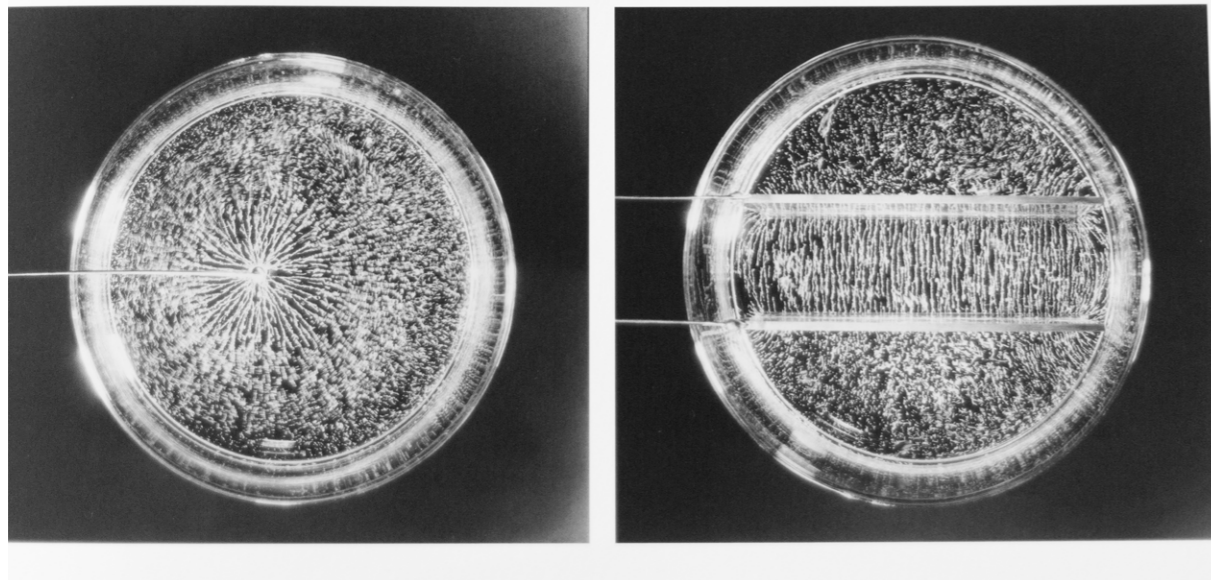
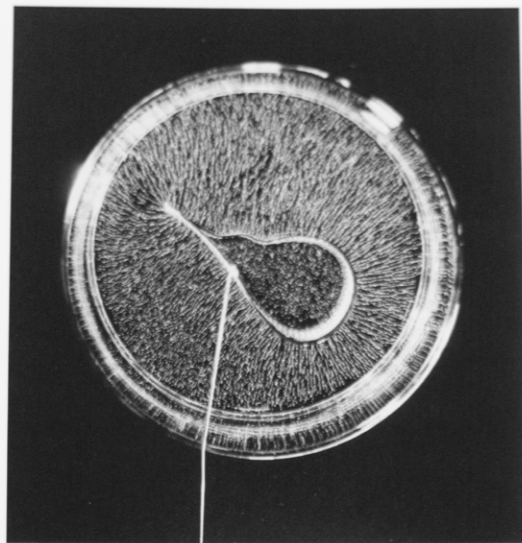


# SHAPE JOURNAL

CHARGE + MAGNETISM I

WHAT IS CHARGE? / FIELD-PRODUCING SUBSTRATE  
MAGNETIC EFFECTS + ORBITING ELECTRONCS  
DICHOTOMOUS PHYSICAL ABSTRACTIONS

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## Charge + Magnetism I

Special Issue 43 / June 2016

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# Charge + Magnetism

## introduction



Welcome to the 43rd Special Issue of the SHAPE Journal, this time on Magnetism. These papers comprise the current work-in-progress, by this theorist, upon an as yet incomplete attempt to explain these crucial properties of Matter.

Many would consider that such a project was completed long, long ago, and could certainly point to a host of achievements in this area, with literally centuries of brilliant experiments, explanations and formulae to show for those efforts. But, these are technological gains, rather than any demonstration of intrinsic understanding, so the process is far from complete.

In addition, a very different philosophical stance is involved in this endeavour, moving theory away from primarily formulae-and-use, and, instead, attempting to investigate the true causal Nature of Matter itself, via a holistic and wholly materialist approach.

And, such objectives ensure that what is achieved in these papers will certainly be superseded: they are not, and cannot be, the last word on such a theoretically revolutionary approach.

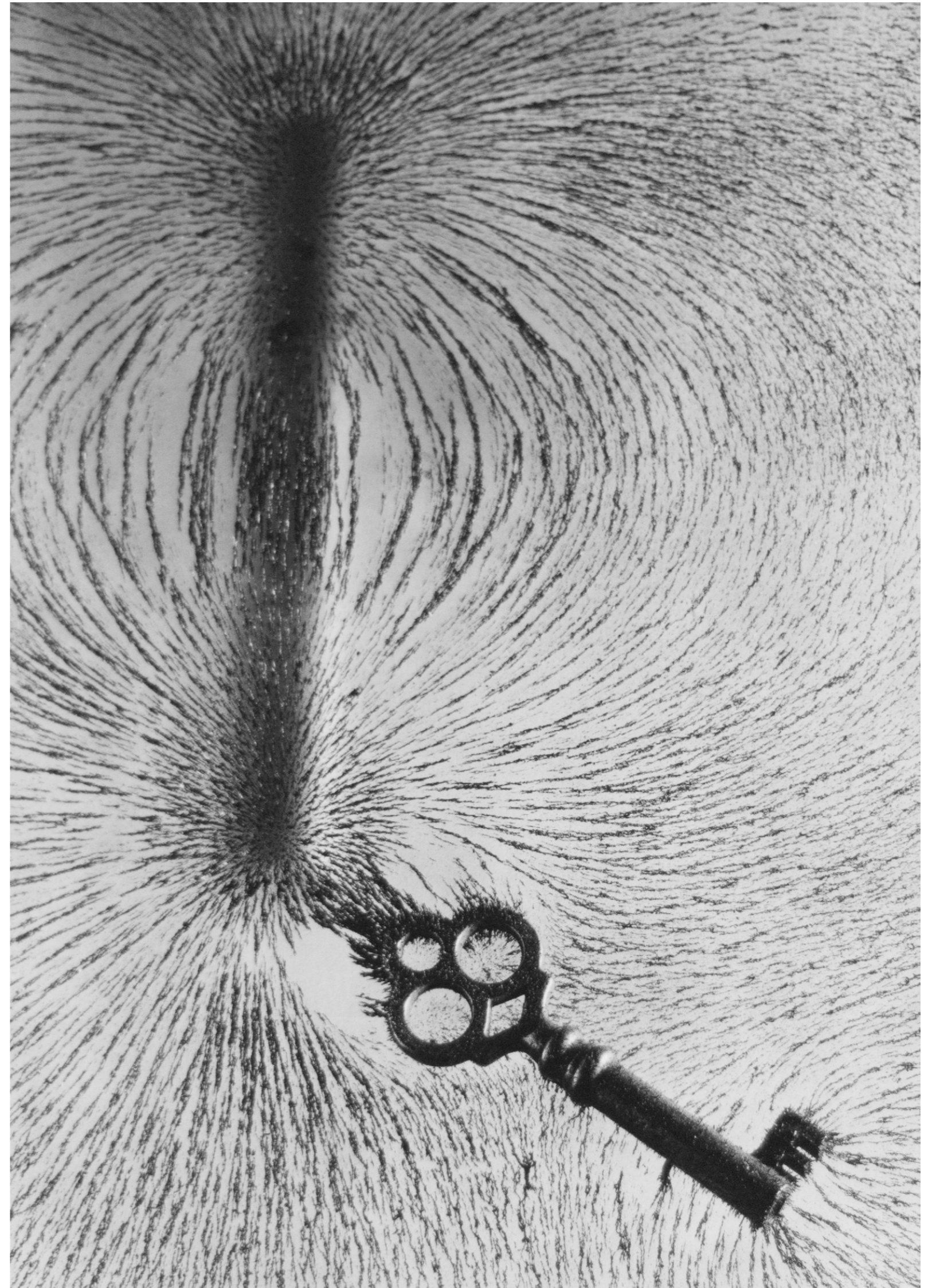
Nevertheless, these initial musings, in a wholly new direction, certainly need to be out there. For, currently, many diverse groups, and even more individuals, are struggling to explain this crucial area, all of whom are convinced that the current consensus on these matters, especially at the Sub Atomic level, is totally wrong. Yet, they are all struggling, in the main, with a theoretical inheritance that actually prevents a breakthrough, and hence is delivering no chance of an integration of many valuable aspects, into a consistent, coherent and comprehensive overall Theory.

