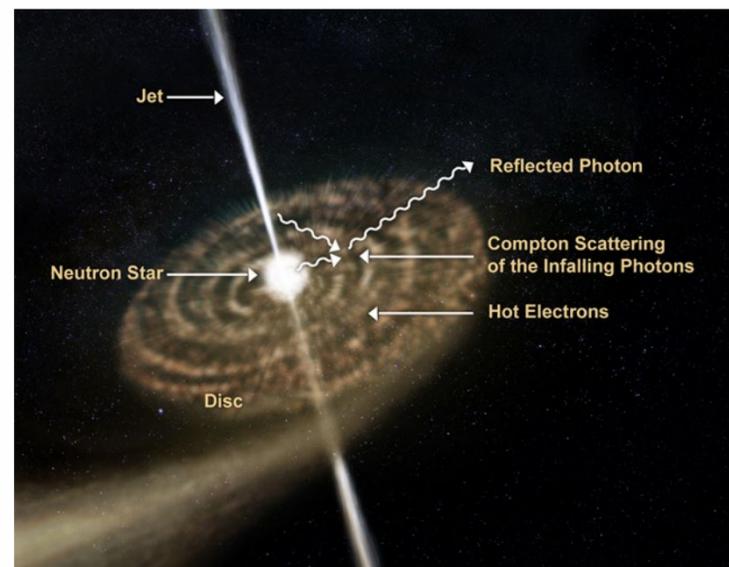
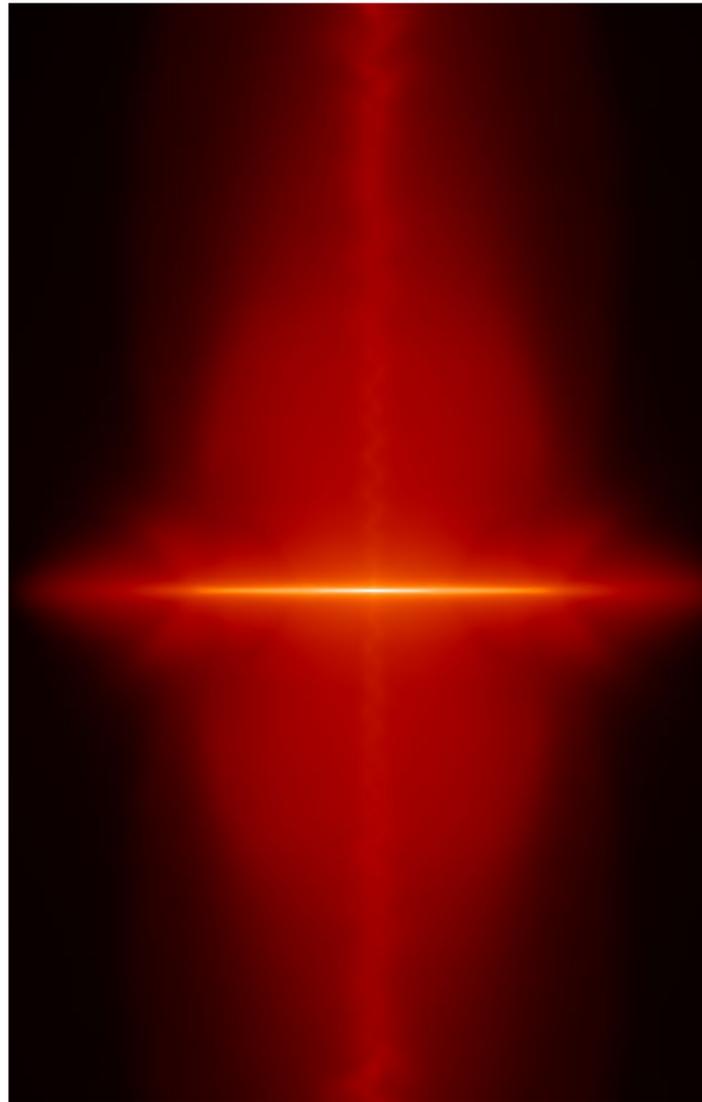


META

FORCES ?

# SHAPE JOURNAL

INTRINSIC RED SHIFT / ACTIVE SPACE / META FORCES / GRAVITY IN THE SUBSTRATE / THE ELECTRICAL  
AND GRAVITATIONAL / FIELDS AND LINES OF FORCE / COSMIC MAGNETISM / META GRAVITY  
ABSTRACTING THE UNKNOWN / THE GRAVITON / GRAVITATIONAL UNITS



## Meta Forces

Issue 59 / May 2018

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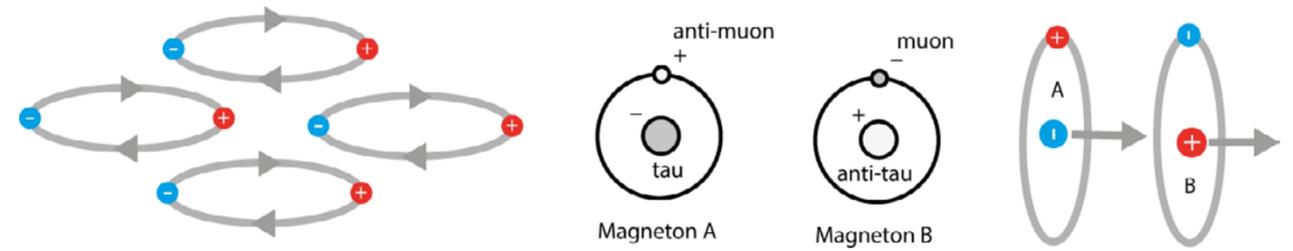
**Why are these strange Astrophysical jets, and other repulsive forces common around the poles of massive objects such as stars, and the black holes at the centres of galaxies - could it be something to do with Meta Gravity?**

# What are Meta Forces, then?

by  
Jim Schofield



## SUBSTRATE UNITS



Neutrutron substrate composed of electrons and positrons

Magnetron substrate composed of taus and muons

Welcome to Issue 59 of the SHAPE Journal, a loose collection of papers centred around the new notion of “meta forces”.

The problems addressed by this theorist are many and varied, all arising primarily out of the inadequacies and contradictions which have arisen as consequences of the now dominant Copenhagen Interpretation of Quantum Theory. But, in addition, the problems are also due to much longer-standing compromises and alternative stances, that have plagued Science, and existed for millennia.

So, let us start with the problem of communications throughout vast regions of totally “Empty Space”, and fields of truly colossal size existing within there too.

Now, the reasons why such anomaly have been accepted as O.K. in spite of the inability to detect any sort of means for supporting such features, is simply because the Formal Equations describing such phenomena seem to work very well.

First, the fact that we cannot explain why things occur as they do is ignored, because we have those useful equations. And, second, it is because Modern Science has finally switched to the totally idealist position that assumes formal relations actually drive concrete Reality.

Such an idealist/pragmatist stance is anathema to this physicist, and led to an attack upon that position, via a purely physical attempt to explain the whole range of phenomena abandoned by this approach.

Effectively, it was soon clear that the task had to be a wholesale assault upon the Copenhagen stance, at the very heart of which, were the conclusions drawn from that cornerstone of the Theory - the Double Slit Experiments!

Now, as it turned out, every single one the anomalies of that set of Experiments, could all be totally removed, solely by the presence of a currently undetectable Universal Substrate, acting as an intermediary, and providing the Waves, while the missiles aimed at the Slits, actually provided the Particles.

The only conclusion one could draw from that success, was that such a Substrate must indeed exist, and, this theorist began the task of defining appropriate Substrate Units to deliver all the involved phenomena.

The research was primarily determined by the essential undetectability of such a Substrate, and inexorably led to the idea of the units being entirely composed of mutually-orbiting-pairs of Leptons - especially chosen to deliver all the phenomena when active, but to be totally undetectable when inactive (see above).

Slowly-but-surely, such effective units began to be devised, but turned out to have to be very different ones, for each type of phenomena:

The Double Slit, EM propagation and Wave/Particle duality were solved using: *Neutrutrons*

Electrical & Magnetic Fields in empty space with: *Magnetons*

But the substrate for Gravitation Fields was with Gravitons; and this proved to be the most difficult of all!

The overall ambition was to explain everything via this multi-layered and undetectable Substrate, and it was finally achieved by assuming a *Meta-Gravity Dipole Effect* in Gravitons, similar to the Magnetic Dipole Effect in Magnetons.

But what could this new meta force mean for physics - and how could we possibly detect it?

A wide-field astronomical image showing a dense field of stars. The stars are of various colors, including white, blue, and red. There are two prominent bright stars with diffraction spikes, one in the upper left and one in the upper right. The background is a dark, grainy field of smaller stars. The words 'EMPTY' and 'SPACE' are overlaid in large, bold, black letters. A large black question mark is centered in the lower half of the image.

**EMPTY**

**SPACE**

**?**

**Active**

**Space**

and why it cannot be empty!

The whole current series of crises in Modern Physics, seem to centre around explaining causally both “Action at a Distance”, and the “Communication of Directions” between supposedly mutually-affecting yet totally-separated entities. Indeed, I must admit to a smile, whenever I hear or see experts-in-the-field delivering popularising lectures. For when they do, they must leave their solve-all, mathematical techniques behind them, and attempt to communicate in a way that their inexpert audience will understand: they just have to deliver *some* sort of explanation.

And that, I’m afraid, they can never effectively do: so they generally resort to illegitimate analogies trawled in from everyday experiences. And, these are never consistent with each other, but that doesn’t really matter to them, as the “real unifier”, Mathematical Form, which absolutely satisfies every lecturer, but will, unavoidably, be “unintelligible to this audience”.

But, for their professional satisfaction, in themselves, and within their milieu of expertise, they depend, with confidence, almost exclusively upon Mathematical Forms. For it is there, in the World of Pure Forms alone - Ideality, they get the interconnectedness, coherence and consistency across ALL areas of application. But, it is the actual Plurality of that World which allows it to smoothly substitute for the actual, and much more difficult, Holism of concrete Reality!

I know what the standard response to that criticism will be, because they certainly cannot counter the above philosophical description. It is the usual recourse-to-Pragmatism - “If it works, it must be right!” But, of course, that is the base tenet of Technology, not of Science! Indeed, precisely because Mathematics concerns itself with Form and not with Content, it can only cope by describing Pattern, and saying absolutely nothing

about real properties and causes. And, it is always useless in dealing-directly with Reality-As-Is - and crucially, Reality in development. It is only applicable to Stable situations, wherein all qualitatively-varying factors are either held constant, or have been removed from the situation.

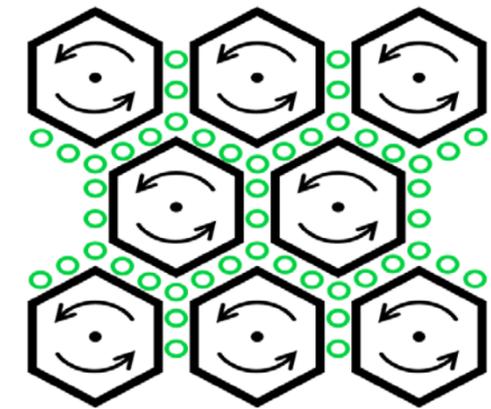
As a physicist myself, I am well aware of the great technological-skills and wide-knowledge involved in organising and maintaining investigate-able Experimental situations. AND, it must also be added, the even more prodigious skills in providing sequences of such Stabilised stages in actually delivering a successful product.

But, Science, itself, simply must major in Explanation! And, as such, and in a real Holistic World, CANNOT deal in Absolute Truth, which only appears as possible in totally stable situations. Real Science deals instead in Objective Content - Aspects or Parts of the Truth which come to light but which will always be insufficient - but it is also never an arbitrary fiction, but partially-reflects causal Reality to some significant degree, and hence allows further theorising to be both possible and legitimate.

Note the difference with mathematically-dominated Physics, where all that can be further involved, are yet more formal equations, all of which will conform to the same pluralist distortions of Reality. What is being pursued here is not Science but Mathematics: not Reality but Ideality!

Clearly, the above well-defined stance makes approaching the titular questions of this paper very different indeed: questions of Cause and Process will be paramount. “Action at a Distance”, and the “Communication of Directions” will not be delivered by equations!

JAMES CLERK MAXWELL'S MODEL OF THE AETHER:



“Obeys this Equation”, is not an explanation!

So, what actually delivers the action over vast distances, and directs things in the right direction? Totally Empty Space, or Nothing, cannot physically do that!

We know from such things on Earth, that some form of Substrate usually fills such voids, and enables these kinds of inescapable features. And, the fact that such a Universal Substrate cannot currently be detected, does not mean that it isn’t there: it just means that we have not the theories or the means yet to identify it.

Long ago in the 19th century James Clerk Maxwell knew that there had to be a Universal Substrate. So, he designed his version of it, based upon what it evidently did, and what evidence he could use from elsewhere, and, from that he produced a consistent model, from which he managed to produce his World Famous Electromagnetic Equations, *which are still used* to this day!

That is how you do Science, when the full key knowledge is as yet unavailable: you marshal what you do know (what stands up currently elsewhere) to deliver a well-informed possible explanation.

