future course of Human Thinking!

Now, the question has to be, "Why do Simplification and Idealisation work?" Why is such a process productive, for it sounds like it is most likely to be groundless speculation, while it actually does indeed (if in halting steps) take us ever closer to the unattainable absolute?"

Let us start with the first of these:-

### **Simplification**

It is, in fact, surprising that Simplification works at all! Just making something simpler than it actually is, shouldn't work!

Unless, that is, the process reflects something actually existing in Reality - and of course it does! What Simplification reveals is not an essence but a natural *Dominance* - by ignoring all but the most evident contributions to a situation.

And, such Dominances are, indeed, present everywhere. Now, to understand that this is so, we have to think holistically! We have to consider real world situations as being composed of multiple factors, which can compete with one another, as well as cooperate or complement one another.

And, in such a melee, the mix will not remain the same: it will move towards some sort of stability, in which the various contributing components come to a balanced state, which usually has the form of various clearly dominant strands, with still existing, but subordinate strands present too.

IMPORTANT NOTE: Clearly, choosing a Dominance as the characterisation of that state, is THE simplification. And, it will be useable in the right context. But, it will be like taking a still picture of a moving process: it will lose, completely, the dynamic contributions that will, in the end, cause it to change dramatically.

So, simplification works well in *persisting stabilities*, and it is even useable in momentary stability within a changing situation. But, it can never include the intrinsic dynamics of that change. That is its limitation!

Now, the most common uses are those frequently made by ordinary people, but scientists use aimed-for situations, which they are confident they can control and use effectively.

One favourite is the so-called "random mix", where the majority of the many contributions tend to "cancel-out", and a General Summed Law is then easily discernable above all others!

The more common case is one in which the stability is created by a particular mix arranged for to give a certain factor clearly dominating.

But, if they are conducive to simplification, conceptually, and experimentally, the conditions of an investigation can be purposely optimised to reveal that dominant factor above all others.

Indeed, I call this the *Farming* of a location or Experimental Domain, when it becomes the ever-present basis of the general scientific experimental method.

The great value of this version is that not only can the dominant relation be extracted, but also used with confidence, IF AND ONLY IF that dominance-containing situation is to be effectively and reliably maintained.

Let us now go on to the second of these means:-

### **Idealisation**

Now, this process, though glimpsed for millennia, was only grasped firmly by the Ancient Greeks, and in a particularly restricted area, which we now call Mathematics.

They noticed Patterns and Forms in Reality, and cleverly extracted them in a very different way to simplification. They initially did it by drawing them in an idealised way! Now, what does that mean?

For example, a roughly round thing somewhere in nature became something very different, while maintaining the noticed pattern as the most important thing! It became a *perfect circle*!

Drawing was the transferring process, because it used lines, considered to be of zero thickness - just conveying the shape and nothing else, EXCEPT, of course, that "roughly round" became ideally circular! And, a crudely 3-sided field, say, became triangular.

The Greeks realised that with drawing, a perfect (ideal) version, could be used, and investigated for its properties. It "clearly" was taking idealised versions, so that they could be investigated, whereas the real, rough, and always complex real forms could not. This study of Ideal Geometric Forms exploded, and in a relatively short time, actual Mathematics was being studied, and the properties of a wide variety of shapes were being investigated and their Laws revealed.

NOTE: Indeed, it was also the basis of Idealism as a Philosophy, in which the ideal forms were seen as the essences of Reality, then made the way they were actually seen normally, merely by the complication of many of these ideal components in different amounts.

Idealistically, they were seen as the sources of all experienced Reality! And, all this was achieved, by merely modifying concepts into *ideal versions*.

A line had zero thickness.

A dot was conceived without any extension.

- and, of course, many more!

Thinkers, in this very tidy area, could concentrate upon certain features, to the exclusion of everything else, and find their formal relationships.