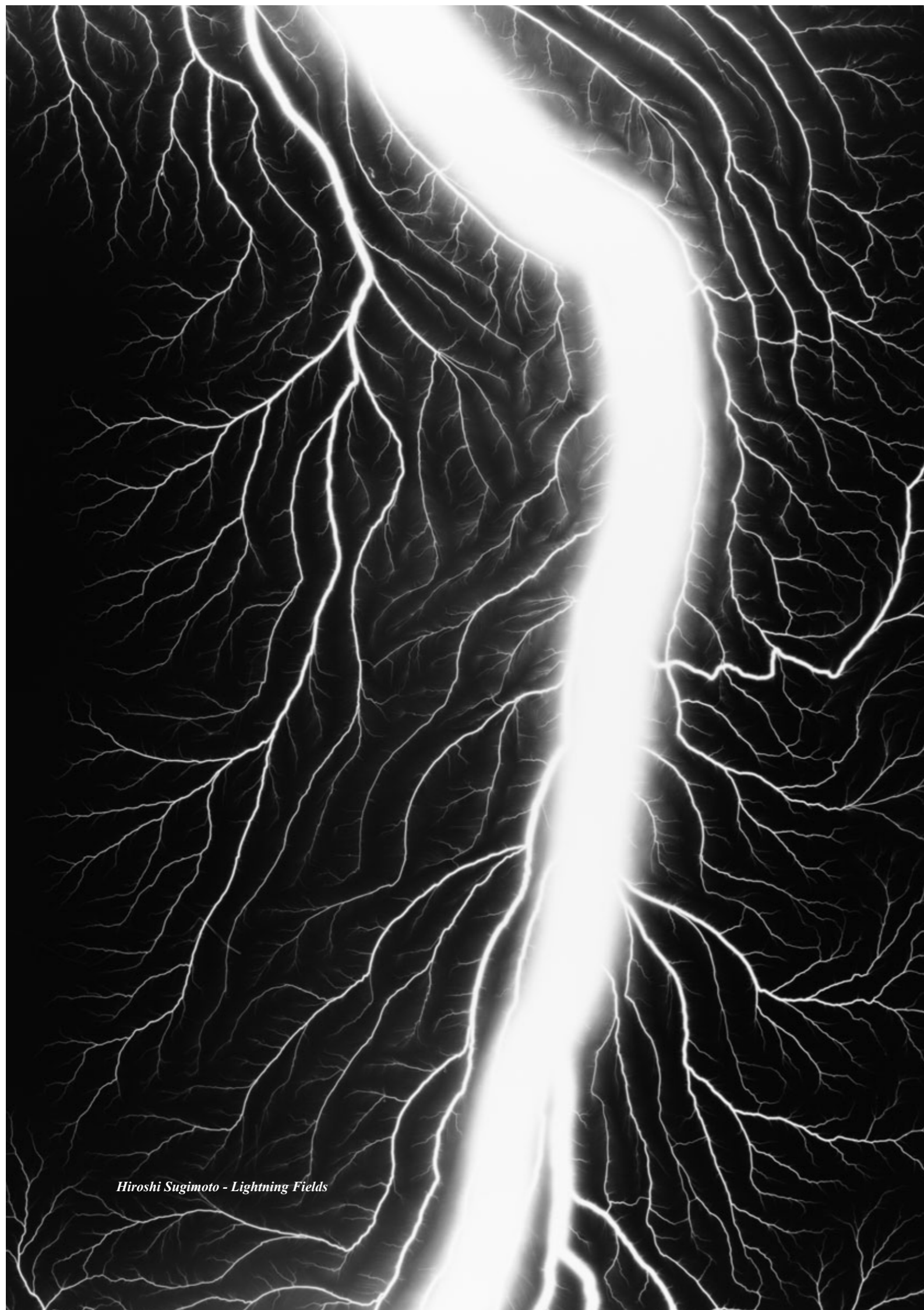
So, these papers are a relatively, wide-ranging set of thoughts about what this theorist believes are the key problems. And, they are not what is usually considered!

Primarily, it is the Philosophy of the scientists involved that is considered to be significantly at fault, so that without substantial improvements there, no real and profound contributions will be possible - no common ground available to enable an overall integration!

Here, I hope, will be some of the necessary, and currently missing, ideas that will lead to this objective.

**Jim Schofield**  
June 2016





*Hiroshi Sugimoto - Lightning Fields*

## What is Charge?

### contrasting the discrete countable quantitative and the continuously varying qualitative

When considering the Spin of a particle, such as an electron, and its possible effects, we are immediately confronted with the nature and position of that particle's electrical charge.

We usually simplify the problem, by assuming that it is concentrated at the centre of a supposedly spherical body, but that is clearly NOT the case, though it does make the calculations of its effect seemingly very straightforward. It is, therefore, quite possible, entirely pragmatically, to assume this, but to then quite mistakenly, reverse that purely computational frig, into an assumed, physical actuality, and that would be totally wrong, theoretically, and would lead us astray, in any attempt to understand many phenomena associated with that entity.

Yet, the alternative assumption - that the charge is evenly distributed throughout the whole physical extent of the particle, immediately precipitates the necessity for the division of a Unit Charge into parts to achieve such a distribution. And, absolutely no evidence of this exists.

When we do get distributed charge, it is, necessarily, composed of many individual material units, each containing a single unit charge, in some much larger sort of collection or system of such particles.

For example, an electric current is NOT just a stream of negative charges, but a stream of intrinsically negative particles - electrons, each carrying a unit charge.

Clearly, it has to be known where these charges reside - in what receptacles, for the consideration of any caused magnetic effects to be addressed.

Yet, there is also definitely something wrong with the concept of a charged particle! It is clearly self-contradictory, due to the points aired above, for it sounds as if it is a material particle, with an added-charge.

We are correct in making charge a discrete unitary amount, yet we also consider matter to be continuous in its possible magnitudes: there does not seem to be a defined unit of matter.

Now, such conclusions, if they are true, must be explained, and, crucially, how these conceptually-separate components, come to be intrinsically unified into such things as "charged particles". What might cause these actual entities?

Could it be that charge is not an added property, but instead an integral part of a given discrete particle, as well as delivering its countable, multi-presence in more complex situations.

But, we still have the, as yet, unanswered question, "What physically is an electron?"

It definitely has a single negative charge, and is essential in many crucial phenomena in Nature. Is it just a particle, or a complex system, involving sub-components in a tight and persisting stable form?

The Copenhagenists have it changing between being a particle, and being a wave - so that sometimes you can use particle dynamics to follow its trajectory, while at others you have to use its Wave Equation to calculate where it is likely to be found.

In contrast, their Bohmian opponents have it as being a particle, with its own intrinsically associated pilot wave - an actual combination of the two, but which appears differently, depending upon its context, and whose Pilot Wave is determined by as yet unknown hidden parameters.

But, there are various old-and-abandoned ideas that considered other paths, but no-one, historically, was in a position to carry them to any kind of fruition.

By far the oldest idea is contained in the Principle of Holism, which has everything affecting everything else. It has arisen many times in The Orient, but was brilliantly developed, philosophically, by the Indian spiritual leader - The Buddha, about 2,500 years ago.

While the other, very-different stance, was grounded in the belief in a Universal Substrate, which was both effectible and affecting of things which occurred within it.

So, this idea, when coupled with Holism, made all phenomena more complex, and undergoing changes and even development, though showing long periods of great Stability, when things seemed to be wholly stable, and seemingly occurring due to permanent natural laws.

This western view, beginning, in earnest, in Ancient Greece, seemed to deliver an answer to the many problems that this view seemed to generate, but it involved the dropping of Holism for its direct opposite - the Principle of Plurality, which made Analysis possible by dropping the essential tenets of Holism, and, instead, having all phenomena produced by eternal Natural Laws, which simply added-together in different mixes and proportions to produce absolutely everything.

But, finally, the built-in contradictions to that position contributed to a truly major, and unavoidable Crisis, that was precipitated by the discovery of the Quantum - which successively undermined that idea, and the result was the now universally-accepted and decidedly-crippling Copenhagen retreat.

So, once more, as Hegel had predicted, flawed premises would always, ultimately, bring Man's current stance into question, and the basic assumptions had to once again be both questioned and replaced.

And, it was a rejuvenation of Holism, coupled with the resurrection of the idea of a Universal Substrate, which began to indicate a wholly new path.

The question of the nature of the electron was no longer an isolated entity with its fixed properties, but one intimately related to the substrate, in which it existed, and which was affected by it, just as it, the electron, was, in turn, affected by the substrate.

The new conception of the electron involved both a particle and its relations with the Substrate it existed within!

French physicist Yves Couder's amazing experiments using ONLY a liquid substrate, and applying to it only various vibrations and rotations, became philosophically relevant.

Couder was investigating precisely such two-way interactions involving both Resonances and Recursions, and thereby creating stable entities with no other contributions than these.

To demonstrate how important this new stance was, this theorist applied it to the many inexplicable anomalies of the ill-famed Double Slit Experiments, and was able to explain all of them - and without any recourse to Copenhagen theories whatsoever.

Clearly, Wave/Particle Duality was a formal description of a Reality, in which a moving Particle, say an electron, produced effects in the Universal Substrate, which were Waves, and these passed through both Slits, to then interfere on the other side.

The slower electron then arrived, passed through either Slit and was either deflected, or not, depending upon its direction emanating from the slit and traversing different paths through the interference pattern.