The models therefore developed by this present-day theorist, attempt to fulfil the same objectives as motivated James Clerk Maxwell. Really explanatory structures, and their possible processes, have been developed, but NOT as Maxwell had to do it, but this time, actually, via the detailed definition of a possible-but-undetectable Universal Substrate - designed expressly to be able to both propagate energy, via similar units to the atom, and physically-subtend active-and-directional Electric, Magnetic and Gravitational Fields within such a Substrate.

And, all of this, shown-as-feasible concretely, which cannot be said for the current, totally inadequate placeholder - namely Totally Empty Space!

I must, once again, re-emphasize the means of the scientist, as distinct from those of the technologist. For, he must deliver more Objective Content than what his explanation replaces, AND also enable a further development of Explanations, that is Real-if-temporarily-defined Theory.

There is, however, another important difference. He rejects Formal Logic as it was designed by the Greeks, for having the same shortcomings as Mathematics: that is its assumption of Plurality.

So, along with Hegel and the Marx, he overcomes the impasses of Dichotomous Pairs of contradictory concepts by addressing Qualitative Changes, and hence extending Reasoning beyond artificially stable situations into a qualitatively changing and developing World. The concept of Objective Content replaces that of Absolute Truth as the means to facilitate constant improvement in explanatory power. And, the acceptance and study of such Qualitative Changes becomes a wholly new extension of Formal Reasoning for it to become a Dialectical study of Development as absolutely crucial!

The idea that space must be *active*, not empty and inert, is a theory which delivers more Objective Content than the current consensus - and the possibility of explaining phenomena for which we have no current explanation.

The first step is acknowledging how little we actually know.



## Meta

## Forces

I

### Secondary forces, necessarily involving intrinsic movement

In my theoretical researches into a possible undetectable Universal Substrate, the most crucial addition to any individual Lepton that I chose as a possible component of such a Substrate, there was always an essential second elementary particle as an intrinsic partner, actually orbiting the initially chosen entity.

Indeed, ALL subsequent potential components were also of this two-entity, mutually-orbiting form for absolutely paramount reasons! For, such mutually-orbiting-pairs could possibly be so chosen, as to make them entirely undetectable, but only if they were such that their properties actually cancelled each other out!

The initial, theoretical prototype was a mutually-orbiting pair, consisting of an Electron and a Positron - particles of exactly the same size, but exactly opposite in every other respect! And these turned out to remove every single anomaly evident in the ill-famed Double Slit Experiments (as it is usually interpreted via the Copenhagen Interpretation of Quantum Theory).

But, remember, all this is a piece of investigative, purely-theoretical research, attempting primarily to reveal what kind of components could deliver a totally undetectable Universal Substrate, while also delivering all the phenomena currently ascribed entirely to Totally Empty Space.

And, in spite of the successes of the electron-positron union, which I termed the Neutrutron, I'm afraid it failed entirely to deal with Fields!

I could devise different joint-lepton pairs with the necessary capabilities to deliver both Electric and

Magnetic Fields, however, but as the components involved were of different sizes, they were certainly NOT undetectable - particularly as their absolutely essential Magnetic Dipole Moments stuck out like sore thumbs.

The new Mutually-Orbiting-Pair was composed of a Tau and a Muon, in a suitable pairing of one of ordinary matter, and the other of antimatter, and hence of opposite charges. The disadvantage turned out to be also its main advantage, when it came to fields - primarily because it gave to the formed units - the Magnetons, the absolutely essential feature of a Direction, built into it, namely that of the Magnetic Dipole Moment.

For Fields, if they are to push susceptible entities in precise directions must have that orientation, and the energy to do it, actually built-in to its structure.

Now, for ALL possible units of a Universal Substrate that I devise there must also be a capacity for holding and delivering Energy, to provide that active field-effect: and that had been the main reason for initially trying-out the mutual-orbiting model, for, as we know from the atom, such orbits can be promoted to hold energy, and demoted to deliver it!

So, clearly all such units, if appropriately organised, could propagate energy, and, in the case of Magnetons also deliver it in a precise direction too.

But, could we solve the "Undetectability Problem"? The answer turned out to be, "Yes!"

But, only if their were two different Magnetons, that were mirror images of each other, appeared in equal

numbers, and usually moved about randomly. For then, they would be undetectable overall!

Fields would then be exceptional re-arrangements, caused by the magnetons' own self-organisation, whenever they encountered a charged particle, or physically produced Magnetic effect. For then, not only would magnetons align with the initiating agent, but also draw in, from elsewhere in the Substrate, the necessary energy to balance the initialising cause. But also, because of their dipole-nature, link outwards with other magnetons to produce either Electric Fields, or magnetic Lines of Force.

And these would be equipped with the correct energy and direction to affect susceptible entities encountering them!

Now, appropriate components have been devised, purely-theoretically, of course, to explain both Electric and Magnetic Fields: but what about Gravitation?

The very advantages of the Magnetons, in delivering Direction via its secondary Magnetic Dipole Moments, apparently does not have an analogue in some other joint-pair of Leptons to deliver Direction-in-Gravitation.

Yet, comparing them formally, Electric Fields and Gravitational fields are actually very similar: they are both Inverse Square Relations - so you would expect a formally related means of delivering that too.

But, to deliver an active gravitational field around material entities, delivering the Inverse Square relation, plus both the energy available, and the Direction clearly and physically established within the substrate, in a similar way to that in the Electric Field, which would surely require a secondary *Meta-Gravity* field with a direction perpendicular to the built in orbit of an as yet unknown mutually-orbiting pair of particles.

Of Course, the Magnetons were mutually-orbiting pairs of Charged Particles, with the two alternative Magneton-forms made possible by which charge was doing the orbiting.

But in Gravity, we apparently have only a single purely attractive effect.

We might, though, have a secondary gravitational effect, if our mutually-orbiting pair consisted of differently-sized sub-units. For then, such an effect could be caused by the lighter-Particle orbiting a relatively-static, heavier-Particle.

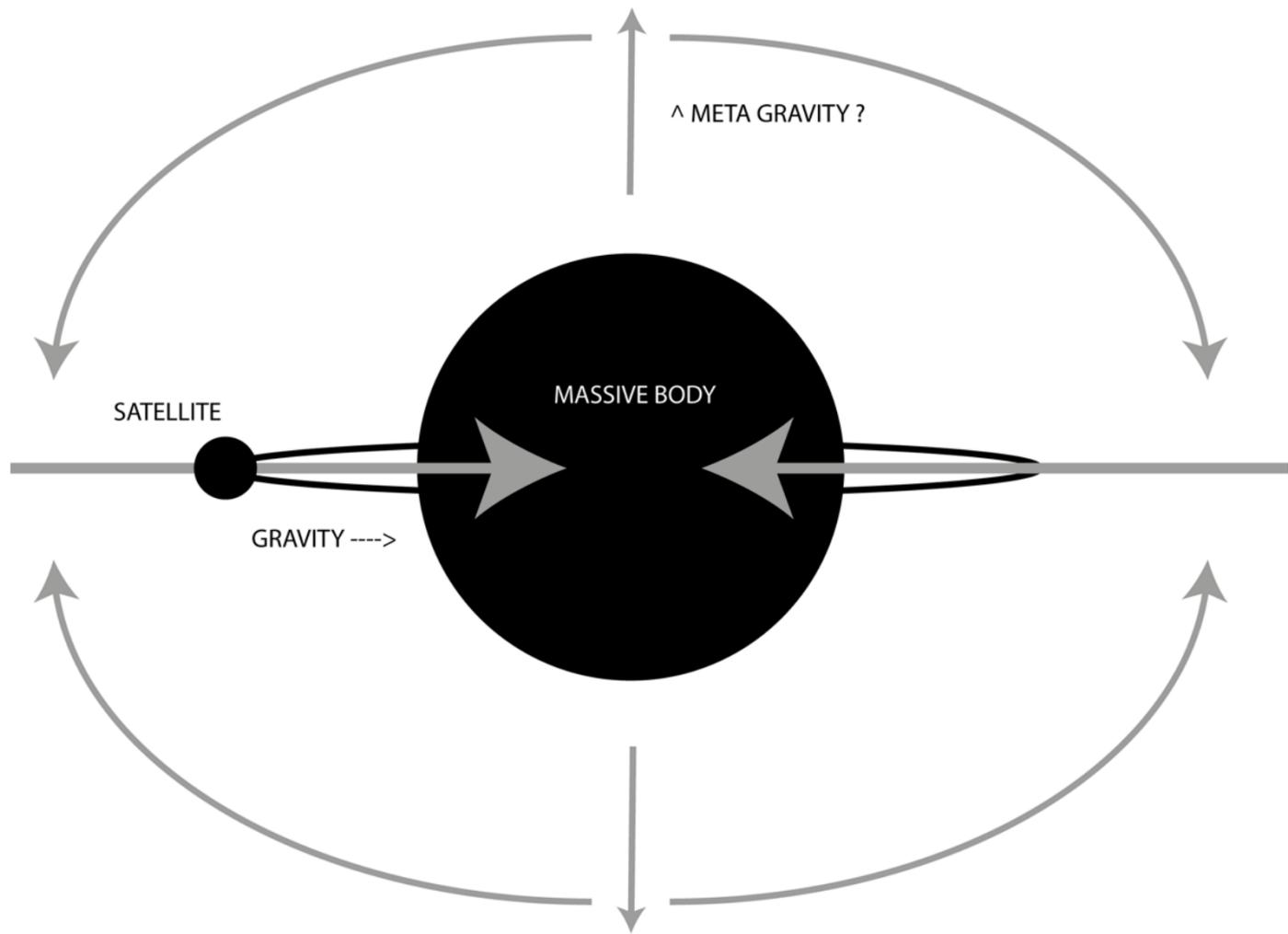
For then the main gravitational effect will come from the larger partner, while the orbiting partner may well produce a fairly-weak gravitational field along-the-axis of that orbit. For, as all the other directions produced by that orbit will effectively cancel each other out!

Clearly, such a subsidiary gravitational field will be almost undetectable, BUT, will be enough to give the joint-particle a Direction, enabling its orientations in a similar way to those of the Magnetons around their initiator.



POTENTIAL EVIDENCE FOR THIS FORCE?

- VARIOUS ASTROPHYSICAL AND POLAR JETS
- BLACK HOLES
- BIPOLAR OUTFLOWS
- HALTON ARP'S QUASAR THEORY
- BIRKELAND CURRENTS AT THE POLES?



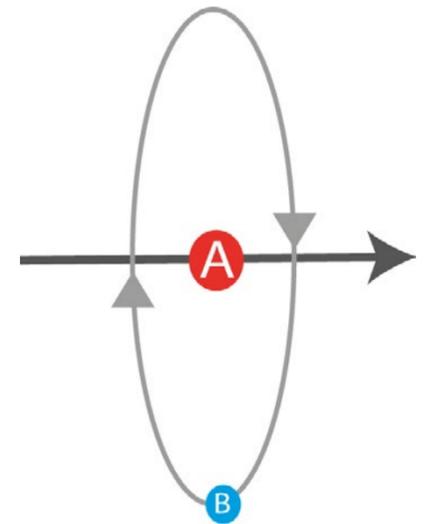
META GRAVITY IS A VERY WEAK FORCE, BUT PUSHES AWAY FROM POLES AT A CERTAIN POINT GRAVITY TAKES BACK OVER PULLING OBJECTS INTO STRICTLY PLANAR ORBITS

RESULTING IN:

- PLANETARY ORBITS
- ACCRETION DISCS
- PLANAR GALAXIES EVEN?

## Gravity in a Substrate

GRAVITON



I believe I may have cracked Gravity in a Substrate based upon your idea and diagram!

The diagram on the right is a hypothetical Graviton - a joint particle consisting of a large one A, orbited by a small one B. We are after a field given by the axial arrow (here horizontal), which we are interested in for two reasons:

First, we need a direction for our field to act in!

And second because of our discussions upon planar solar systems and Galaxies, AND Halton Arp's radial budding off of dwarf new galaxies, axially from the centre of older ones.

The problem was I couldn't see how a perpendicular "gravitational" field, to the orbit of one Particle around the other could be produced, until I considered why the Magnetic Field was so clearly directional and in that perpendicular direction. But the clue is in the orbit! All directions of a field limited to the Plane of that orbit will be CANCELLED OUT by the opposite effect when on the opposite side of the orbit. But in contrast, all the effects parallel to the axis of the orbit and from every single position of the orbiting particle will be unaffected, there is nothing to cancel it out! There will, therefore, be an undiminished effect due to the orbiting particle alone in that direction.

But NOTE the central particle around which the orbiting particle is moving, could be enormously bigger than the orbiting Particle, so MOST of the all-around gravitation effects will come from that: and NONE will be cancelled.

But the effects from the small, orbiting particle will be smaller and then partly cancelled out. So it could be so tiny compared with that from the Big particle and only in a single perpendicular direction, as to be often missed entirely, yet still enough to link one joint particle to the next and direct effects in that direction too!