So, more generally, it was to become a method in General Thinking also, and situated a needed understanding into considering the interactions of certain ideal forms and factors. And, it can be seen how this too gelled (at least approximately) the actual condition out there in the World. It, certainly, makes certain idealised features available for study.

Though, these two methods did not reveal Reality-as-is, they certainly could, in particular conditions, approximate to Reality in useable ways. But, such was never the route to Absolute Truth.

It was a trick which could allow predictions and even use, in given constructed and controlled contexts, but, philosophically, it led in the wrong directions and assumptions for really delivering Reality-as-is. The proof of this is clearly seen in the most advanced discipline based upon these methods to a remarkable extent - namely Science.

Now, Science, quite properly, has been celebrated for its sound *materialist* stance. And, that aspect of it, particularly in the investigations of Reality, is indeed valid. But, overall, Science only managed to continue to develop by being an amalgam of three distinct disciplines, all of which had diametrically incompatible premises.

Now, this sounds like a contradiction in terms! How on earth could incompatible disciplines be "mutually beneficial"?

Well, a set of related disciplines gave a means of working around the unavoidable impasses. They made this possible by allowing switching of your ground, whenever a problem was encountered!

Let us see what these main components of Science gradually became.

First, we have the basic materialist stance – investigating objective Reality for the answers.

Second, we had the formulation of results, gained by measurements of reality into “idealised forms” – taken from Mathematics.

Third, we had the well-established pragmatism of the hunter/gatherers (Man’s “natural Mode”) – “If it works, it is right!”

These three, in spite of their differing premises, managed to deliver, between them, a means of making progress by switching methodologies “when necessary”. It really did deliver a means of continuing to make progress.

But, of course, it still contained within it innumerable contradictions, which would ultimately and inevitably bring the whole monolith to a halt!

NOTE: For to make these switches, the user had to also switch his premises. For example, in switching to mathematical forms (equations), he had to idealistically have these determining what was going on. A peculiar “facing-two-ways” standpoint grew up, which would ultimately founder upon the rock of this total incompatibility.

Now, that major and inevitable crisis has finally and irretrievably occurred. In fact, it occurred almost 100 years ago, and it, as you might have guessed, happened in the most fundamental of the sciences - in Sub Atomic Physics!

The simplifications and idealisations began to come to grief in that area of Physics, with the arrival of Quanta – discrete gobbets of totally disembodied energy. Various major problems – namely the so-called Ultra Violet Catastrophe and the Photo Electric Effect could only be explained in terms of the energy involved being in these finite gobbets – the quanta!

And, as researchers chased these entities further, it became apparent that that the usual premises that were behind both Particles and Waves were clearly inadequate. For, seemingly, the same entities appeared to act sometimes as particles, while at others, like waves! No solution was found, and a truly major Crisis in Physics ensued.

It hammered on for several decades, until Bohr and Heisenberg put forward their “solution”.

It amounted to “Stop trying to explain these phenomena, and, instead, be totally satisfied with the formulations”, which they had constructed that seemed to fit both types of instances. They had used Wave Equations, which in the past had showed the physical extent of a distributed wave, but NOW, they were to be used in an entirely new, and definitely non-physical way.

They no longer describe a physical wave, but instead cover the same sort of extensive field with an associated set of probabilities that the “particle instantiation” could be in, for all those covered places. It isn’t a wave, but a wave-like distribution of probabilities, almost as if some sort of wave were indirectly controlling the positions of the “particle form”, when it was extant.

Now, exactly what they do is crucially important, because it can NEVER position the particle-form (when IT exists). Because of the way it is constructed, it can only be a sound predictor, when used over sufficient such instants, for statistical overall calculations to be available. And, there is nothing in physical theory either of Waves or of particles to establish this as correct. It is a classical mathematical form- yet another frig!

No, believable physical explanation can be aligned with this frig, so no explanation is possible! It does, however, conform to the pragmatist principle -”If it works, it is right!”