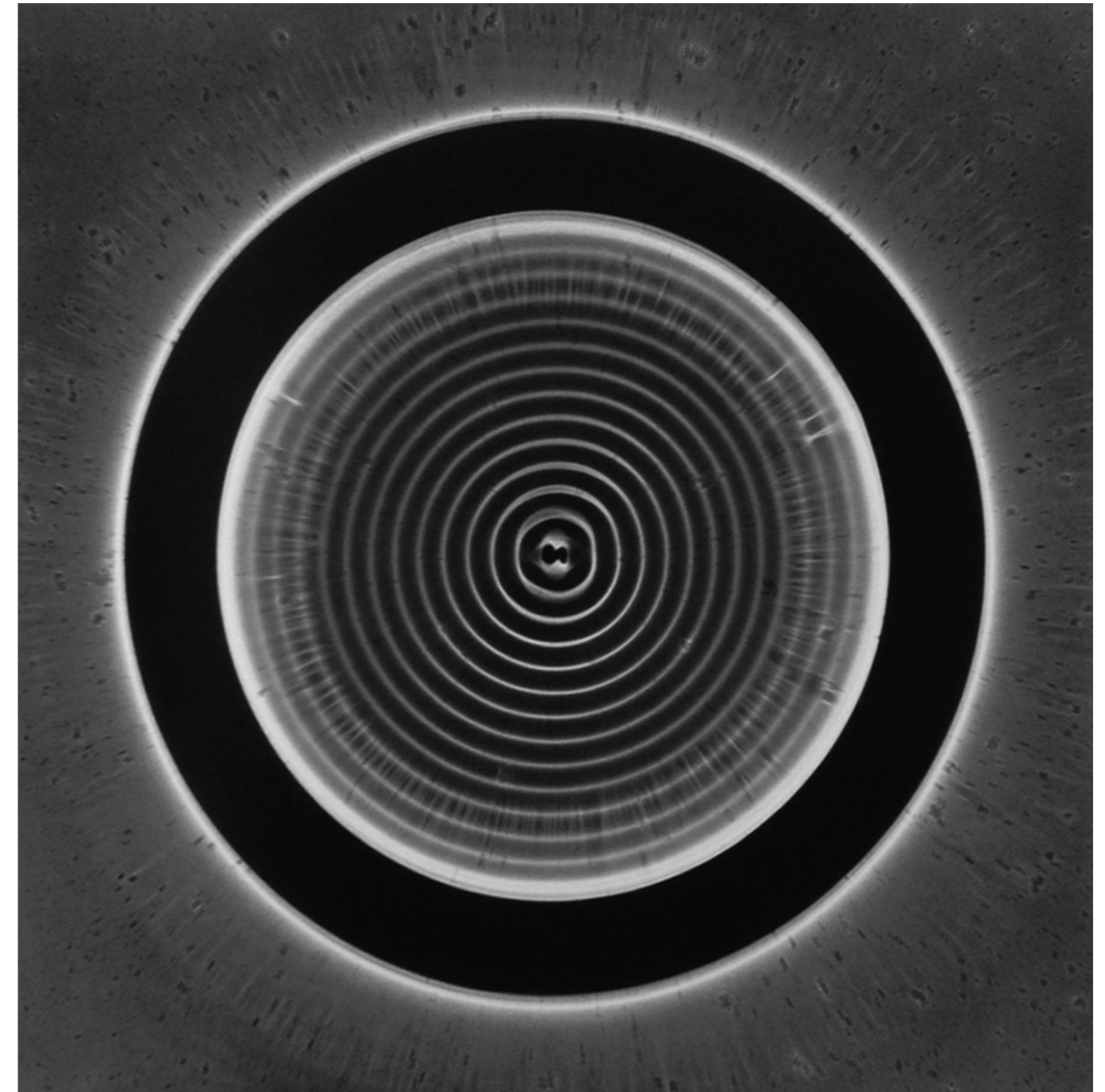
Such explanations were possible for all the phenomena involved, in every single one of the many versions of this Experiment.

The major flaw in premises had been the omission of the Universal Substrate.

Neither switching between being a Particle and a Wave (Copenhagen), nor having an associated Pilot Wave (Bohm) was correct. The inclusion of a Universal Substrate with a holist, rather than a pluralist basis was sufficient.

And, perhaps most important of all, the Pure Form (mathematical) basis of the Copenhageners, was replaced by (fully physical) Explanations once more.

Now, clearly, we still haven't fully defined the electron itself. But, we have made an important start.



*Berenice Abbott - Time Exposure of Standing Waves*



For example, the electrostatic and magnetic Fields supposedly subtended by the electron in absolutely Nothing, are now constructed within, and composed entirely of, the Universal Substrate, and the origin of the necessary energy, for any actions of the field, was now seen as resident in that field, which can act upon susceptible interlopers, and cannot come from the electron itself. For, it is now clearly sourced from the Substrate.

Of course, the nature of the Substrate is crucial, and the current theory is that it is, at least partially, composed of *Neutrinos* - entirely neutral particles composed of one electron and one positron, that are - mutually orbiting one another. This has unique properties, because of this composition.

Not only, are these sub-components exactly opposite, in all their properties, but they are also of exactly equal size, so they share a single orbit, thus also cancelling out their produced magnetic effects too.

But, just as within an Atom, this orbit can be promoted, to carry a quantum of energy, and can just as easily be demoted to deliver that quantum to another adjacent Substrate unit.

Now elsewhere, this has been shown to deliver the mechanism for the Propagation of electromagnetic energy through so-called "Space", but in a situation, where all units in a locality are carrying the same amount of energy in their joint orbits, under such circumstances transfers will not usually occur. Yet, a removal of energy elsewhere in, such a situation, will cause it to be replenished from adjacent units, and thus cause an inwards-to-the-hole flow from elsewhere in the substrate.

The substrate now becomes both a repository "or sink", as well as a supplier "or source" of energy.

Returning to our electron, its field will be some kind of reorganisation of the Substrate, and all the energy for this AND for affecting interlopers, must come from the Substrate itself, and because of what has been explained above, that is entirely possible.

Now, as the charge of an electron is only really established by its supposed field, and the effect of that field upon a susceptible interloper, you can see the conceptual problem!

As always, Mankind must invent simplified and idealised concepts of such things, which though untrue, have enough Objective Content (aspects or parts of the truth) to be useable practically in various ways. It would be stupid to condemn such methods, as Mankind, in attempting to do what he wasn't evolved to do, has, intellectually, had to try to pull itself up by its own bootlaces, and as that is impossible, so we conceive of inventions which partially fit-the-facts, and use them, but only until they fail so badly that they have to be replaced with something better.

But, that process is never obvious!

Indeed, as Hegel showed, the signal that we have run out of ground, always shows itself in what he called Dichotomous Pairs of totally contradictory concepts. He was an idealist philosopher, and arrived at these important discoveries via his long-researched topic, which he termed Thinking about Thought.

Now, though this was achieved over 200 years ago, it never became established in Science, and, it was also rejected in all disciplines, due to its consequences, when applied by Karl Marx to Society and its then Economic organisation.

Marx's strongly Anti-Capitalist conclusions did not go down well across the whole academic spectrum, for they were uniformly from the Class which benefited most from Capitalism.

The great potential gains involved were, therefore, "buried-alive", along with their Social consequences.

But, it couldn't remain buried for ever.

Hegel's achievements were crucial generally, and perhaps absolutely essential in Science. But, in spite of its many achievements, since the time of Hegel, it never, overcame its own evident, inherent faults.

The philosophy of most scientists was, and still is absolutely dire, and what is more, never consciously exposed or admitted, and, certainly never criticised.

But, the possibilities of continuing to get by with the old amalgam of contradictory, yet maintained multiple stances, finally ran out, completely, with the discovery of the Quantum, and the increasing number of anomalies

and contradictions proliferated at an ever increasing rate. By 1927, the physicists were in turmoil, and at the Solvay Conference Einstein and Schrodinger lost out to Bohr and Heisenberg, who insisted that all Explanations were now totally impossible, and the only reliable things remaining were the extracted equations, which were seen as actually driving physical Reality.

The major bastion of materialism, Physics, had switched wholesale to idealism.

Clearly, a few new theories, no matter how radical will only increase the general confusion.

What is, therefore, necessary is a total philosophical overhaul of the premises underpinning well over 200 years of Science.

And, lets be absolutely clear, like Jericho, ALL the walls must come tumbling down .