Now I haven't said what the particles involved actually are: I don't know yet. But the major problem is now cracked!

A major contribution to this solution was a suggestion by Mick Schofield.

### Comparing secondary forces: both Electrical and Gravitational

Elsewhere, the requirement for a directional feature, in the Universal Substrate Units actually delivering Fields, has been explored functionally, but, it must also be admitted, only speculatively, by this theorist.

But, though the magnetic effects due to orbiting electrically-charged particles are well-established in Physics, and must surely be involved in these fields, exactly how the very-same Substrate Units also come to deliver both electrical and magnetic effects has not yet been sufficiently spelled-out.

And, this turns out to be absolutely crucial, in establishing Fields as being entirely due to features of particular Universal Substrate Units, primarily, if not exclusively, by delivering a *directional* content as the active sole agents of field effects within such units.

The Units involved here are termed Magnetons, and as with all the currently defined Units of my suggested undetectable Universal Substrate, they consist of mutually-orbiting pairs of Leptons - in the Magnetons case, each one consists of one Tau and one Muon - sub-particles, of opposite cancelling-type properties. But, as these are also of differing sizes they will also deliver a Magnetic Dipole Moment, perpendicular to the orbital plane of the smaller sub-unit (the Muon) around the larger (the Tau).

Now, this directional feature was indeed vital, because without it there could be NO caused direction-of-action, for the field when affecting a susceptible interloper. And, without the mutually-orbiting form of such Units, there would also be no means (via the promotion and demotion of the orbit) of that field unit both holding and delivering the energy to implement that action!

The interesting thing about Magnetons is that normally they will be moving about randomly, but as soon as they encounter either a charged particle or a magnet of some kind, they re-organise themselves into statically-linked fields - either electrical or magnetic, depending upon the form of organisation instituted.

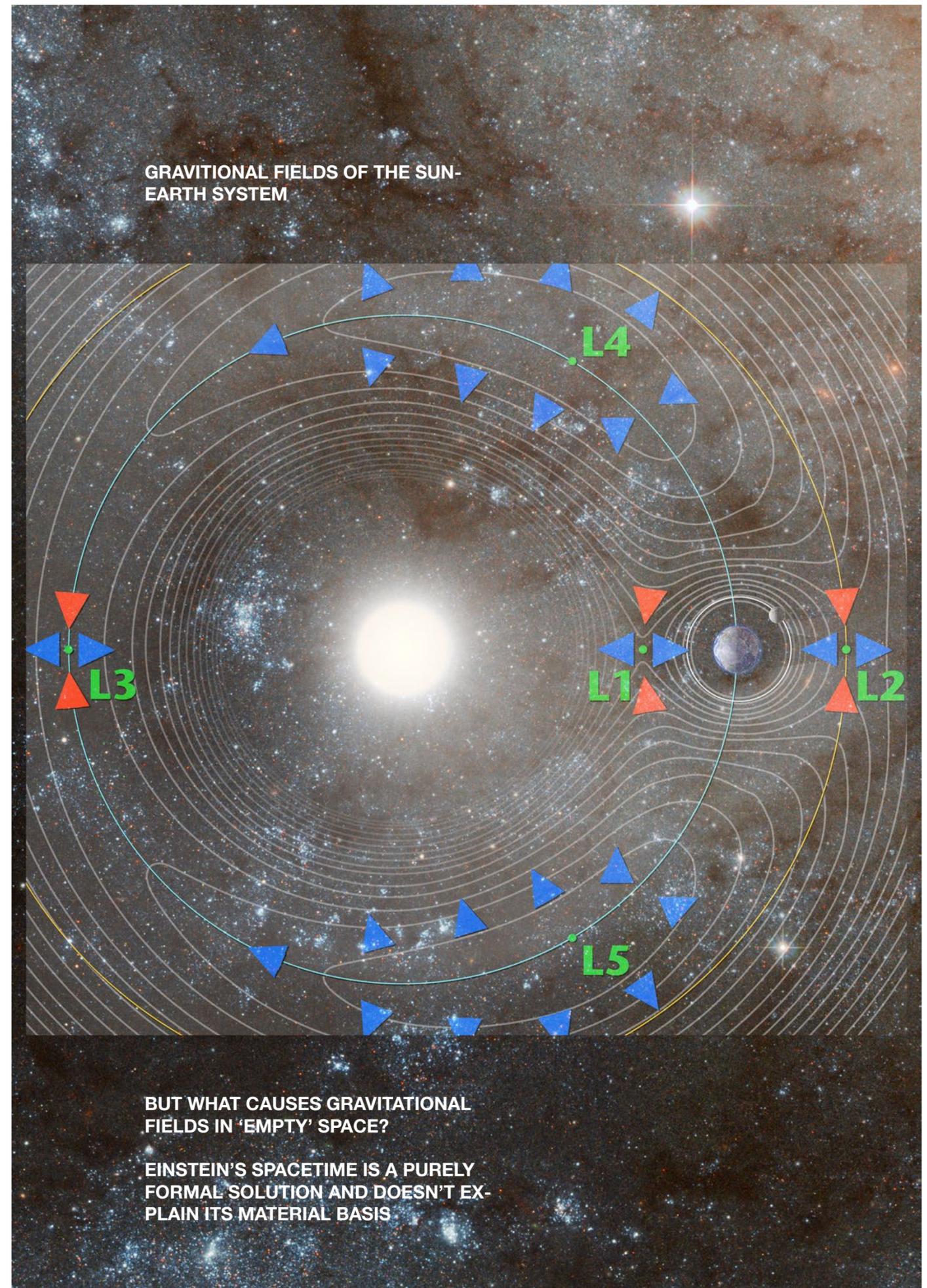
The Electric Field is composed of multiple, concentric shells, around the charged initiator, with all field units (the Magnetons) orientated with their Magnetic Dipole Moments orientated axially around that initiator, and with the required field-energy garnered from elsewhere in the Substrate, and situated within every field unit, according to an Inverse Square Relation, as a promotion of that orbit.

The Magnetic Field is also composed of the very-same Magnetons, but here organised head-to-tail of the Magnetic Dipole Moments to deliver Magnetic lines of Force. And, once again, equipped with field-energy garnered from elsewhere in the Substrate.

Now, though this delivered a model with sufficient Objective Content for the Electric and Magnetic Fields, it also demanded that something very similar would be necessary for delivering a Gravitational Field around an initiating Material Entity, but there was a problem!

How could a directional feature be supplied, in a Field Unit of the Substrate, without something equivalent to the Magnetic Dipole Moment to provide it?

The question was posed:-  
Could a mutually-orbiting pair of uncharged Sub-particles, produce an equivalent Gravitational Dipole Effect?





Now, we are so used to treating Electrical and Magnetic Effects as different, that we have only fairly recently finally seen them as being caused by exactly-the-same entities - the Magnetons, as revealed in current research on a possible Universal Substrate, where the very-same-units in different organisational structures deliver the different Fields.

This being the case, could we not in a similar way, have a Graviton Substrate Unit with the same kind of mutually-orbiting pair form. But, this time having a Gravitational Dipole moment acting perpendicular to the plane of the smaller orbiting sub-unit of that mutually orbiting pair?

Well, as this is totally-unashamed physical-theoretical research, let us assume that such is the case!

But, nevertheless, there will, unavoidably, be important differences, as these perpendicular effects will be exactly the same (attractive) in both opposite directions, as distinct from the opposite attraction and repulsion with Magnetic Dipole Moments!

But, such a situation, would at-the-same-time, also explain why that field has not been detected. For, if the joint-mutually-orbiting pair consists of a very large relatively static one and a tiny orbiting one - both the field effects of which will be attractive, and the effects from the tiny perpendicular one will be lost within the Large, all-directions, radial effect: yet it would still be sufficient to deliver a direction, to re-orient the whole unit, and the consequent direction of its effect.

But note, that will be *minutely* small: for full Gravity of itself is a tiny effect, and this will be similarly limited as was the magnetic effect of the Magneton.

Now the significance of of this secondary effect, is that it will supply a direction for the field, and will again, via energy stored in the orbit direct an affected body with a small push from each oriented unit, in the required direction.

But, of course we have yet to devise this particular Gravitational Field Unit - the Graviton.

But, first we have the problem of there always being TWO initiators involved in all such Fields!

We will have the field-creator as well as the susceptible-entity.

We usually think of the Field as being entirely due to a main, and great Centre of Mass affecting some very much smaller entity, but BOTH will be required in the orientation of any active, force-delivering Gravitational Field.

We can think first of a “potentially-active” field set up in all directions in the Substrate, around every massive entity, but for it to actually ACT, it must encounter the “potentially-active” field of another susceptible entity, and only then will the direction be defined, by a line joining the two, and then be activated to apply Field-forces of attraction in both opposite directions.

Empty Space is suddenly a very busy place indeed!

**F I E L D S**  
and lines of force

The ideas delivered so far, concerning the assumption of an undetectable but concretely-existing Universal Substrate, particularly concerned with Electrical and Magnetic fields, but also deemed applicable in Gravitational effects too, certainly require considerable further elaboration.

For example, the very-same Substrate Units - the Magnetons, could deliver two significantly conceptually-different fields, which though they offered more Objective Content than previous attempts at a physical explanation, also involve somewhat dissimilar and even contradictory forms for arrangements of the same delivering Units.

And these, upon further consideration, do not gel with concrete experience in every respect.

Let us compare Electrical Fields with Magnetic Lines of Force! Both of these re-structurings within the Universal Substrate are concerned solely with Magnetons - mutually orbiting Pairs of oppositely-proprieted Taus and Muons, so as to deliver an electrically neutral particle, but with a Magnetic Dipole Moment. Now, in their dual uses they carried differently-derived energy loads in their promoted internal orbits.

In Magnetic lines of Force, the Magnetic Dipole Moments linked head-to-tail (North Pole to South Pole) in continuous lines, providing an uninterrupted looped "pathway" (with no free ends). But, when giving a Magnetic Field, having the very same energy content in every unit in each individual Line. Their only connection with the supposed cause of the field was directly to it, along the Line of Force, where the completion of its

loop always resided in that supposed source. Such a connection was obviously, therefore, also a transparent energy pathway!

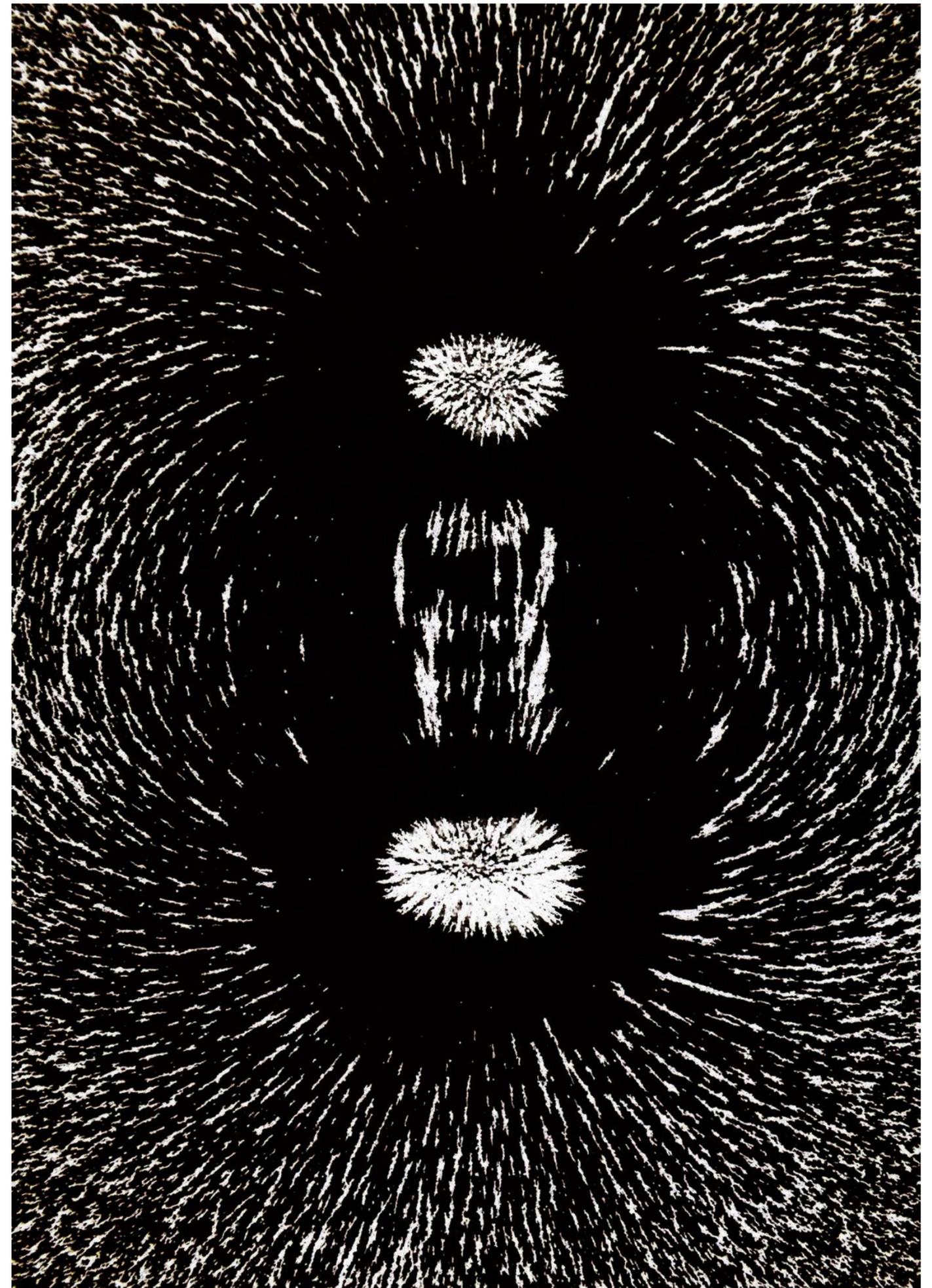
But Electrical fields were different, for as the main form is in complete shells gathered concentrically around the supposed source of the Field, the same energy content was within each and every non-interlinked Magneton, comprising a particular shell. But, the individual units were also transparently-linked to the source by that magnetic Dipole moment, but NOT to each other.