But, even after all this invention and data fitting, there are still further actual anomalies, which make no sense at all. Then began a wholly new “speculative form”, and given the name “Wave/Particle Duality”, which effectively had the “entity” sometimes acting as a particle, while at others is described as being a Wave, and the switches between these incompatible modes being delivered by the probabilistic Wave Equation. Indeed, in the famous Double Slit Experiments, just attempting to measure the particle (or the presence of a wave) is sufficient to precipitate the conversion between the two states.

Now, it is worth explaining all this, as clearly as it is possible, with such tricks, because, this very researcher has explained everything that happens in all versions of these experiments merely by introducing a universal substrate. Every single frig of the Copenhagen stance on



this Experiment falls to the ground, for it can be clearly explained physically. Yet, this Copenhagen Revolution led to the End of Physics, as the theories of Reality, so it had to have the above demolition of the Copenhagen account, and a full physical explanation to replace it.

There are still important questions to be answered: for example, “Why did their equations (in the overall way that they used them) actually work?”

By now, the readers of this paper might well be in a position to proffer a suggestion themselves!

Could it, by any chance, be to do with simplification and idealisation? I think it could! And, could it refer to the Random Mix, and statistical methods, as described earlier? It could indeed!

You have to remember that Patterns and Forms in Reality are universal, they recur all over the place, but they are never causal! In fact, they are caused by substances and their properties in Concrete Reality, at a variety of different levels and contexts. But, it is the nature of Reality, which regularly produces the same patterns in many physically unrelated areas. It, most certainly, is NOT the other way round.

What Bohr and Heisenberg did was to match mathematically known forms to phenomena in a unique way – a way incapable of causal explanation, but a way that worked! It was a way-out means of relating forms to phenomena, but, in doing so, it blew apart the continuing co-existence of the contributing, contradictory disciplines making up the classical view of Science.

And, the admission of that death was indeed a revelation, but not yet, as was claimed, but a Revolution!

For, by sticking to JUST idealist formulae and pragmatism, they threw the theoretical baby out with the dirty bathwater. Sub Atomic Physical Theory became, on the one hand just a subset of Mathematics, and, on the other, as a set of pragmatic processes that they could get-to-work! But it wasn't that many! Indeed, it really dwindled down to ONE – smashing particles in High Energy Colliders became the primary tool

And, it had the advantage of continuously adding new particles to juggle within a small Particle Zoo!

Clearly, some profound solution to this retreat had to be found.

But, literally centuries of the multiple contributing disciplines delivered conceptions that were contradictory and had to be pragmatically navigated around to find solutions, and adding to this the Copenhagen stance made the requirements for answers truly enormous.

So, instead of the centuries-old compromise of switching-to-alternative-premises, at each and every impasse, an attempt had to be made to replace not only the Copenhagen Idealist retreat, but also those centuries of compromise too!

Yet, the clearly possible alternative – *Holism* seemed to offer NO reliable and extendable experimental methods, nor any sort of means of isolating and using idealist laws, as the old multi-basis, pluralist stance had provided.

Mankind seemed to be confronted with the biggest problem yet!

The task amounted, from the bottom up, to both devise and then establish, a system with a philosophic stance and a scientific method, to address ALL aspects of what to date had always been done, entirely pluralistically, and by switching premises. It would certainly be a major task!

But, it is already underway. Clearly Copenhagen had to be destroyed, and, in addition, the historical pragmatic amalgam of the three contradictory and contributing disciplines revealed for what it was, and by what it had to be replaced by.

Several steps on this itinerary have already been addressed and successfully delivered. The infamous Double Slit Experiments have been explained fully, without any recourse to Copenhagen, and even Quantum Entanglement is close to being consigned to the scrapheap of failed theories.

Also, scientists like Yves Couder are developing a new type of experimental method, which the writer of this paper has termed “Constructivist”.

In addition a wholly new design of Stanley Miller's Experiment, which managed to automatically produce amino acids all by itself – the building bricks of Life, which, for the first time, enables the inner processes to be revealed in an entirely new holistic set up.