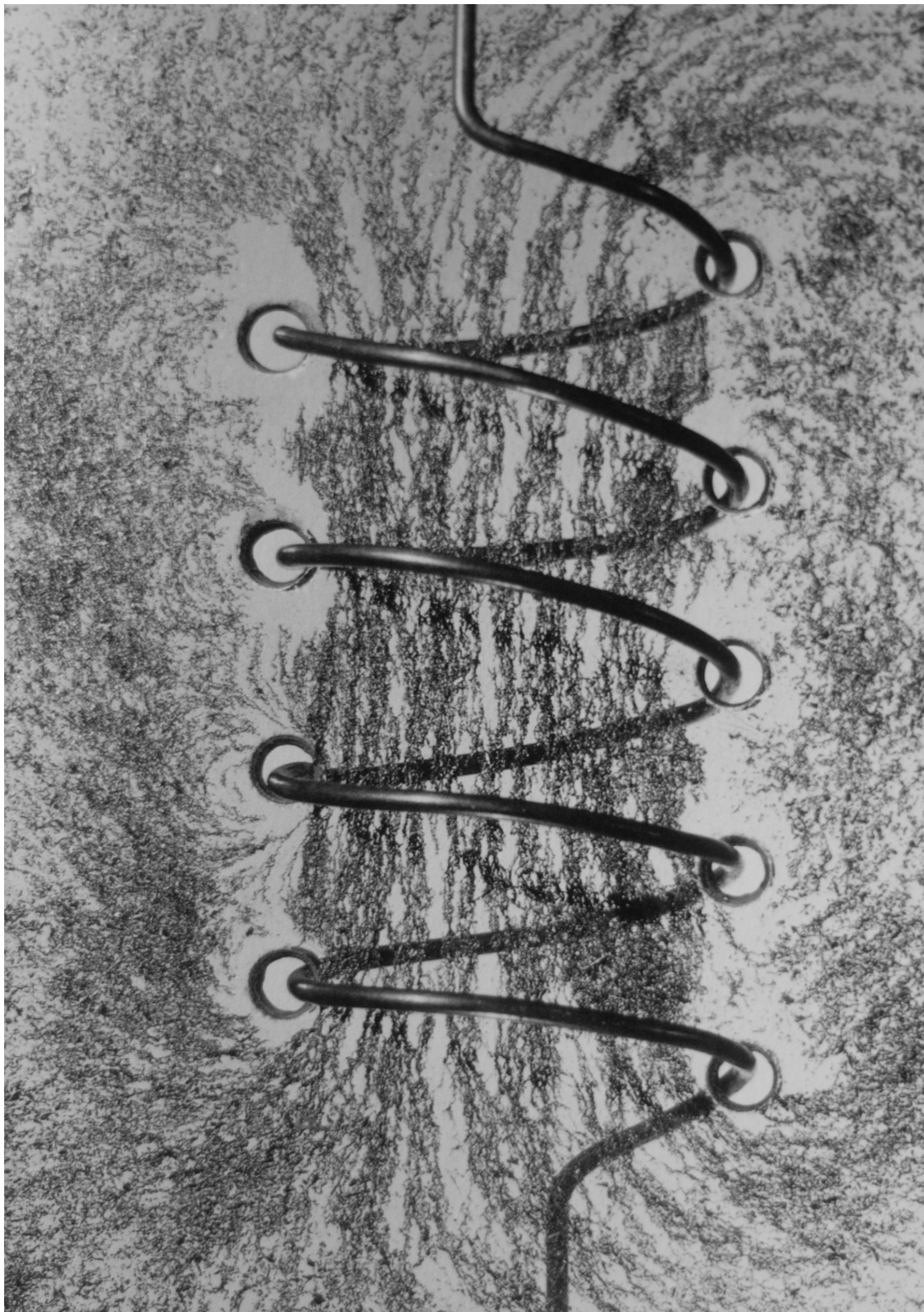
Totally new foundations are now necessary, and they will be fought tooth-and-nail, both by the scientists whose careers have been built upon Copenhagen along with even earlier errors in basic premises.

AND, of course, they will be supported by those financially wedded to Capitalism. For, the latter cannot afford to have Science joining the enemy!

Now, if the reader is disappointed that *Charge* has not yet been cracked, think of what monoliths have yet to be uprooted and cast down. We will not be rebuilding an old dilapidated wall, but dealing with a crumbling world-wide edifice, and the forces for this revolution are not yet assembled.

After a lifetime as a physicist and philosopher, this theorist knows that it can be done. Not a day goes by without a new paper being written, but these are still only bricks and bits for that required Shangri-La. We need the theoretical forces to win the war, and that will take time.





## considering a possible Field-Producing Substrate

If, as an increasing number of current scientists do, you too, reject the now-established consensus idea that both energy-delivering Fields can actually be subtended and active, in absolutely *Nothing*, and, in addition, the clear complexity of Electromagnetic Waves of energy can be propagated throughout totally Empty Space, then, in spite of it currently being undetectable, you have to seek some form of Universal Substrate, that can deliver such known phenomena, in a physically explicable way.

Great scientists, such as James Clerk Maxwell, have had no doubts, and via his own model of The Ether, Maxwell managed to produce his still-used Electromagnetic Equations.

The complete dropping of the idea of a substrate is a recurrence of the well-established and pragmatic practice of merely ignoring such impasses, and, instead, concentrating upon what can be both achieved, and then, indeed, used to achieve some desired outcome. But, let us be absolutely clear: mere descriptive representations as embodied in formal equations are certainly not enough! The long-standing myth that, if you can predict outcomes, you then have the situation cracked, has to be dumped, for it certainly isn't true. It only extracts descriptive and usable Patterns and Forms, and actually explains nothing.

Hence, this particular physics theorist and philosopher (Jim Schofield) has sought to devise possible particles, which could make up a fully-functioning, affecting-yet-affectable Substrate, while still being undetectable.

It has not been an easy objective to achieve, but by concentrating initially upon undetectability, he managed to devise a joint particle, composed of already known sub-units, which could both internally hold individual quanta of electromagnetic energy, while also remaining totally undetectable!

He even managed to explain how such particles could loosely link-up into a sort of new "continuous" arrangement, which he termed a Paving.

The key idea was to devise a stable, joint particle, of two sub-units of directly opposite properties, on the model of the atom. But, in this case, the components would be of exactly the same small size, both opposite in charge, magnetic effects and matter type.

The phenomenon of Pair Production suggested what these components could be - one electron and one positron - mutually orbiting one another, in a joint substrate particle.

The result - totally neutral-in-every-respect, he termed the neutritron, and, based upon this substrate unit, and their multiple possible linked form of a Paving, he managed to not only explain electromagnetic propagation, but also Pair Production and Pair Annihilation, and, in addition, all of the anomalies, of the whole range of Double Slit Experiments too.

Yet Fields were not explained!

These earlier successes proved that the approach was sound, but clearly over-simplified. The Universal Substrate had to be more complicated than just a Paving, composed of a single joint particle only.

So, using similar principles, other joint particles were obviously necessary to deliver everything that was needed.

But, crucially, these would have to NOT be totally neutral, individually.

Individual particles could still have the properties necessary to build fields, but, when not arranged in such forms, would still, somehow, have all their properties neutralised overall.

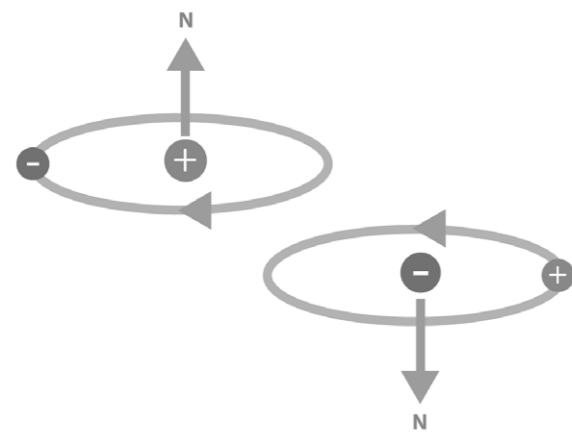


The suggested solution is of two exactly opposite joint particles, each of which would occur in equal numbers, and by incessant random movement, totally cancel out their opposite properties, by that means instead of internally as in the neutrutron.

Now, once again, a purely, theoretical design, would not be enough, as with the neutrutron, these paired particles would have to be devised in detail - again, each of the two particles composed of mutually orbiting pairs of particles of opposite charges and matter types, but, in these cases, involving different sizes of the involved component particles (as is also the case in the atom).

This would automatically cause the smaller particle to effectively orbit around the larger component, and, hence, deliver a magnetic dipole effect (as in the Hydrogen atom), there would also be an imbalance of matter types too.

Nevertheless, an active random mix of equal numbers of both types would effectively cancel all these imbalances - the "cloud of the particles" would be neutral and hence undetectable.



Yet, unlike the neutrutron, these "magnetons" are, as yet, not fully defined.

It is likely that the small orbiting sub-units will be the electron in one, and the positron in the other. But, the other, accompanying, oppositely propertied, yet larger particles (as yet undefined) will need to be identified.

For, it is the necessary asymmetry in sizes of each mutually orbiting pair that will deliver a magnetic dipole effect for each and every joint particle of either magneton type.

Now, though we have (to some extent) suggested how all the particles, of the universal substrate, one way (internally) or the other (over a randomly moving population), become undetectable, in the case of the magnetons, we still have to explain how they manage to produce active fields.

It all depends upon what happens when the individual magnetons arrive in close proximity to a Charged Particle.

It is suggested that they gather around that particle in concentric shells, for that would produce a local magnetic effect, as all the magneton units would align their dipoles in a radial manner, with respect to the centre of the surrounded charged particle.

Yet, the supposedly-causing-particle definitely loses no part of its resident charge, or any of its associated energy, when the constructed field energetically affects some susceptible interloper. So, if the charged particle is not the source, the only candidate, left, is the subtended field, composed entirely from the Substrate.