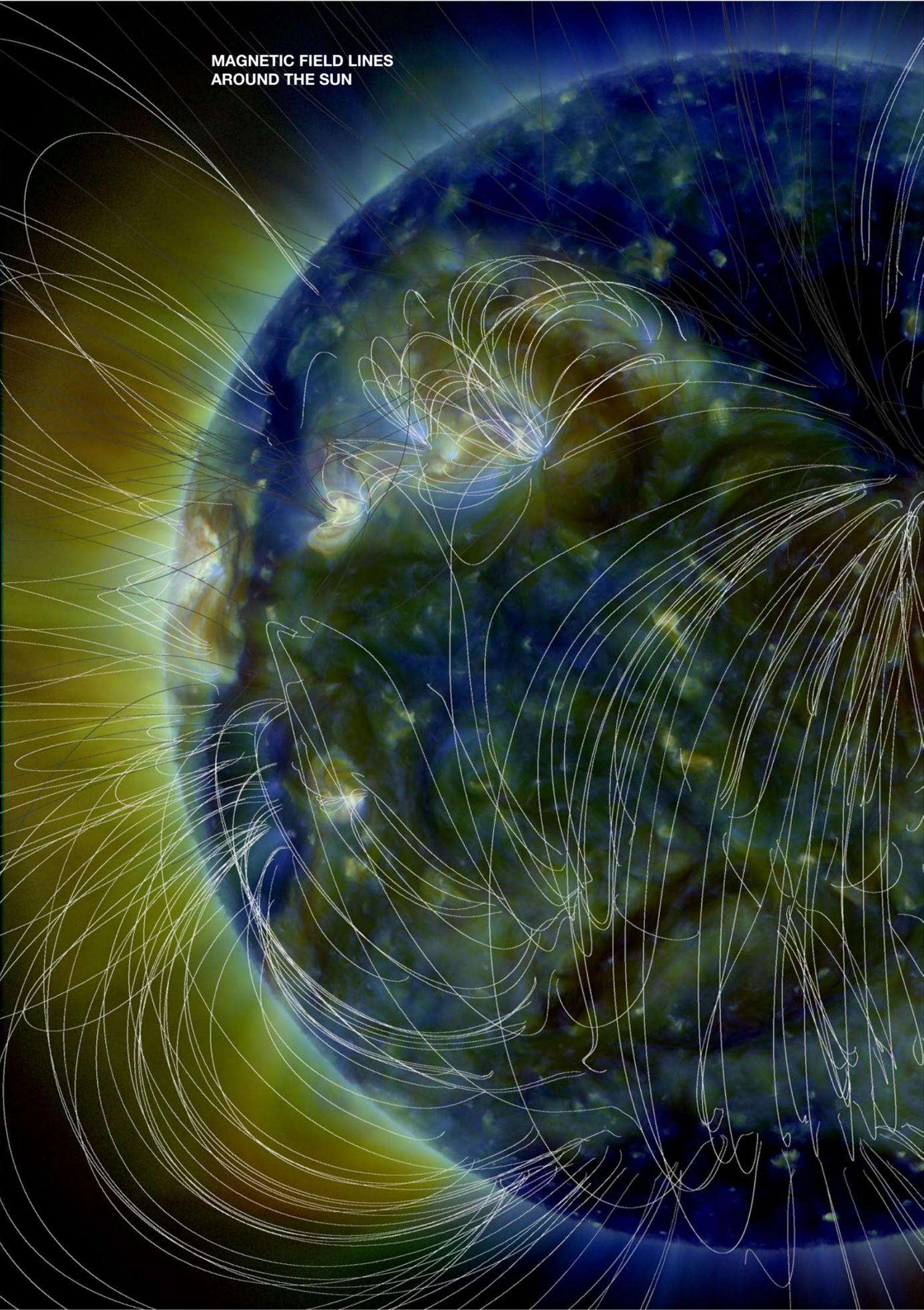
In consequence they, together in a shell, effectively became a slightly larger "source" as its linked prior shell. The next shell was, therefore, added like the first, but now back to the "bigger source", but again NOT to each other. Absolutely NO continuous pathways, were formed in the shells, as had been in Lines of Magnetic Force. And the mismatch in numbers of units between the shells, made NO continuing direct outward linkages possible.

The Dipoles were clearly The Links energetically as well as delivering purely local attachments physically!

In Magnetic Lines of Force the connections were from unit to unit, as well as ultimately, both forwards and backwards to the "source".

In Electrical fields the connections were always back to the real source, or to a "virtual source" in the form of a prior shell: so the effect was shared between all the members of a Shell, and as there were more units in each succeeding shell, the amount in each unit would be less, while still delivering the same total.





MAGNETIC FIELD LINES  
AROUND THE SUN

Now, it appears to be important that there are NO continuously-linked lines outwards-from or inwards-to the “source” in the Electrical Field, for as every shell has a different number of units AND, of course, no continuous dipole links between shells, which seems vital for transmission processes.

For example, the major transmissions of energy through so-called Empty Space occur via Birkeland Currents which are a different kind of “magnetic line of Force” involving what are termed Plasmas, even connecting stars and planets.

Now, clearly, we have many questions to answer, following these conclusions!

Why should a particular kind of substrate unit deliver effects that were so distinct as to be considered as very different natural forces for extended periods of time. And, why are they not only very different in the Sun and on the Earth, but also, in their usual forms, so extremely local as to be excluded as such in so-called “Empty Space”?

The Magnetic lines of force, as we are aware of them on Earth, are LOOPS: the lines of force of linked Magnetons via their Magnetic Dipole Moments, clearly build outwards from opposite ends of a “magnetised Source” until they find one another and link up.

But, any movie of such activities above the surface of the Sun, clearly show them occasionally failing to find one another, and either falling back into the Sun, or, rarely, linking up with another amenable form, and with the overall conclusion (above) that such Lines of Force are pathways for energy, the belief that the usual kinds of magnetic fields stretch across space seems highly unlikely. And, this is surely confirmed by such phenomena as the Solar Wind consisting of ejected charged particles, and Birkeland Currents of Plasma, which do indeed find their powerful way across Space and therefore infer something there to guide them.

Also the evidently entirely static nature of Electrical Fields, guarantees their very limited extensions as the sharing effect of contained over an individual shell, means that they very quickly get vanishingly small as such fields get bigger and bigger.

It's far too early to say as yet, but clearly Magnetons in “Space” - that is without the usual initiating sources, can be conceived of as forming chains, but without the usual initiators it seems there is nothing obvious to elicit the gathering of energy into such structures, though stray energy, and the self linking of ends of such chains does seem at least possible! While fragments of chains might channel Birkeland Currents, at least to the next fragment.

Interestingly, the current partial (as yet incomplete) definition of Gravitons, also suggests some kind of Gravitational Dipole moment that would disable the possibility of chains to form in “Space”, because both ends of that dipole will be repulsive as evidenced, on a very different scale, by Halton Arp's observations of dwarf Galaxies budded-off (ejected) on both sides the the galaxy's perpendicular axis. So, not only will any chain forming be inhibited, but also the dipoles will not be able to link as energy pathways either.

In spite of similarities in form, the potentiality for similar alternative structures in “space” by Gravitons and Magnetons appears to be impossible.

These suggested mutually-orbiting-pair Substrate Units are producing an interesting variety, if even prohibition, of possible extended structures in “Space”.

**Postscript:** Clearly we are just approaching the peripheral edges of this topic both Sub Atomically and Cosmologically, for even the directions between cosmic objects must be “pre-established” for a Birkeland Current of Plasma to hit its target!



A series of muses upon:

## Cosmic

The recent theoretical work, by this theorist, concerning the possibility of an undetectable Universal Substrate, especially with regard to Gravitational Fields-in-Space, seems to have significant consequences upon the Cosmic scale too.

The Cosmic problem involved was the infamous Action-at-a-Distance dilemma, as somehow a directional-component in such a Substrate was deemed absolutely essential, to allow the physical subtending of fields in Space, and the directional delivery of field effects, and in these requirements, main difficulty was with Gravitation!

For, there didn't seem to be an accompanying Gravitational-Dipole-Moment, or any functional equivalent - analogous to the well-established Magnetic-Dipole-Moment. And, it was that which alone supplied this directional feature for Electromagnetic phenomena in Space, and nothing similar seemed to be available for identical directional purposes in Gravitation.

In addition, there is the work by the astronomer, the late Halton Arp, concerned with what he claimed to be dwarf galaxies, "budding-off" along the axes of mature galaxies, actually perpendicular to the plane of the producing, rotating parent-galaxy.

Indeed, there were such a diverse collection of features involved in Arp's conclusions, including a counter

## Magnetism

proposal upon the interpretation of the Red Shift, that he was generally dismissed as being a serious investigator by the consensus in astronomical opinion thereafter.

But, the similarity of that work to certain features of the Magnetic Dipole Moment, itself, also perpendicular to the plane of the causing electron orbit in atoms with a single outer electron, along with the similar directional problem for Gravitational Fields in Space, posed obvious questions.

Now, purely-theoretically, the problem with such directional Gravitational Fields, has been addressed, by the assumption of just such a Gravitational Dipole Moment, and in contrast to the Magnetic Dipole Moment, this has the very same effect in both directions along that axis, which also tallies with Halton Arp's Dwarf Galaxies delivered outwards along both directions of the Parent Galaxy axis.

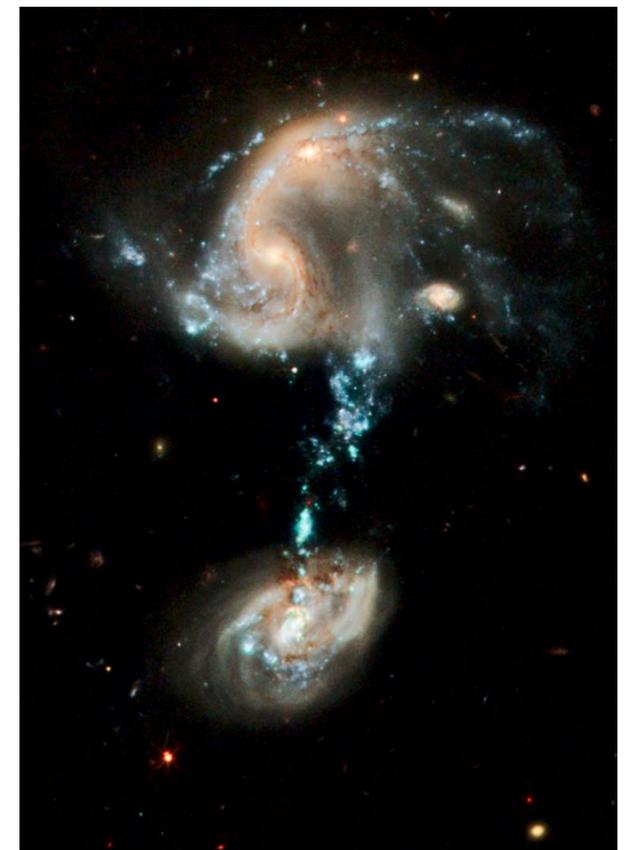
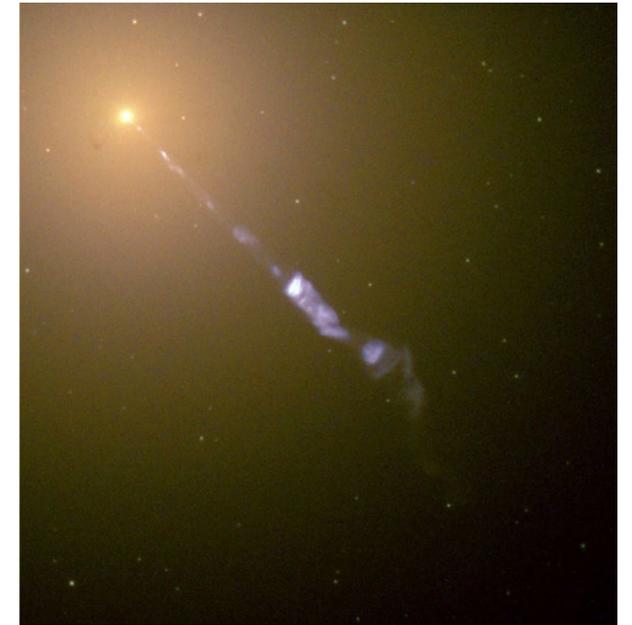
Now, if these very different phenomena are to be causally linked, there will, unavoidably, be profound consequences in both areas.