The next period will see an intensification of the battle, which has now raged for 88 years (since the Solvay Conference), and the defenders of Copenhagen (on which literally thousands of careers have been built) will defend themselves to the last.

The sooner the better is my response!

# Isolated Evolution?

## is reality classic, quantum or holist?

There is another possibility with anomalies like Quantum Entanglement.

Let us briefly consider, as an initial model, the radioactive decay of a semi-stable element. Without any external intervention, whatsoever, a sample of that element will successively change into another by radioactive decay, until finally it will be entirely that final element.

Now, this process cannot be predicted for a single isolated atom, but only, overall, for a large number of atoms.

This is interesting, because similar things happen all the time at the sub atomic level, and these led, after the Solvay Conference in 1927, to a wholly new standpoint and methodology for this area of Physics, called the *Copenhagen Interpretation of Quantum Theory*. Similar, overall statistical predictions could be made for collections of particles (say), but NO direct predictions for individual particles were possible.

Now, let us play devil's advocate here! What physical causes could deliver such anomalous behaviours?

It seems to me, as a physicist, that something very important has been omitted from the accounts of these situations, which if included could have the effects observed.

Two possibilities are likely!

First, there could be an undetectable universal substrate, in which these things are happening, and which is both affected by the particles, but, in turn, and in special circumstances, can react back upon the causing particles. Now this line was taken by the author of this paper in his "*Theory of the Double Slit*", and was able to explain all of that experiment's anomalies.

Now, second, there could be unseen, and as yet unknown, processes taking place within certain particles, which were NOT pristine billiard-ball like entities, but complex, multi-part systems, which though they might appear to be single fixed entities, were, in fact, nothing

of the kind, and, had an inner life with its own trajectory of inner development.

Once such an assumption has been made, it becomes conceivable that such an inner structure could be suggested, and the consequences investigated. Once, more, this has been investigated by the same researcher, who devised a substrate of multi-part units for his universal substrate. He not only explained why such entities were undetectable, but also just how they could propagate electromagnetic radiation via quanta.

Now, these are recent theoretical suggestions, along with other similar, but different, attempts are also becoming increasingly investigated in places as far apart as the USA, UK, France, Russia and India. You cannot yet affirm that the best fully developed theories are available.