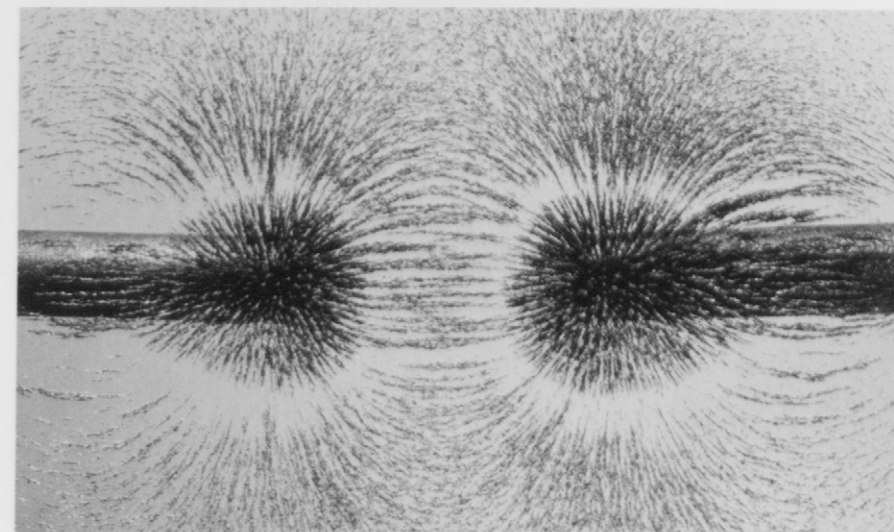
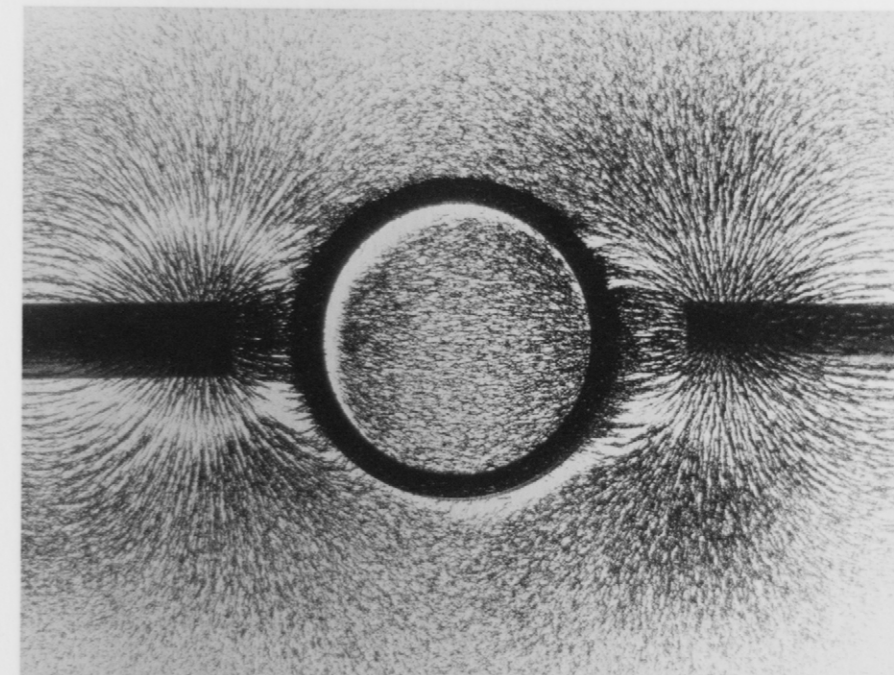
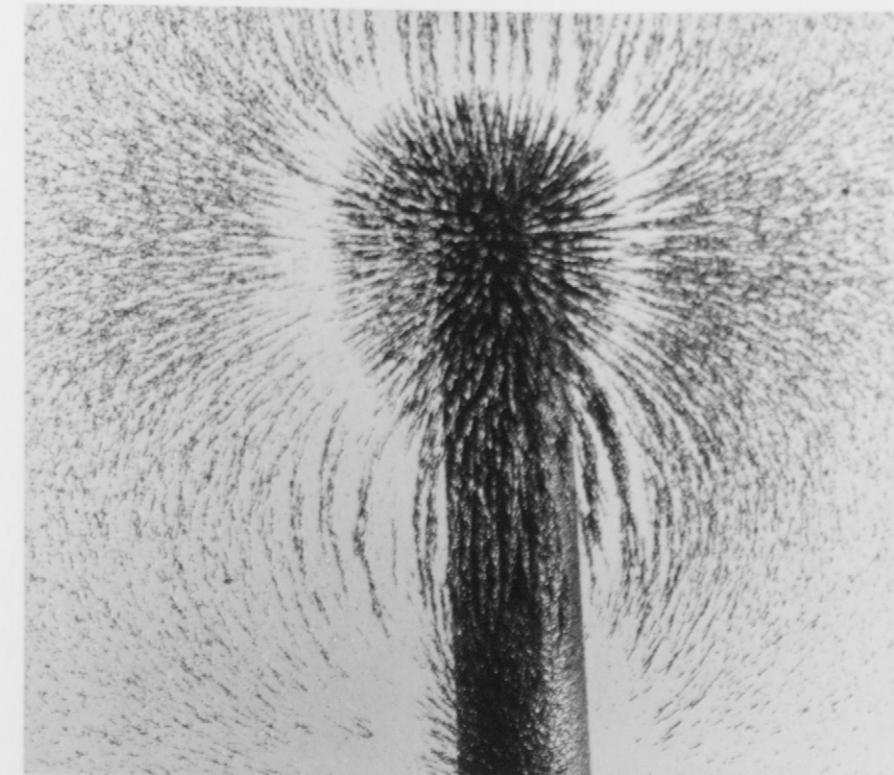
With its internal mutually orbiting components, it will be able, just like the atom, to store energy in the promotion of its orbits, AND, it will also have had individual translational Kinetic Energy as each one was, previously, a constantly moving particle.

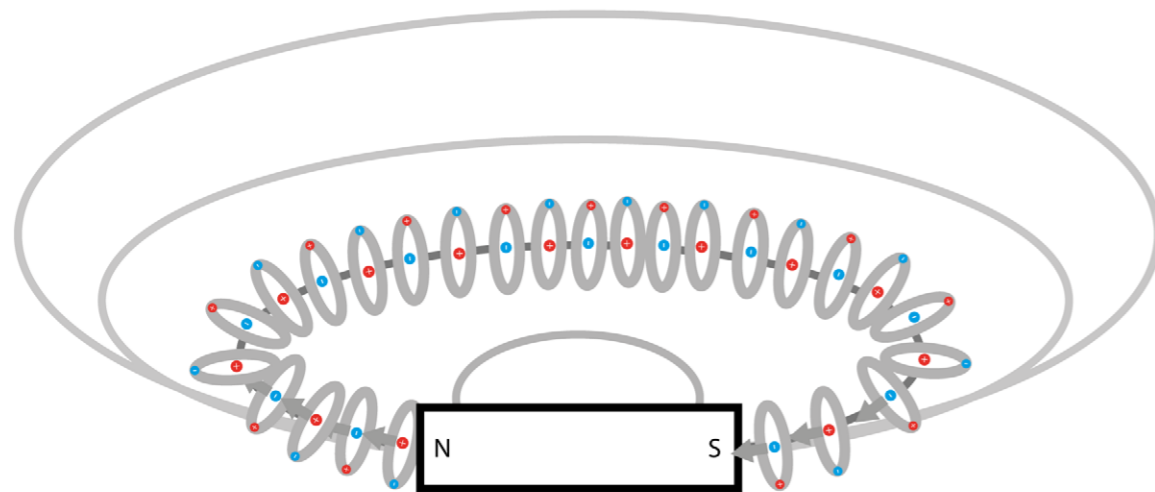
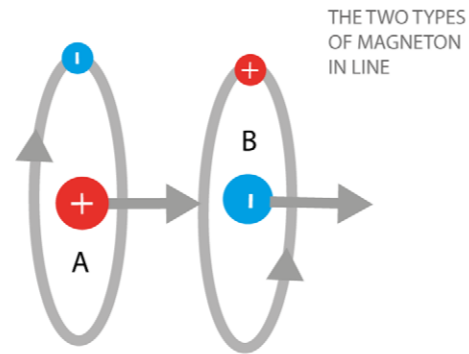
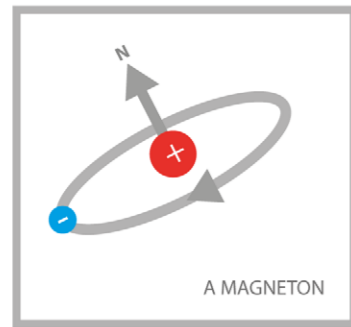
But now, it has settled into a static field, and with a possible communication of energy between all the participating particles. Clearly, if the original charged particles influence triggered-off the aggregation, then the energy, within the successive shells, will decline with distance from that influence, and the clearly increasing numbers of particles in each successive shell.

Each shell will then have available energy according to an inverse square law, for purely geometric reasons.