Perhaps the simplest change will be that concerned with the Gravitons (suggested Substrate units), for the Gravitational Dipole Moment, involved there, though reversed into a Repulsion in both directions, as its only purpose is in directional-orientation, within

a gravitational field, will not undermine the theory as a whole. After all, for that aspect of gravitation to be significant, it not only removes things to a galactic scale, but also to transformations within a galactic massive Black Hole!

So, cosmologically, in particular, concerned with the Black Holes at the Centres of Galaxies, new theories will be required to explain the apparent off-loading from it, of dwarf Galaxies and other ejected matter, possessing both quantized and changing-over-time redshifts - or otherwise the findings of Arp explained by other means. For, if Arp's conclusions prove to be true, they conform with the preferred axial actions towards the Earth's Magnetic poles, by both the Solar Wind, and even Birkeland Plasma Currents from the Sun, which may well have played a role in the initial establishment of the Earth's Magnetic Field, and are the only feasible outside cause for the regular flipping of that field every million years or so.

And, though currently far too early to draw any firm conclusions, the present researches by this theorist upon the interactions between the Solar Wind and the Earth's Magnetic Field, mediated by an undetectable Universal Substrate, are likely to reveal important new factors, just as has the other evidence mentioned above.



ABOVE:

HALTON ARP'S 'PECULIAR' GALAXIES OFTEN SHOW MATERIAL BEING EJECTED FROM THE POLAR AXIS OF THEIR CENTRAL BLACKHOLES - THE TOP IMAGE SHOWS A GALAXY WITH A RELATIVISTIC JET, THE BOTTOM IMAGE SHOWS A GALAXY POSSIBLY 'GIVING BIRTH' TO ANOTHER, ALONG THIS SAME AXIS.

# An Intrinsic Redshift

## Did Halton Arp have a valid point?

The Electric Universe brigade talk about a cosmic Red Shift that isn't caused by a Doppler Effect transforming the frequencies being observed. They assume instead that it is intrinsic to special modes of production within atoms at the birth of a new entity from out of the minor axis of a producing Galaxy (as Halton Arp has suggested, but as a purely Observational Astronomer was unable to explain). This infers that in the throes of such a birth, the state of the Universal Substrate within atoms is modified to give different "Quantized orbits" and hence affect the spectra modified by absorption and production processes by such atoms.

Now, presumably, the usual explanation of the radiation, emitted by atoms, assumes a particular Substrate context – say, in the more usual form of the Substrate contained within atoms, while that context must be temporarily modified at that birth, to only gradually be returned to normal over time! For then, distortion of that substrate in the external conditions, will definitely begin to affect the electron orbits back to the normal forms.

This might be the only intrinsic modification of the emissions and absorptions in radiation, and hence will, in such extreme cases, effect the redshift too!

NOTE: As Redshifts are so common, it would seem that the electron orbits must all be at lower energies, so that transitions down to lower energy levels will also be lower – towards the red end of the spectrum.

Now, we know that Solid, Liquid and Gas concentrations of atoms do not change the characteristic frequencies of emitted or absorbed radiation, so those modes certainly cannot change how atoms normally work.

To find intrinsic modifications of the characteristic frequencies, we must consider extreme circumstances not usually encountered in the normal phase modes.

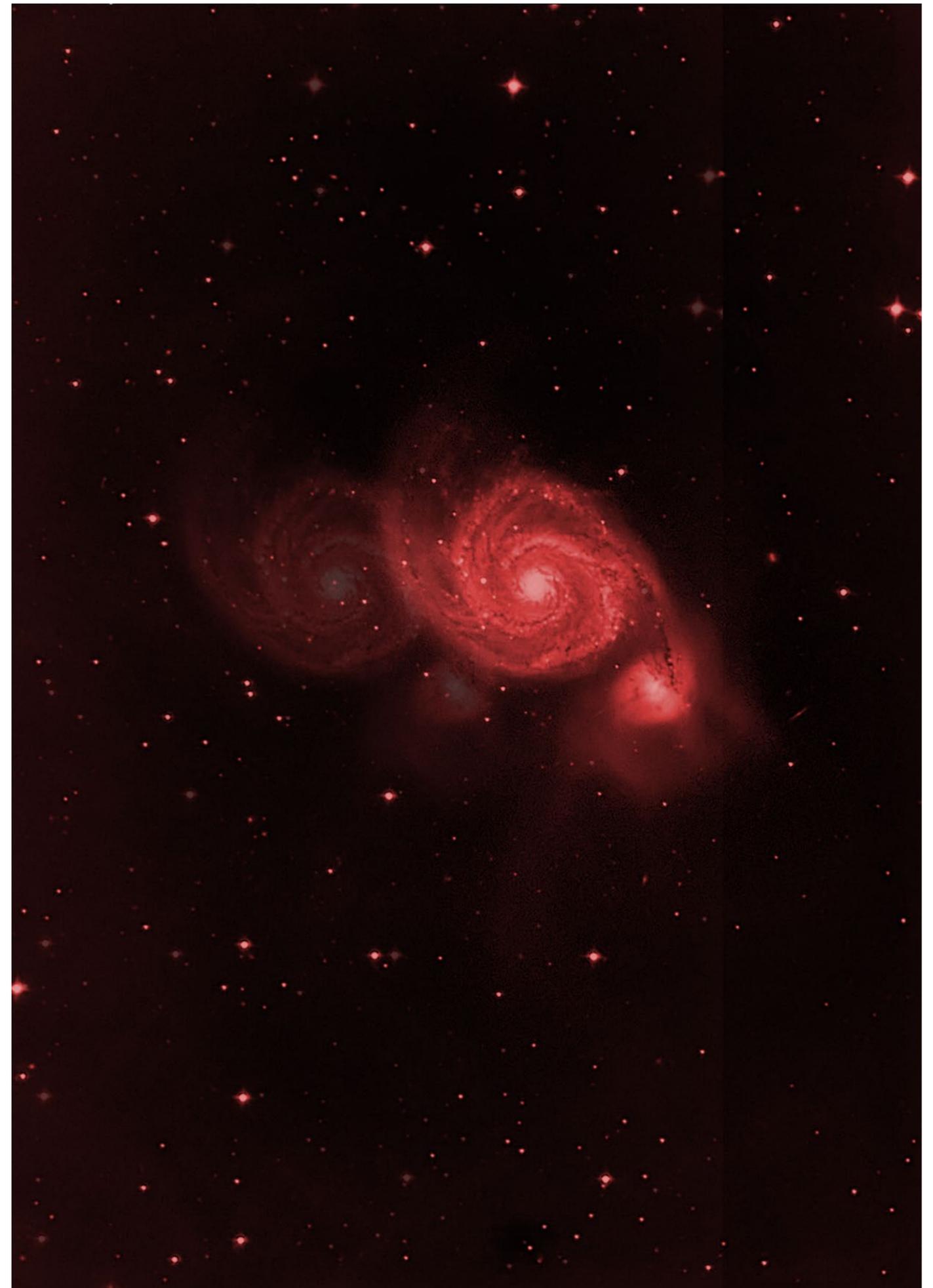
But, if very special creation-conditions were involved in the production of such an Arp Entity, which dramatically affect the contained Universal Substrate within it, that would also affect the insides of atoms, whatever phase they were in, and hence deliver the effects we are trying to explain.

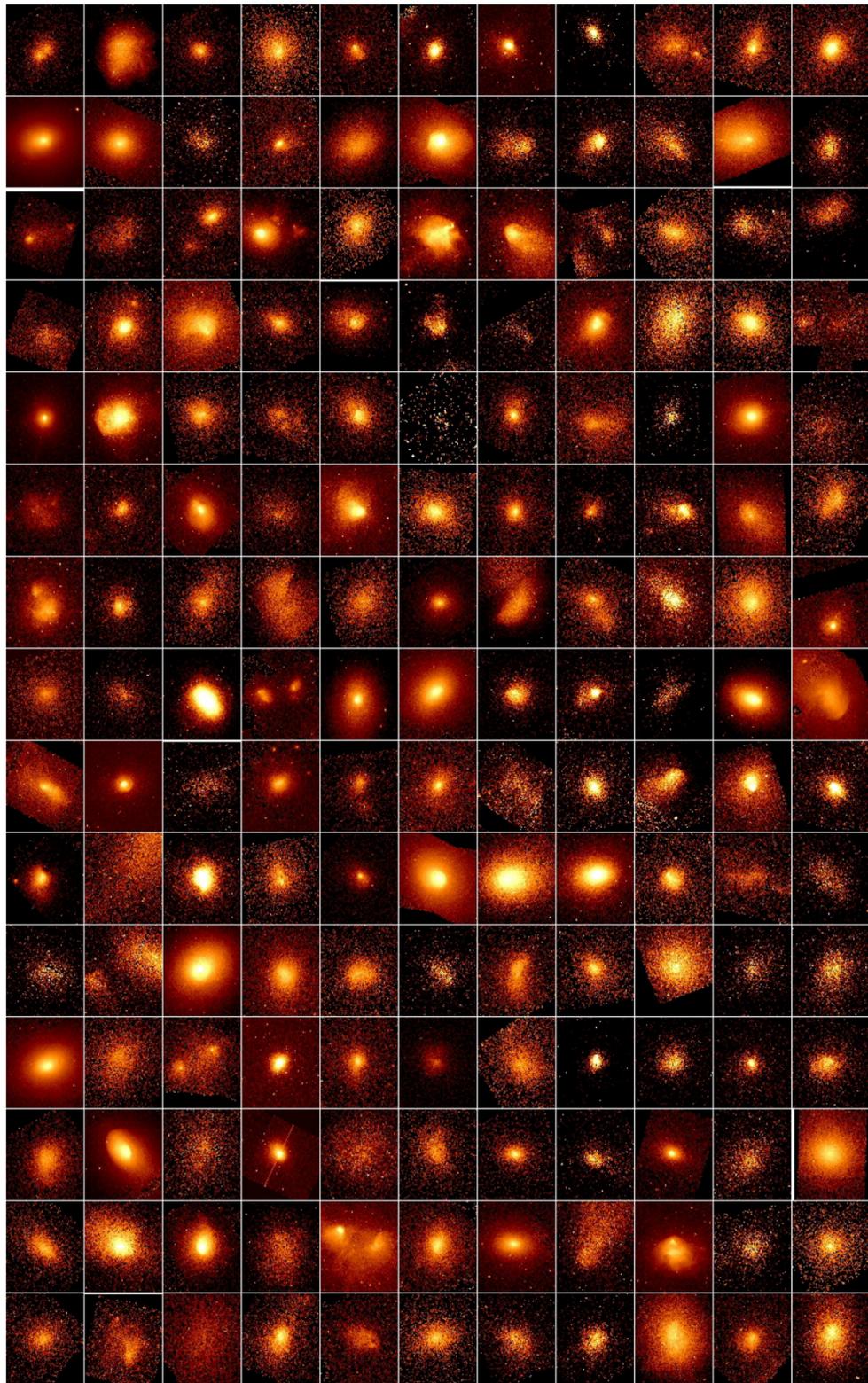
ASIDE: It cannot be pure chance that allows so many inexplicable phenomena to be so easily explained via the supposition of a Universal Substrate!

It could well be that normal phases are not extreme enough to make significant changes to the substrate. What must be involved will be conditions well beyond the usual ones - indeed some sort of Galactic Emergence!

It could be when stable concentrations of the Substrate are well outside the normal – where, for example Matter is very highly concentrated, as in a Black Hole, or, alternatively, very sparsely concentrated, as at, or "beyond", the Edge of the Universe! This being the case, we can assume that, within such an entity, the nature of the Substrate inside it can be significantly changed, so that the natural quantised orbits will occur at different radii, with different energy levels, due to the changes in the nature of the Substrate and its vortices associated with such orbits.

If we also go the opposite extreme and consider the effects around the Edges of such a Paved Universe, then, once more, the electron orbits within the atom will be changed but in the opposite direction, due to the sparse nature of the Substrate.





Now, if these extreme cases are to throw light upon such things as the redshift we will have to consider very carefully, what will be changed.

Obviously, when general radiation is so “red-shifted” (as seems to be the case for distant sources), we must adjust our measurements, to include the fact that we will always be looking into the past, at times long ago, as well as into the far distance.

It seems that, in this pretty well universal case, we may well be talking about the possible evolution of the Universal Substrate. It is unlikely to have always been there, exactly as we conceive of it now!