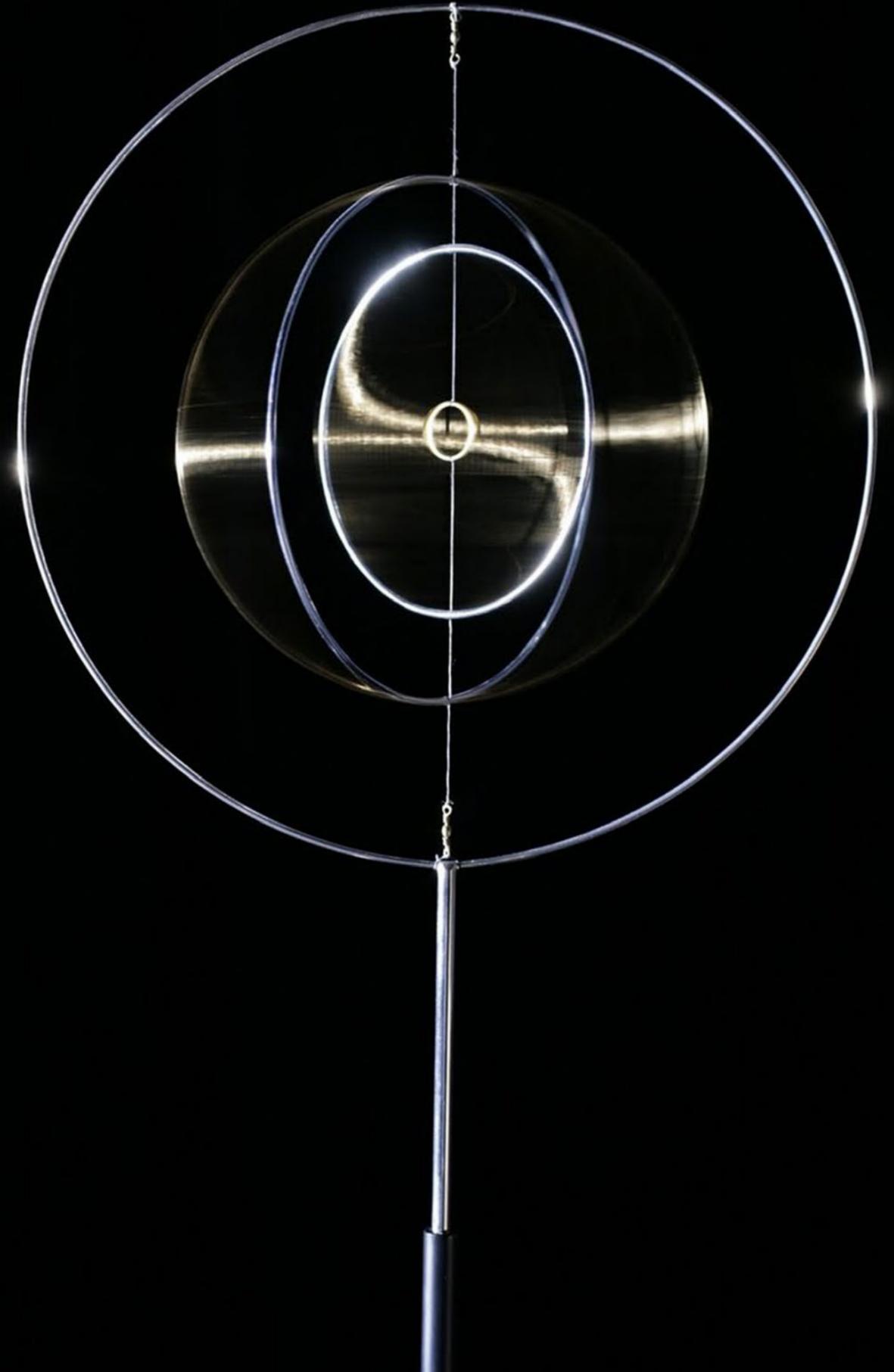
For many decades, and led by David Bohm, a version of the inner activity route was investigated, which employed what he called "hidden variables". But, you have to do more than suggest: you have to logically prove your suppositions and reveal your involved entities.

This is beginning to be tackled, as required.

*The Theory of the Double Slit*, by this theorist, went as far as possible along this road, by defining the entities composing an undetectable universal substrate, and their activities both in the Propagation of E.M. Radiation, and in the anomalies of the Double Slit.

Now, all this research is available on the web in the SHAPE Journal, Blog and Youtube Channel, so for the purposes of this paper, we will leave that to the reader to chase, and will continue, with the already explained purpose of this contribution.

Now, if all this is an indication of what is needed in such inexplicable cases, then there is clearly something important missing from the theories concerning the atomic nucleus in Radioactive decay. Perhaps this missing component or phase, which can be brought into the situation, will then make things entirely explicable.



Now, the radioactive decay occurs in a process happening all by itself: as its internal constitution causes it to decay over time, and for different atoms to decay at different times, shows that what is going on is an almost stable system of many sub-processes, which generally do not threaten the overall stability of the nucleus, but, at a certain point, the stability is sufficiently undermined to cause a system collapse.

An actual decay is, clearly, an Emergence within that particular nucleus. And is internally determined.

Now, we could consider other situations undergoing a totally internally determined qualitative change.

What would happen to such an entity, if it split into two components of literally identical natures? The fact that they were born simultaneously from the same source (completely consuming that source in the process), and then moved apart, suggests several things.