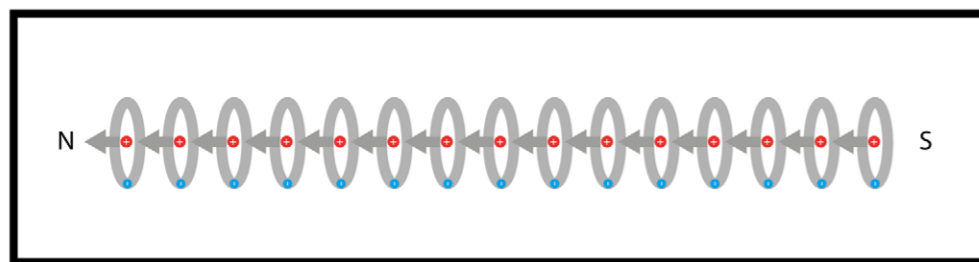
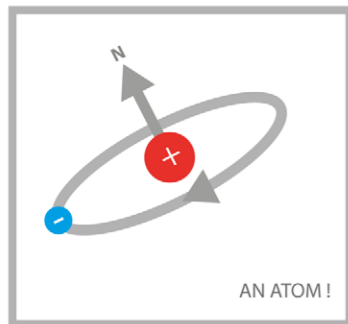
The final step must be that energy is easily transferable within a shell, and if that is the active mover of the interloper, the size of any effect will be determined by how far that shell is from the charged particle.

In addition, once field energy has been used, it must be successively replenished. And, it can only come from the wider population of moving magneton particles outside of the field.





Magnetons line up to create lines of force



Atoms lining up in the same way, inside the magnet

Surprisingly, then, it is the substrate that delivers the energy involved in any effects, and even the necessary replenishments, when exhausted - it is clearly infinite in capacity, and the original causing particles stays unchanged throughout.

Finally, these ideas can also be applied to inter-charged-particle effects, and these supposedly electrical effects, turn out to be entirely magnetic!

Clearly, this isn't a fully developed theory, and will undergo many extensions, and even radical changes.

The problem area, from the point of view of the overall substrate, has to be the co-existence of a relatively static Paving of Neutrinos, with not only a Randomly Moving Mix of Magnetons, but also the Static Fields around Charged Particles.

To make the usual simplifications and idealisations of prior, purely-pluralist Science appear, will involve a complex activity of the Universal Substrate, not forever fixed like a crystal, nor forever a random moving mix like a gas, but a flexibly transforming and reforming composition of all these forms.

In spite of these seeming problems the continuity of electromagnetic propagation must, somehow, be maintained at what appears to be a constant Speed of Light, in some form of "connected" network, while the other properties are also un-interruptedly maintained too. There is much yet to be done!

## Magnetic Effects due to Orbiting Electrons

Why should electrons, in an orbit, cause an extended and active magnetic field?

It is clear that there seems to be continuous locally-transient, lateral, magnetic effects with any linearly moving electron, but things are very different in an orbit.

NOTE: Having puzzled over both of these phenomena for a long time, it is evident that a great deal of circular reasoning is often involved, with many ideas concerning electrical and magnetic properties and phenomena, which, in a pragmatic way, is allowed to terminate the theoretical process. But, that is clearly totally insupportable. Over the next period a concerted attempt will be made, using the new philosophical and physical bases that are becoming important in the stance and techniques of Holistic Science to break through such impasses to real concrete explanations.

Of course, a necessarily prior question really must be addressed first!

It is, "What actually supports fields in the space around affecting objects?", as with a negatively charged electron, for example.

The usual answer nowadays is *Nothing*, and that will certainly not suffice! And, the assumption of a currently undetectable, yet definitely existing Universe-wide Substrate, certainly seems to give us a sound basis for an answer.

Let us review what actually occurs.

First, an established, inverse-square-law field completely surrounds the supposed source, but with absolutely no supposed connection between source and field.

Yet, all points within that field can deliver a force to deflect susceptible intruders within that field, and in doing so, energy is used and imparted to the intruder, affecting its subsequent trajectory.

Yet, surprisingly, the charges of both source and intruder are totally undiminished by such behaviours!

Clearly, we are currently just papering-over an unexplained effect here.

We are looking for both an "initiator" of the field, and also something else, to both actually move in to form the structure of the field, and also to supply the energy for its subsequent energetic actions. A supposed substrate has, surely, to be the best candidate for both of these requirements.

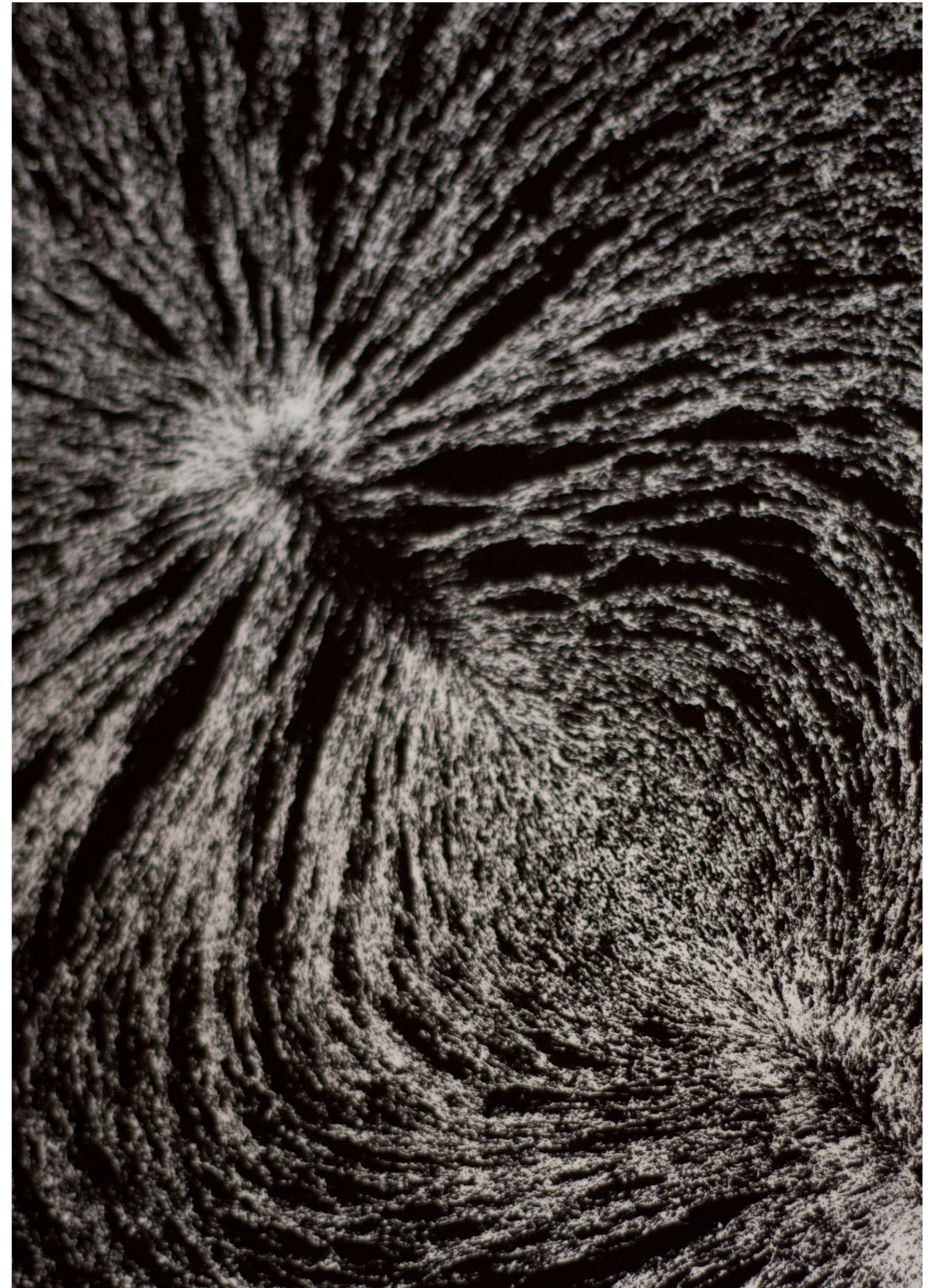
Now, the currently suggested Substrate, by those accepting the above position, is, necessarily, both affectable by, and affecting of, susceptible intruders. So, to get a handle upon this, the simplest analogy will suffice for now. Consider it to be like the water through which a ship is passing. The moving ship will leave disturbances behind it, while it can, itself, be significantly affected by tumultuous seas!

Now, a translational movement of a body in the substrate will, similarly, leave behind a disturbance, which after a time will be dissipated and a calm will return to the substrate.

NOTE: With this idea of an affected and affecting substrate, notice that two different possible interactions are involved. First-and-always there will be a purely physical disturbance of whole-substrate-units. And secondly, if an intruder has an electrical charge, there will also be an electromagnetic effect too. Without the presence of a charged particle "causing" the active field, the substrate will have no such properties: it will be electromagnetically neutral, but, when such a charged particle is in place, that very same substrate re-organises itself - moving to that cause and re-orienting its units into the field.