It must have changed over time, as did everything else, and therefore could not have been completely unaffected by the developments with which it had to be connected. Remember, because looking into the distance in Space also means looking into the past, we already have evidence for the developments of Stars and even Galaxies.

For example, if some kind of Big Bang did happen, how does the establishment of the Universal Substrate fit into that vastly-changing scenario? And, even if some form of the Substrate *preceded* that Big Bang, it would unavoidably be successively modified both by that calamitous Event and its following consequences, with effects sweeping outwards from that “Point of Origin”.

In addition, we have to consider a natural “Temperature” of the Substrate over time.

The Substrate could always have contained a measure of Energy, either in the internal orbits of its component units, or in “whole unit” spins or oscillations or translational travel too! Hence the propagation of other energy would be promoting the internal orbits to levels above those necessary for their establishment, and to a general energy state of a whole region – its “Temperature”!

This being the case, we have to consider how propagation would be affected.

Remember, we have assumed that the propagation via the Substrate does not alter the nature of the so-called radiation: whatever it is, it will be propagated totally unchanged!

But first, how does our unit of Substrate manage that, and secondly, how may this be changed by circumstances?

NOTE: If the theories (of this researcher) concerning the role of the Universal Substrate, within an atom, and concerning quantized electrical orbits, are correct, the vortices caused within that substrate, by the orbiting of an electron, will be changed, if the Substrate differs from the classical form during extreme circumstances.

Clearly, if, for example, the density of the Substrate units were significantly changed (for some external reasons), the necessary matching of the orbit with the rotations of its caused vortices to, thereafter, cause quantized orbits would also change, and the orbits will be at different radii (and different energy levels) though still close to what they were in normal circumstances. We must determine how the behaviour of the vortices will be affected in a more densely packed Substrate within the atom.

Now, if this caused the transitions between energy levels to be slightly lower, the energy of the released radiation would be less, and the frequency would undergo a Red Shift – one that is intrinsic to the “atom plus Substrate system” in those conditions. Also, a crucial factor (perhaps within, or very close to, a Black Hole) could involve a truly massive matter density, which might well distort the relationship between the orbiting electrons and the Substrate.

The more pressing problem is to explain redshift that is merely from distant and past objects, but is internal rather than due to Doppler Shift. How could the radiation be altered either in initial production within the atom, or in transit while being propagated by units of the substrate?

NOTICE: the very different demands upon Theory, between fitting purely formal (or even statistical) patterns to measured data, and the alternative of explaining that data via physical reasons in some form of concrete analogistic model. The former method is purely formal, includes no content or context information: it is merely a quantitative form-fitting to ideal mathematical forms, whereas the latter **MUST** involve both content and context and explain phenomena in terms of substances and their properties in particular defining conditions.

## Directed

## Meta-level

## Gravity?

### The construction of a directed gravitational field within the Universal Substrate

Clearly if we drop, as nonsense, the frankly-magical varying-active-and-directed gravitational field “as-actually-happening-in-totally-nothing”, which is somehow subtended across vast volumes of completely Empty Space, we not only have-to-consider the presence of a Universal Substrate, as its necessary means of a propagation, but also such a field’s own self-erection within and by such a Substrate, and delivered solely by the Substrate’s own special Units, as both responding-and-active parts of that only possible intermediary.

For then, it is also clear that such a field is merely only initiated, rather than caused, by the presence and properties of both-of-the-Masses involved. For they are certainly not intrinsically altered in any way by the fields they apparently subtend.

So that, instead, we must have a self-built Substrate Field, actively constructed by the implicit properties of that Substrate, but located outwards from each initiating Mass, by each-and-every Substrate Unit that is involved, in both encountering and reacting-to the initiator, and equipping-itself both with an energy deposit, plus providing a crucial directional-indicator pointing back directly towards that initiator, and outwards too.

How else could that field cause movements of the right size and direction to any affected bodies?

We can only assume that particular gravity-field-versions of the Universal Substrate set of Units, or Gravitons, were, in the prior absence of any massive initiator, both just randomly-moving-about (like a gas), and, because of this, also cancelling-out any of their resident properties, so as to be totally-undetected.

NOTE 1: This could be similar to Borchardt’s theory of Gravity, though his was entirely a repelling effect of a series of sizes of randomly moving entities. The attractive results being due to shadowing by larger masses of the usually equal-on-all-sides collisions of smaller particles.

NOTE 2: the parallel problem of Electromagnetic Fields has also been solved in a very similar way, by involving two exact mirror image units in equal quantities, the Magnetons, which also required detectable properties in order to actively function as they certainly must, but also needed to be undetectable when inactive. Clearly, a similar solution will be necessary for Gravitons also.

But then, with the arrival of a massive object, into such a Substrate, it would seemingly effectively “capture” those previously randomly-moving Units into a series of static concentric shells surrounding that material object, with all their directional features pointing exclusively towards (and directly-away from it, in a dipole manner), and filled with enough energy (dredged from elsewhere in the substrate) to be available, in an inverse-square-law manner, to both balance the initiating Mass, and also deliver a gravitational impulse, when encountering a another material intruder coming into its aegis.

NOTE 3: the directional element within each Unit must be “dipolar” in a different way to the similar directional elements in electromagnetic Substrate Units (the magnetons). For, it does not have dissimilar opposite directions - such as the magneton’s North & South, but here presenting the same attractive effect in both directions.

The reason for this is that the aligning of gravitational substrate units around the initiator, will on the one hand to balance the gravitational mass of the initiator, but also



to transmit that same effect outwards via the dipoles of the units of the field.

Such “gravitational field Units” of the Substrate could, at this stage, only be influenced by the size of the initiating Mass, as no other interacting Mass is yet on the scene, as currently that aspect of any possible future interaction is yet to be addressed. Clearly, nothing will then happen, until another material entity’s own gravitational field, building-outwards-from-it, as initiator, encounters the prior gravitational field of the first-considered Mass.

When the two material objects are still very far apart, a reasonable “simplification” might be to consider the fields as wholly independent of one another - established around each, but not yet acting upon anything else.

But, the situation which must be addressed, is when that is no longer the case, and two such bodies, both depending upon their own individual total Masses, will apparently begin to mutually affect each other. The major question must be, “Will both initiators then produce joint field units, combining effects from both Masses, or will the fields continue to exist, separate-but-interleaved with one another?” The problem is, of course, the necessity of attracting gravitational impulses being communicated to each of the bodies involved.

Once again, the reasonable initial simplification must be to assume the latter, because of the implications of the former, for the then clearly much more complicated Gravitational field Substrate Units will be too much to deal with just yet!

Now, with these assumptions, each Mass is affected by the other in proportion to that other Mass’s size, and, via the involved, connecting line of field units, is forcibly-directed towards that other - all the time suffering changing effects as the distances between decline. It is concerning the amount of this movement, where each body’s own mass also becomes involved.

NOTICE, how the Equations, derived for these processes, hide the actual contributions-and-dynamics, as well as their reasons, in a purely quantitative, simplified and idealised pure mathematical form!

In contrast, what is being attempted here is primarily a Physical Understanding and Explanation!

Indeed, as elsewhere in explaining physically the quantized orbits of electrons within atoms, which were achieved when the energy transfers in both directions between electron and substrate vortices finally balanced, to deliver a stable, quantized orbit, we are likely to be dealing with something similar here, when arriving at stable orbits gravitationally too!

Also, it is important that because of any prior in-process movements of the two bodies, they may well only be merely re-directed by this gravitational interaction, and will, having passed one another, carry on upon new paths, taking their separate fields with them!

Apart from possible collisions and even merging, the only other possibility, will undoubtedly be the capture of one body by the other, resulting in an orbit of the lesser around the greater, and, a complex interaction of the two fields in some stable (quantized?) situation.

These fields may well, in fact, actually merge, but be then transformed into a two-ways-facing joint-field-unit, transmitting attractive influences back to both masses and causing them to move towards one another.

But, is much-too-soon to address such complexities: we will stay with our simplification as long as it suffices in delivering increased understanding of what is going on. The two “interleaved” fields will change in contained energy to always reflect their varying, current distances apart. Only when these changes are instituted will any consequent field actions occur.

Then, both the masses involved will use the gathered-in energy in its adjacent field units to be pulled towards the other! The changes in both fields will, themselves be modified by the changing positions of the initiating Masses, so propagations of field energies will be changing due to two simultaneous effects:-

1. the using up of field energy to move the affected Masses
2. the moving-in of energy from elsewhere in the Substrate to replenish depleted Units back to the appropriate, currently-required levels

NOTE: In the actual, here-unaddressed situation of merged fields, there would also be a third constant adjustment to even the un-used field energies, to reflect

the changing distances away of the initiating Masses.

Of course, such descriptions do not say either “how” or “why” these things happen, for instead of simple “cause-and-result” situation, we have, instead, each seen as both cause-and-result of each other, while the whole thing is actually entirely due to an affected-and-effecting Substrate, actually delivering everything involved.

We can, and indeed do, simplify, by usually taking a relative-to-one-mass standpoint (as most of our experiences are of vastly-differently-sized entities), but the real situation is usually more complicated than that.

The problem, as it was with Electromagnetic Fields, also within the same Universal substrate, is surely Movement. For, it was the Movement of charged, orbiting particles that activated Magnetic Dipole Effects, and, in so doing, also delivered the necessary capabilities of built-in Direction.

So, it looks highly likely that such Movements could also be responsible for similar effects in Gravity: indeed something like a dipole-direction-effect, related to ordinary Gravity - in the same way that Magnetism is related to moving electrical charge effects.

Just as electrons, when moving, also deliver a Magnetic effect, and when in orbits define an orbital plane with a directed magnetic effect perpendicular to that plane, so, it is here postulated that when the smaller sub-units of a graviton move in an orbit, they too deliver a Meta-Gravity Effect, when in orbits, also defining an orbital plane, with the directed Meta-Gravity Effect perpendicular to that, in the same way!

NOTE: the actual structure of the Graviton is as yet undefined, but by analogy with the Magneton it is assumed that the sub units involved will be of significantly different sizes. So, apart from this unit, held together as a mutually-orbiting pair, we cannot avoid the inference that there will be even smaller joint units - for example, the direct equivalent of the Neutron, but with uncharged sub-units of equal size!

mass→	2.4 MeV	1.27 GeV	171.2 GeV	0
charge→	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	0
spin→	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	1
name→	<b>u</b> up	<b>c</b> charm	<b>t</b> top	<b>γ</b> photon
Quarks	4.8 MeV $-\frac{1}{3}$ $\frac{1}{2}$ <b>d</b> down	104 MeV $-\frac{1}{3}$ $\frac{1}{2}$ <b>s</b> strange	4.2 GeV $-\frac{1}{3}$ $\frac{1}{2}$ <b>b</b> bottom	0 0 1 <b>g</b> gluon
	<2.2 eV 0 $\frac{1}{2}$ <b>ν<sub>e</sub></b> electron neutrino	<0.17 MeV 0 $\frac{1}{2}$ <b>ν<sub>μ</sub></b> muon neutrino	<15.5 MeV 0 $\frac{1}{2}$ <b>ν<sub>τ</sub></b> tau neutrino	91.2 GeV 0 1 <b>Z<sup>0</sup></b> weak force
	0.511 MeV -1 $\frac{1}{2}$ <b>e</b> electron	105.7 MeV -1 $\frac{1}{2}$ <b>μ</b> muon	1.777 GeV -1 $\frac{1}{2}$ <b>τ</b> tau	80.4 GeV $\pm 1$ 1 <b>W<sup>±</sup></b> weak force
Leptons				Bosons (Forces)

TABLE OF SUBSTRATES

	Level	Likely Units	Size
Substrate A:	Bottommost	Electron Neutrino	3 eV
Substrate B:	Propagatons	Neutrinos	1 MeV
Substrate C:	Gravity	Larger Neutrinos	18 MeV
Substrate D:	Electromagnetic	Magnetons	1882 MeV

## Abstracting the Unknown

### A constructivist alternative

Important note: This paper from 2014 has received several much later insertions (August 2017 & May 2018), which certainly seem to come from nowhere. But, I decided that they had to be here, as they confirm many of the assumptions made in 2014. But though much of this is now well out of date in its details, it nevertheless shows from where we came to ultimately arrive at today's Theory!

Now, the considerations of this theorist (Jim Schofield) do, to some extent, mirror those of the Copenhagenists in both historical and present day Sub Atomic Physics, but with vital, and, indeed, fundamental, differences. In the current, universally-accepted model of Elementary Particles, particularly with respect to its many unresolved anomalies, it appears that they could NOT be explained by merely manipulating only Protons, Neutrons and Electrons, along with disembodied Photons of electromagnetic energy, as was the initial simplified position of the early theorists.

So, faced with this, they turned to the "always dependable and productive" weapons, usually termed The Accelerators (or more properly – The Colliders), to attempt to smash these "fundamental particles" into smaller "components", and this, very quickly, caused the appearance of many new, and as yet unknown, entities in relative abundance. This sophisticated method of "Smashing to Smithereens", was, to say the least, unusual, but, always, reliably produced various sets of "even more fundamental" fragments, so it naturally became the standard experimental technique, and produced an extensive set in diverse situations.