First, that the source was a semi-stable entity, which most of the time maintained its integrity, but at some point finally collapsed and produced these two, related particles as the result.

The long time in a stable co-existence seems to suggest that their “opposite” properties kept them together, but on dissociation, these would be evident in the properties of the separated components.

Now, are these two particles analysable into something even lower?

I would suggest the answer is almost certainly “Yes!”, and that their now properties could be explained in terms of their own internal components, though normally hidden by the new particles apparent stability.

If this is so, could not very similar things be happening in both the now free-moving particles, and be in synchronisation with one another – initiated by their common birth?

Could not “Quantum Entanglement” actually be the result of such synchronised processes that switch the measured property regularly and at the same times, no matter how far apart they move?

Now, remember these particles (in at least one exemplar case) cannot be monitored, moment-by-moment. The assertion is that if one is measured, it immediately affects the other.

How do the experimenters know this?

They presumably measure the second particle. But, what if these two are regularly switching, in a pre-ordained synchrony, between the possible states? This synchrony is NOT coordinated by signals between them, but is due to their common origin and similar compositions: they change in synchrony, because of their identical forms in key areas.

Now, because of the nature of the usual Quantum Entanglement assertion – it is always about what happens to the other particle when one is measured – so, the experimenters intervention might well be when both have automatically changed (independent of the measuring), and the investigators find both in the changed states, and say that one caused the other!

What then would happen if the whole operation were repeated many times? If it was the same two particles, then each time that they were measured, they would have changes in step, so the usual magical “entanglement” could be seen as confirmed.

Yet, if in such repeats, they were always different pairs of particles – produced in the very same way, though the results may be of different states, they would still be changing in step due to internally intrinsic reasons, so the investigators will make the two measurements, and find the same relationship between the two.

They might well still put it down to an “entanglement”, but, once more, it could be the natural, in-step development as described.

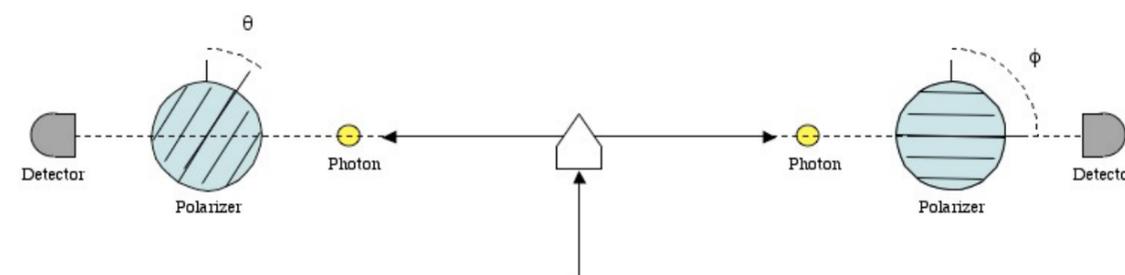
Now, it seems likely, from other evidence, there is an undetectable universal substrate, which can both be affected, and can itself affect particles moving within it. The version of such a substrate, which enabled a complete explanation of the Double Slit phenomena, might be significant here too. For it was composed of undetectable particles – each composed of a mutually-orbiting pair of one electron and one positron, which could absorb energy by the promotion of that joint orbit, but could

also propagate it by passing it on to an adjacent substrate particle. And, if such disturbances were split into two streams (as in the Double Slit Experiments), they could thereafter affect both one another, as interference, and even the very particle, which caused the disturbance (and insertion of energy) originally, and effect it.

Interesting, isn't it that such a case also involved the splitting into two from a single original stream?

Now, we could involve the substrate in the subsequent histories if two particles, which we currently interpret as “entangled”. For, if the “quantum state” of a moving particle could, indeed, affect its immediately surrounding substrate, it could have an effect, which in time reflects back upon the state of the causing particle and cause it to flip.

And, with identical birth and history, and the same substrate, why would they not flip at the same time?



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