The only explanation for such surprisingly different behaviours, of the same substrate, is that there are two opposite kinds of free-moving substrate units, that cancel out their opposite properties by totally random movements, but when re-orientated into a static field, realign to sum these properties.

[Notice that to be able do this these can only be magnetic dipoles! More about this later.]



But, where the passage is an orbit, things will, surely, be very different. For, the very same path is repeatedly traversed, and instead of all physical effects being strewn-and-lost, like flowers at a maritime festival, they will be constantly re-enforced, all around the complete orbit, with each and every cycle. What was produced in translational movement that was both slight and quickly dispersed, is, in the case of the orbit, both focused and sustained. Indeed, it seems likely that a stable and actively sustained form will result.

It can only be these effects upon the substrate that give us the known powerful results.

Yet, still, the key question is, "Why isn't the energy of the orbiting body lost continually to that substrate, so that it will continually spiral down until it crashes into what it was orbiting around?" Now, that, most certainly, doesn't happen in atoms, where the orbiting electrons always settle into stable orbits. The question now, then, is, "Why?"

Indeed, a theory has been proposed, which explains how the stability of such orbits is achieved, and in an exactly opposite way to what is usually supposed. For, that puts the stability down to there being NO substrate and therefore nothing to carry away any energy.

Instead, it is the very presence of the substrate that is the cause of the stable orbits.. There are, indeed, losses to the substrate, directly into the caused forms of associated vortices, and the electron orbit, having lost that energy, is reduced in radius. But, because all the vortices are returned to all the time, energy can pass back, from the vortices, to the orbiting body, and the result is that a balanced and stable orbit is the optimum result.

Clearly, any thoroughgoing explanation, then, of such fields, must involve a sound definition of the composition, nature and properties of the substrate involved.

NOTE: A beginning has already been made, by the theorist, Jim Schofield, who is attempting to explain the undetectability of such a substrate, as well as its many, already-known properties, devised as being composed of a single type of compound particle, the neutritron, - consisting solely of a mutually orbiting pair of sub-particles; one being an electron, and the other a positron. And, because of the same-size-but-opposite properties

of its components, was completely invisible (indeed undetectable), and yet, by the promotion of its internal orbit could (just like the atom) hold extra electromagnetic energy. Now, this theory has had resounding success in several important areas - from the propagation of electromagnetic energy, in quanta through "space", to all the anomalies of the Double Slit Experiments, and even Pair Annihilation and Pair Productions, not to mention the demolishing of so-called Quantum Entanglement But it cannot explain Fields!

So, the inclusion of other suggested particles as part of the substrate is currently under discussion, and the explanation of fields is looking increasingly likely (as has been hinted at earlier).

Now, it cannot yet be said that the explanation of fields has been fully cracked, but what successes have been achieved elsewhere, have sufficient Objective Content to replace certain previously agreed ideas, and also gives us something of a methodology for finding other possible substrate components.

So, both electrical and magnetic fields cannot be explained by the Neutritron Universal Substrate. Something of the requirements for Fields - particularly what is termed an electrostatic field, but the sub components necessary to deliver such fields are only defined by certain required properties, but NO full definition of their sub-components are in any certain way known. Only carry-overs from the successful neutritron substrate can be called upon, which give sound pointers to certain properties and possible facilitating structures can help.

What is certainly necessary are the sort of new substrate components that will be necessary, but unlike the neutritron, its total neutrality will not deliver what is required, so we have the quandary of non-neutral particles that are nevertheless undetectable.

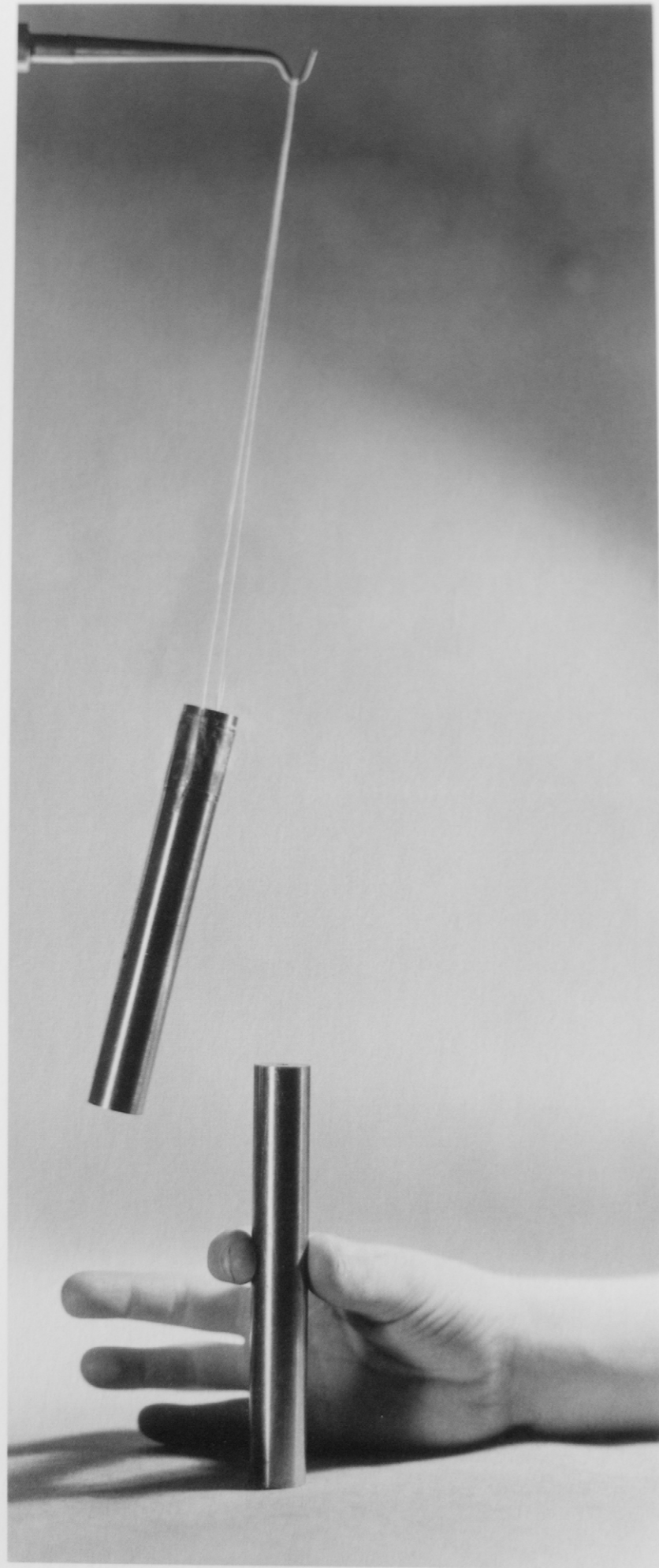
The logical solution is suggested as being equal numbers of two oppositely propertied particles moving constantly in a random mix, that will mask their properties by effective cancellation overall. Yet then, seemingly out of nowhere, these particles should be capable of aligning around a causing charge, say, and by staying in a static arrangement, suddenly deliver their, thus far, masked properties. Something has been achieved, but it is an anachronism, for electrical charges seem to produce magnetic fields, which act exactly as we think electrical

fields should behave. Another seeming gain is the removal of actual cause of its field from the involved charged particle, switching it over, entirely, to the substrate, which also supplies all the necessary energy too.

Certainly, very different conceptions of what is now called Empty Space, and what used to be called The Ether, are being developed, and, as they improve, they are successively dismantling the myths and the maths of Copenhagen.

Mohan Tambe of Bangalore, India, and Jim Schofield of Huddersfield, England, are producing fascinating contributions, and are likely to finally deliver a coherent Theory.

The scientific community can continue to talk about fields in the old classical way, or in the particle-swapping conceptions of the Copenhagengers, but, clearly, neither are the answer. And, what is worse, they both know it, and admit it, and are even proud to claim such inconsistencies as being the "true nature" of Reality. It certainly isn't!



## Dichotomous Physical Abstractions

If, as Marx insisted, the whole of Hegel's brilliant philosophical discoveries, concerning Dichotomous Pairs and associated conceptual impasses, are not only true about concepts in Human Thinking, but also, much more generally true about developmental changes in all possible contexts, including the entirely physical, then these gains had to be transferred, in their entirety, to a steadfastly materialist philosophical standpoint.

What Hegel had revealed, in his masterful study, which he termed "Thinking about Thought", just had to be a reflection of all processes of development, at absolutely all possible levels.

So, how would this alter our consideration of that fundamental pair of opposites - positive and negative electrical charges?

Clearly, we must first consider them as purely abstract concepts, dreamed up by Man, in an attempt to get a handle on certain Real World effects.

Now, carrying out Hegel's own method, we should, therefore, address these two opposite concepts, in the same way as we do all Dichotomous Pairs. We should attempt to expose the premises (concerning the real physical World), which inexorably led to these concepts.

Yet, as in my own attempt to do the same thing with the Double Slit Experiments proved, it was not just an incorrect premise, just in prior concepts, that that was the problem, but the omission of a crucial actual Real-World, physical factor - in that case the presence of a Universal Substrate, that allowed the impasse, that had been so caused, to then be transcended.