But, as you might have guessed, they were almost entirely consisting of tiny entities, with only minute life spans, before they turned into, or became part of, something else. [So, very clearly indeed, the term "fragments" is a far superior designation, than calling them "Elementary Particles"] And, to make any sort of sense of these, they had to be given un-describable, yet quantifiable, properties such as "charm" and "Quantum Spin" (as well as many others).

This quickly turned into a separate(?) Science of Fundamental Particle Debris! For, all of these were characterised by their transient and even partial natures – for they seemed to come in pairs, which appeared to be opposite, contributing pieces of what they had been produced from. Indeed, a fruitful diversion seemed to be to consider neutral combinations as possible precursors, and here are some candidate pairs and their possible sources:-

The Electron  $e^-$   
&  
The Positron  $e^+$   
=  
The Neutrino  $e^0$

The Neutriron (originally called the Positronium) which is neutral in every way, is also both tiny and literally undetectable, but, because of its structure as a mutually orbiting pair of sub-particles, it theoretically could both carry-internally and release-externally quanta of energy in a similar way to an atom.

Clearly on decanting such a load it would seem to come from nowhere!

Other possible examples are the magnetons:-

The Tau  $\tau$   
&  
The anti-Muon  $a\mu^+$   
=  
**The n-Magneton**  $m^n$

The anti-Tau  $a\tau^+$   
&  
The Muon  $\mu^-$   
=  
**The s-Magneton**  $m^s$

Now, these two are somewhat different as the composing sub-particles are of different sizes, so they are not neutral in every way, so, in addition, deliver opposite Magnetic Dipole Moments too. But, they are exact mirror images of one another, so, if moving randomly in equal numbers, as a gas, they too would be undetectable, unless alternatively-organised on the basis of their still-extant properties into different-and-revealing structures -such as Fields.

Finally, also conjured out of the same set are the potential Gravitons:-

The Electron Neutrino  $\nu_e^0$   
&  
Anti Electron Neutrino  $av_e^0$   
=  
**The o-Graviton**  $g_o$

The Tau Neutrino  $\nu_\tau^0$   
&  
Anti Muon Neutrino  $av_\mu^0$   
=  
**The a-Graviton**  $g_a$

Anti Tau Neutrino  $av_\tau^0$   
&  
The Muon Neutrino  $\nu_\mu^0$   
=  
**The b-Graviton**  $g_b$

These latter two also constitute mirror images of one another, so in a random-gas mode might also be undetectable.

Clearly, their various names and characterisations betray their origins, in a theoretical attempt to deliver a totally undetectable Universal Substrate, though here they also seem invert the usual Evolution of Matter Paradigm!

For, it has to be said, that analysis-by-smashing-to-pieces, should never be recommended as the only source for precursors!

Can you imagine trying to determine the nature of a flying machine from another World, or even an Earth-bound human being, by smashing them to bits, and looking at the transient results, before they vanish almost immediately? And, consequently, cannot display their relationships in a higher order entity, as they will most certainly no longer be present!

And, you would most certainly NOT choose to do that using incredibly high energies (as they certainly do). For, the results you inevitably get are very unlikely to be prior, stable components, and much more likely to be either short-lived fragments or even wholly new temporary creations, or even BOTH!

They seem to be the methods of the sub-human hominid, allied to the highest and most powerful technology, and indeed some form of "creative destruction", which, of course, bears absolutely zero relationship to the scientific study of the undoubted Development of Reality throughout its History, the contents of which are never the consequences of innumerable minor changes, but clearly, as with all known developments, involving significant Qualitative Changes via Emergent Interludes, which though they do involve major dissolutions, are also only completed by final creative phases of progressive construction delivering the entirely new, within a Stable New Level!

And studies, of these Interludes, bear absolutely no relation to the consequential reasoning of the detritus

investigators. For, their single major tool has no in-feeding, historical sequences, nor any consequential turmoil, which finally produce wholly New Stabilities. They really only deal in the detailed Classification of Debris!

So, getting back to those deliberations, it is inevitable that what is noticed is almost entirely formal, and hence relatable via concepts like Symmetry. Indeed, as the debris piled up, this became a Principle of the fundamental nature of these many fragments of Matter!

Let us contrast these to the suggestions of this theorist (Schofield). For clearly, he too was investigating the structure of identifiable and known particles, but from an entirely different standpoint. Instead of a destructive methodology, he assumed a constructive alternative, by purposely turning, primarily, to address the unknown-and-currently-undetectable possible contents of Empty Space, in order to physically explain the Propagation of Electromagnetic Energy composed of two oscillating vectors - one electrical, and the other magnetic, somehow traversing a seemingly totally empty void. He, quite simply, didn't believe it. He could, though, see why they did it!

With their long-established, pluralist-seeking for eternal Natural Laws, via formal manipulations of data, taken from purposely-farmed contexts, they were well-versed, if blinkeredly so, in seeking formal patterns and relationships.

So, in contrast, his task became one of discovering what evidently must be filling that void. His only assumptions, were what was known, along with the clear undetectability, of what was delivering all those things. It all seemed to boil down to an attempt to construct a stable, but invisible and undetectable Particle, that had the necessary properties, due to its composition, from already known and stable sub particles. He considered that he clearly needed a resultant joint particle that would have a net zero charge, zero magnetic effects and even a "cancelling" of its content of different kinds of matter itself.

So, he conceived of a mutually orbiting pair of two known and stable particles – one of matter, with one of a negative unit charge, and the other of of exactly the same size, but consisting of antimatter, with a positive charge. And, if such could be achieved, it would also have NO

magnetic effects either, as these too would be cancelled out. But, such a union had long been dismissed by the evidence from accelerators that these would mutually annihilate one another on coming together, and produce totally disembodied Pure Energy.

The particle-smashers were adamant. "We've seen it!" was their attitude. But, such an imperative, did not say why they couldn't be kept apart by taking their relative velocities into the creation of a mutually-orbiting state. Nor, did they explain where in so-called Pair Production, an electron and a positron could be so easily produced out of what they assumed to be Pure Energy!

Now, if, as assumed by this researcher, such a mutually-orbiting union could be formed, the resulting particle would have exactly the properties required to be undetectable in Empty Space.

And, most determining of all evidence, in this discussion, was the fact that this precise joint particle had already been observed in the Tevatron at Fermilab, and even been named by the discoverers as the positronium. Yet, though it certainly immediately dissociated as soon as it was discovered, that was in a very high speed Accelerator, and even the suggested particle by this theorist would have dissociated in such an environment. But, what about in "Empty Space"? It was considered likely to be stable there, and in that state was re-named a Neutriron. The die was cast!

This researcher was committed to investigating (initially entirely theoretically) the exact opposite World to that of the atom smashers. He would investigate the stable, yet invisible, World of Empty Space, and assuming his intrinsically neutral and undetectable particles, would attempt to explain the intriguing, but certainly real, properties of the "seeming void"!

He started by considering how such particles, which he had renamed as the stable Neutrions, could indeed propagate electromagnetic energy across such a space

Now, he had chosen (devised?) particles involving internal orbits, because apart from conferring undetectability, they could also hold energy via the promotion of these orbits, and they would accomplish this in quanta. But, how would they actually propagate such quanta at the Speed of Light? Now, as these entities definitely included matter within their structures, they could most certainly

NOT do it by moving, for they could not move at the Speed of Light.

But, they could do it, by staying relatively still, and passing on their quanta, bucket-brigade fashion, from unit to unit in a stationary-universal-paving or substrate. The, the vast speed of light would then merely be the speed of transfer of one quantum between adjacent units of the paving.

So, having got the bare bones of a theory, it then had to be used to solve anomalous situations delivered by the Copenhagen Interpretation of Quantum Theory, and by far the most obvious were the discoveries in the famed Double Slit Experiments, starting with the case of using moving electrons.

The current consensus standpoint of Wave/Particle Duality, which was used to explain(?) these experiments, was truly amazing! For it demolished the concepts of Waves and Particles as quite different things, and, instead, had entities, which could switch between these as if they were alternative states of the same thing. But, in “explaining” the observed anomalies, this stance abandoned materialism for a version of idealism, and effectively abandoned physical explanation in favour of formal equations, as the driving essences of Truth.

Yet, the new concepts involving a universal substrate of neutritrons torpedoed all that! All the anomalies were fully explained without any recourse to Copenhagen whatsoever. The initial ideas certainly seemed to have legs!

Now, this theorist has had a long history of seriously studying Emergences – those interludes occurring with all kinds of internally-generated developments, wherein a past, seemingly-eternal stability finally, and inexplicably, comes to grief.

What was evident in cases, across the whole spectrum of possibilities, was that any such Qualitative Transformation would never be incrementally achieved or explained. To make any sort of real explanatory progress, the current self-maintaining stability would have to be completely dissociated, and, indeed, via a mounting series of crises, the stability would finally collapse. Yet, the amazing thing that was revealed in these studies, was that only then in what seemed to be a resulting and irredeemable Chaos, a new phase emerged, in which all the Qualitative

changes happened, and then surprisingly self-terminated in a wholly new, and higher, Stability.

Such researches revealed that the poetic “Phoenix arising from the Flames” was, in fact, true, and was not magic, but a concrete Emergent Event, which occur throughout all developments, and at all levels! Now, somehow, our strictly-pluralist physicists did not, could not, and indeed will not, study such Events. They accept dissolution, but only as a means of exposing hidden components - conceiving of only incremental, pluralist changes. So, they were incapable of ever explaining the Emergence of the wholly NEW.

Their whole approach and methods were strictly analytic. They were never transformative. Absolutely everything was just multiple different summations of the very same eternal Natural Laws! But, the outstanding difficulty – Action at a Distance, was not so easy!

Try as he might, this theorist could not explain either Electrostatic or Magnetic fields, in terms of a purely Neutritron paving: it just wasn't possible! So, in the same constructivist vein, he attempted to devise, once again theoretically, other possible joint-particles, that would also inhabit so-called Empty Space, that could actually deliver these things, while, in themselves, being undetectable in all the usual ways.

Once again, these particles too had to be undetectable, but, and this was a major difficulty; for the particles would have to possess non-internally-cancelled magnetic properties, while somehow remaining undetectable! For, if this possession of magnetic properties were the case, they would surely be easily detected.

So, once more, he had to construct a contradictory environment – effectively undetectable, yet possessing these crucial, clearly-evident properties of magnetism.

The solution was to have equal numbers of two diametrically opposite composite particles, which this time had to be able to move about, but would en-masse be neutral, in all the ways necessary in joint particles similar to the Neutritron, by being composed of different sub particles.

A new pair of composite particles, with equal and opposite magnetic effects would be required, which normally would be totally free-moving and deliver NO resultant

overall magnetic effects, BUT in special circumstances could both self-aggregate and self-orientate to produce Fields!

Once again the model of a pair of mutually-orbiting sub particles of opposite types of both matter and charge would be involved, but this time of differently sized components. This would make the individual particles charge neutral (like the atom), but not magnetically neutral, nor matter neutral either. But, in a population composed of randomly moving and equal numbers of diametrically opposite particles, the overall effect would be neutral, except where actual Fields were subtended around their “seeming sources”.

Now, the objective of devising these particles, theoretically, was to see if such could indeed subtend fields seemingly out of nothing!

And, with a great deal of investigation, the answer seemed to be, “Yes!”

For, though usually randomly mixed and moving constantly, so in normal conditions they would be undetectable, while in the presence of something like a charged particle, however, they would contrastingly organise-themselves surrounding the charged particle, in concentric, motionless shells to deliver the required field. Simple geometry would make it an Inverse Square Law. And crucially, as it would have internal orbits, these could be promoted to provide the energy required for the field to actually move things in accordance with this law.

For, as with the explanations in the Double Slit explanations, the substrate could contain energy, throughout, as slight promotions of the Units' orbits, and it would be increased appropriately in the units, when part of of the Field, to enable them, so that this that could do the work. And, once used, it would then be immediately replenished from further afield in the Universal Substrate.

And this theory explained the fact that the supposed source of the Field – an electric charge, was never diminished by the work done in such a field. This can only be explained by this provision of energy by the field itself (and hence the Universal Substrate).

Now, this work is, as yet, incomplete, but so far, it has been incomparably better than the Copenhagen version, and successful in the following areas:-

1. The propagation of electromagnetic energy through Space.
2. Solving all the anomalies of the Double Slit Experiments
3. Solving how electrostatic fields can be subtending in Space.
4. Explaining where the energy comes from to cause forces to be applied by such fields and perform work.

And, all these are consistent with an entirely materialist, constructivist standpoint and method, and as an alternative to Collider-based smitherreens and the formal idealist rules of the usual Copenhagen stance.

Postscript: As most of this was written in 2014, it falls short of a comprehensive Theory, but such in 2017 is finally close to completion, as a comprehensive, though purely theoretical, model! Elsewhere, other developments mainly directed against the idealist Copenhagen Interpretation of Quantum Theory, have also developed markedly of late, and we are close to formulating a New Holist Theory of Physics!