Once, this major physical omission had been remedied, and a suitable, well-founded Substrate devised, all the many anomalies of those experiments were solved.

So, belatedly, and in a very different way, this physicist finally realised why Marx, and the best of his Young Hegelian colleagues, transferred themselves, along with the best of Hegel's findings, to a materialist stance for both Hegel and themselves had been idealists.

Now, it took altogether too long, for this physicist to become enough of a philosopher, to both see his own incorrect objectives, and also realise his own mistaken premises, acquired at length in his long Mechanical Materialist scientific education.

The addressing process was really set in motion by his long-standing rejection of the ill-famed Copenhagen Interpretation of Quantum Theory, which was, clearly, an idealist retreat, and doomed to ultimate failure, so it, certainly, had to be defeated, and Science rescued instead!

He started looking, determinedly, for something concrete (and its associated concepts), that had to have been left out!

It wasn't, though, merely putting back something already known. For, though something similar (entirely within Physics) had been tried before.

It had, then, been suggested that there was a Universal Substrate, but all, purely physical efforts to define it, or even find it, failed to do the trick.

The answer was, indeed, a return to the whole idea of a Substrate, but, first, no longer as an undefined concept-in-itself, nor conceived upon all the old philosophical bases, that had been entrenched in Science for millennia.

Physically, the proposed Substrate had to be a really constructed thing - composed of known particles, and delivering all the necessary properties, particularly in the famed Double Slit Experiments, with their many inexplicable anomalies, and also provide a believable explanation of the Propagation of Electromagnetic "radiation" though "Empty Space".

Crucially, the method would have to be at variance with all prior assumptions philosophically: it would have to both actually use Dialectical Materialism, as well as all the gains from Hegel and Marx, to establish a wholly new stance in Science.

The major problem, physically, was the clear undetectability of any Universal Substrate, and the

concreting-in, within current consensus beliefs, of the existence of totally Empty Space, which gave an easy answer to many questions, while providing absolutely no explanation at all to others.

The composition of the Substrate had had to be solved, to explain its undetectability, and the search had begun for a particle, which could deliver answers on all fronts.

After a long and difficult effort, the neutritron had been finally devised, theoretically, as a composite of two oppositely propertied components mutually orbiting one another. It worked!

This particle, with its internal pair of one electron and one positron, delivered both positive and negative - yet internally neutralised (like the atom). In addition, one was matter and the other antimatter, and the fact that they were exactly equal in size meant that they shared the same, single orbit, and their magnetic effects were also cancelled. Yet, even though this joint particle would be undetectable, it could hold electromagnetic energy, internally, by the promotion of its orbit.

Finally, it had been theoretically demonstrated that such entirely neutral particles could, nevertheless, form a linked Substrate, in what was termed a Paving.

Now, that achievement was carried over into solving the Double Slit, which the new theoretical discoveries solved as well.

So, in the case of Positive-and-Negative, addressed here, we certainly cannot convert one charge into its opposite, so we should again seek what was wrong in the premises that led to these concepts and assumed "physical" properties.

This has yet to be achieved, but it is, as they say, "in process".

## Radically Changing Course the contorted process of the emergence of the new

When finally confronted with what seems to be a terminal crisis, what happens next is, certainly, somewhat surprising, and understanding it, turns out to be absolutely crucial! For, when we are presented with an apparently unavoidable and seemingly permanent impasse, the person involved has a truly major problem.

There are, of course, all sorts of problems, and some solutions are often fairly easily dealt with. And such, for some people, are actually sought-out, and considered to be enjoyable to solve.

But, the kind of problem, I am referring to here, is very different: it is related to the sort that seemingly never gets cracked, and is, after such a setback, thereafter, avoided like the plague.

For, the sufferer has actually come upon a major flaw "within the very branch he is sitting on".

Indeed, the encountered impasse is caused by the very premises that underpin his thinking, so in critically attacking the matter, he is undermining his own treasured stance. But, it isn't only true in Thinking: any kind of sequence in a development can also experience something critically similar.

This explains the discovery in the beginning of any truly Emergent Natural Episode, when the surprising initial swoop towards Chaos starts to bite. It is soon abundantly clear that no quick fix is ever possible, when the crucial premises involved are clearly under both well-directed and justifiable attacks.

For, what is being experienced, by anyone involved, is the Initial Phase of a naturally precipitated Emergence. What is occurring is an inevitable oncoming Crisis, that is always the precursor of such an Interlude of critical Revolutionary Change.

Such things are well known by students of Social Revolutions, but are also possible, at all kinds of level,

from the Cosmic, at one extreme, to in Thinking at the other.

Yet, such a phase, will always tender a whole series of false hopes, as a following Collapse is frequently paused, or even reversed - for a while. But, each and every "recovery" is always followed by an even deeper fall towards seemingly inevitable Chaos!

Finally, a whole system of seemingly bankable premises finally disintegrates, and the situation heads for some apparently "final abyssal depth".

Whatever initiated, the whole event, always relates to how near the precipice a seemingly stable position actually was - how close it had come to dissociating completely, even while it still looked fine.

And, what follows any final plunge, is also surprising, because it then becomes clear that none of the primitive prior processes were destroyed by the final collapse, but only that previous Stability System's so-called policemen processes and other stabilisers were dismantled.

And, this is what ensures that the collapse is NOT the End, but, on the contrary, a new Beginning, as rival sub-systems form and compete to grow and develop even bigger conducive collections, so that, finally, after a series of major advances, as well as lesser retreats, a wholly new Stability is established higher and better than that which had just failed.

How could it be other?

For, Stability is NOT the final resting place at the lowest point in a "valley of circumstances" at all, but, on the contrary, a finely-balanced set of many contending forces happening to a situation on the top of a hill. It remains there because it isn't a chance happening: indeed, such situations are always self-maintaining, stable super-systems, that had previously ascended that hill, by a particularly effective, mutually-conductive



Harold Edgerton - Death of a Lightbulb (1936)

mix of processes, which got it there in the first place, along with a phalanx of so-called “policeman processes” that effectively defeated rivals, and neutralised negative contingencies too.

It is all very different from the usual myth of discovery - the instant “Illumination of the Truth” - the “light-bulb” above the thinkers head!

On the contrary, any such instant solution, to actually be so, must be consonant with a phalanx of previously-held positions. The new ideas must “fit-like-a-glove”!

For, such instant success, amounts to merely putting the right piece in the right place, of a pre-existing rapidly-maturing structure, though, in spite of this, we are inclined to allocate the title of “genius” to the actual first completer of that structure.

And, the proof of this, as any serious researcher will confirm, is that several different people, at about the same time, actually come to the same position. But who, thereafter, wants to know who came second?

But, the really revolutionary discoveries are nothing like that!

Instead of a prior structure, ready and waiting for a resolving addition, what exists seems to strongly oppose any dramatic new turn: for lots of time, effort and like-thinking contributors will have “built-up” a consensus position, filling-in obvious gaps, and papering-over the most blatant errors, not to mention establishing themselves by so doing.

Indeed, rather than a momentary realisation, there is an unavoidably long period of difficulty, frequently coming to a halt with one contradictory impasse after another, and often discontinued as such major difficulties being interpreted as totally damning for the line of reasoning that led to it.

It is only when such impasses are proliferating that the focus turns completely around, to focus instead upon our own conceptual bases, and a major Crisis, and even a wholesale Collapse of a prior and seemingly unshakeable position occurs.

Such Events are always scary, as many other concepts common to not only the currently considered positions,

but also to the beliefs and tenets of the investigators too. [Charles Darwin even delayed the publication of his revolutionary Origin of Species for over 20 years].

So, in such situations, both the generally incumbent stances, and, not surprisingly, those even of the proposing critic, undergo a very bumpy ride.

Indeed, a first reaction generally is for a flock of naysayers to energetically attempt to paper over every appearing fissure, and a general acceptance of the “revolution” is often significantly delayed!

Indeed, history reveals an up-and-down oscillation in attitudes to the suggestions, and the usual trajectory is remarkable.

The oscillations finally resolve into a swoop towards oblivion for the old consensus position. It has, as they say, finally “had it”, and Total Chaos looms large to the old defenders. Indeed, no real qualitative changes can ever begin to be made, without a thorough-going dismantling of the old entrenched positions, something wholly new will be impossible!

In this author’s *Theory of Emergences* (2010), this phenomenon was embodied in an initial downwards Phase - seeming to be heading for Oblivion.

But, in fact, once the many barriers of the old consensus were finally dissolved, and real new thinking (or new processes) could get going, no longer damagingly inhibited by the prior Stability’s own intrinsic self-maintenance processes.

And, thereafter, a second Constructive Phase could indeed finally culminate in an established and wholly new position.

Now, it must be admitted that packing absolutely everything into the same revolutionary process will, most certainly, be an over simplification. But, nevertheless, the overall trajectories involved will be appropriate.

This remarkable Trajectory of an Emergence, occurring in whatever context, will have an obviously common general form. NOTE: The developments in this work, following the publication in 2010, has, so far, taken a further six years to get to the current position.

Not an instantaneous event, was it?



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