Jim Schofield  
August 2017

Postscript 2: Current work on Gravity has also been solved in a similar way using Gravitons (May 2018).

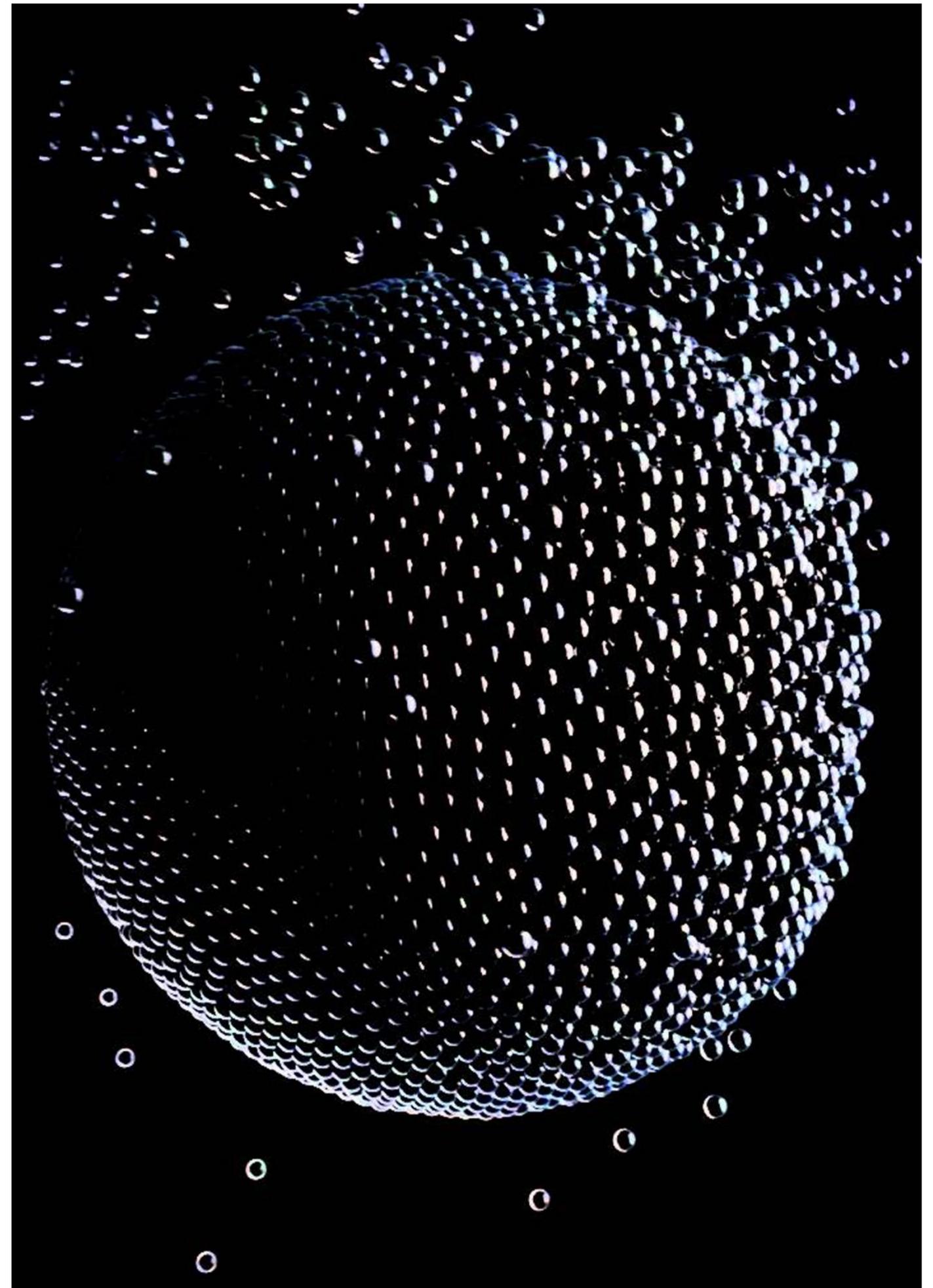
## The Graviton

The Bottommost Level?  
(How far down can we go  
in size and properties?)

I'm afraid this component of the Universal Substrate is as yet undefined, though we do have some idea of its properties, as was made clear by its similar Inverse Square Law to that delivered as an Electrostatic Field by Magnetons. For, to have such a similar effect, even formally, it just MUST surround the initiating Unit of Mass, with concentric shells, with all the Graviton Units involved have their effect pointing directly inwards, by having a directional component analogous to that of the Magnetons, along with an outward pointing element, to build further shells. And finally also being able to hold disposable energy within a promotable internal orbit - to fuel the actions of the field and in the right direction. So, for that function their must be something analogous to the directional Magnetic Dipole Moment of the Magnetons.

We will see what we can find! The forces involved are so tiny it might be impossible to detect them. So how can we prove they are there?

Postscript: As mentioned earlier, a possibility is currently being investigated involving Neutrinos, which will only be viable if a meta-force analogous to the magnetic-meta-force generated within Magnetons is possible, within a Graviton Unit composed of Tau and Muon Neutrinos!





# The Gravitational Units of the Universal Substrate

For several years now, in spite of significant progress in this area, with regard to the mutually-orbiting nature of the Neutriron Substrate Units, and thereby supplying a truly-propagational Medium of a new sort, which was then followed by the Magnetons (also joint-particles), but this time delivering both the full set of Electrical and Magnetic Fields and their Effects - Substrate Theory still had a crucial gap. The outstanding problem was the seemingly unsolvable difficulty of defining a Unit to deliver Gravity.

The basic Principle normally used, in all of the usual achievements at this level, was that of maintaining a reductionist-and-pluralist stance, in order to seek answers within the bottommost fragments of Matter. For, it was surely there, like all prior bottommost entities have been found, where any and all of the possible components of a Universal Substrate, would as usual be revealed, by Accelerators and Colliders like the LHC!

But that wasn't possible at all, and, instead, an alternative had to, somehow, be via a constructivist-and-holist approach. And, in addition, via instead seeking *combined*-entities, with just the appropriate properties required to deliver what was evidently happening in supposedly Empty Space.

The approach that had been so fruitful with Neutrions and Magnetons was obviously the place to start, but I should have known it wouldn't be straightforward!

For, the first discovery, The Neutriron, not only delivered an undetectable joint-particle that could both hold-and-pass-on energy, via the promotion and demotion of its internal orbit, but, for it to deliver anything else, it had to behave in various very-different ways, to enable it to produce not only a close-but-loosely-linked Paving - to

allow a bucket-brigade version of the propagation of quanta of Energy: but also, at the same time, be very-easily dissociated into free-moving individual Units, which could be driven by moving material interlopers, both into Streams, and even Vortices, yet, very-swiftly, reform into a Paving, when the causing disturbances had departed.

Clearly, to get such a variety of properties would be impossible by the prior methodology and delivered components. This Constructivist Approach was no simple panacea, but, on the contrary, it turned out to be the door to a rich, hidden and complicated World.

And, crucially, the Neutriron could never deliver energetically-endowed Fields! We had merely revealed one distinct Level within the Substrate, and other very-different, compound particles (that also were currently undetectable) would be necessary to deliver Fields, and the obvious place to start was clearly with the already highly-demanding Electrical/Magnetic area of Properties and Fields.

Now, though the mutually-orbiting tactic of constructing such entities, especially with opposite properties to be cancelled-out, was still appropriate, there was a series of major contradictions that had also to be overcome. For, undetectability along with Field effects and actions, seemed to constitute totally contradictory requirements - so they most certainly could never be delivered by a Single Unit!

The Key delivering feature had to be the same as in the Hydrogen atom - that is the production of a Magnetic Dipole Moment caused by a smaller charged-unit orbiting around a larger, oppositely-charged unit, and thus delivering that crucial Moment in a direction

perpendicular to the plane of that orbit. For though this enabled, in different ways, all the electrical and magnetic effects, it also made such a unit vert clearly detectable too!

So, to ensure undetectability, when no field was involved, there had to be TWO mirror-image Magnetons, present with equal numbers of each, that moved about randomly like a gas - and because of this being undetectable: but in the appropriate initiating conditions, localising into static positions when forming fields.

Now, both magnetons were remarkable in being able to form static fields by re-organising themselves into structures that delivered either electrical or magnetic fields depending upon what initiators were present.

If a charged particle was encountered by a randomly-moving magneton, it would attach itself adjacent to that initiator, with its Magnetic Moment directed towards that entity. And, it would rapidly be joined by many others to deliver a complete shell, and by a propagation of energy from elsewhere in the substrate, the effect of the shell would exactly balance the enclosed charge. But also, in addition, the outwards pointing sides of each Dipole, would then be encountered by further free-moving magnetons, to complete another, and, thereafter, a series of concentric shells, all replete with the appropriate gathered in energy to deliver a Full Electric Field! But, if the initiator was, instead, some kind of magnet, then the randomly moving magnetons would encounter something equivalent to an unaccompanied Dipole, and would attach onto that "head-to-tail" (north-to-south) as the first link in a whole series of added magnetons forming a Line-of-Force Chain, which would gather in appropriate energy propagated from elsewhere in the Substrate, and, thereafter, continue to grow, ultimately linking up with a line from the other end of the initiating Magnet to complete the Loop.

Now, all of the above was absolutely necessary, to actually prepare for addressing the next difficult problem - the possibility of Gravitational Fields via Substrate Units termed Gravitons: for these both require an understanding of Magnetons, AND, at the same time, require an awareness of the significant differences of Gravitons, to even begin to arrive at an explanation of how Gravitational Fields could be delivered. The similarities between an Electric Field and a Gravitational Field are indeed significant!

For, they are both "inverse Square Relations" and directional, in the forces they deliver, so it will be highly likely that they will either share-identical or possess-similarly-delivered features. But, at the same time, though Magnetons have Magnetic Dipole Moments with both attractive and repulsive properties, Gravitons, seemingly, require only attractive features. And, that presents a major problem, for it is the Magnetic Dipole Moment - generated perpendicular to the plane of the lesser sub-particle's orbit, that delivers a specific Direction.

But then how does the Graviton deliver a Direction? For, no charges are involved in the Graviton, so how can a Dipole Moment be generated and a direction be delivered? Clearly, the detailed nature of a Graviton must be addressed in a similar way to how we defined the other Substrate Units. But, the various Leptons, in mutually-orbiting pairs, including the Electron, the Positron and various Taus and Muons are not appropriate for making Gravitons, so, all that seem to remain, are the entirely-neutral Neutrinos!

So, finally, also theoretically conjured out of the same set, are the theoretically-possible, and similarly-constructed Gravitons:-

The Electron Neutrino	$\nu_e^0$
&	
Anti Electron Neutrino	$\bar{\nu}_e^0$
=	
<b>The o-Graviton</b>	$\mathbf{g}_o$
The Tau Neutrino	$\nu_\tau^0$
&	
Anti Muon Neutrino	$\bar{\nu}_\mu^0$
=	
<b>The a-Graviton</b>	$\mathbf{g}_a$
Anti Tau Neutrino	$\bar{\nu}_\tau^0$
&	
The Muon Neutrino	$\nu_\mu^0$
=	
<b>The b-Graviton</b>	$\mathbf{g}_b$

[ASIDE: The o-Graviton should be seen as a much tinier version of the Neutrino, as it could do similar things upon an immensely smaller scale.]

Now, the latter two Gravitons (described above) are the only ones likely to be able to deliver some sort of Dipole, as they are composed of very differently-sized partners in their mutually-orbiting pairs, so the smaller would effectively orbit around the larger.

Now, this is unashamedly a purely theoretical investigation, so, I have no qualms about assuming a Gravitational Dipole Moment (of sorts) acting perpendicular to the plane of that orbit, and delivering, thereby, a directionally-and-energetically-equipped unit, out of which concentric shells around a neutral matter initiator, could deliver a Gravitational Field, in a similar structural way to that provided by Magnetons, in delivering an Electric Field around a charged particle. But such a field will be almost vanishingly minute!

Indeed, the factors diminishing it as compared with electrical and magnetic effects are enormous; and, it would certainly be drowned-out by the other much larger forces in any mixture of all such effects. Indeed, apart from the obvious, everyday examples, the phenomena apparently emanating from Black Holes, at the centres of Mature Galaxies seem to confound all our usual explanations.

So, with this miniaturised Gravitational Dipole Moment, we seem to have a directional feature, to orient the required Field, and because of the included orbit, the same sort of means of both gathering-and-delivering field-forces entirely within the Universal Substrate will be available too.

And, finally, at this point, I must not only defend, but also extol the virtues of this kind of theorising. It never ever pretends to be the Absolute Truth of the given area of study, because such is totally impossible anyway! It follows James Clerk Maxwell's approach of marshalling known features, and assuming others of commonly occurring natures, to attempt to explain phenomena, as best as possible at that current moment, with the validating Principle of providing the maximum Objective Content achievable, while being very well aware that something better would inevitably replace it in the future.

And, crucially, with a firm conviction that such an Explanation is always incomparably more important than any Form-Only Description, in the form of an *idealised* Equation.

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