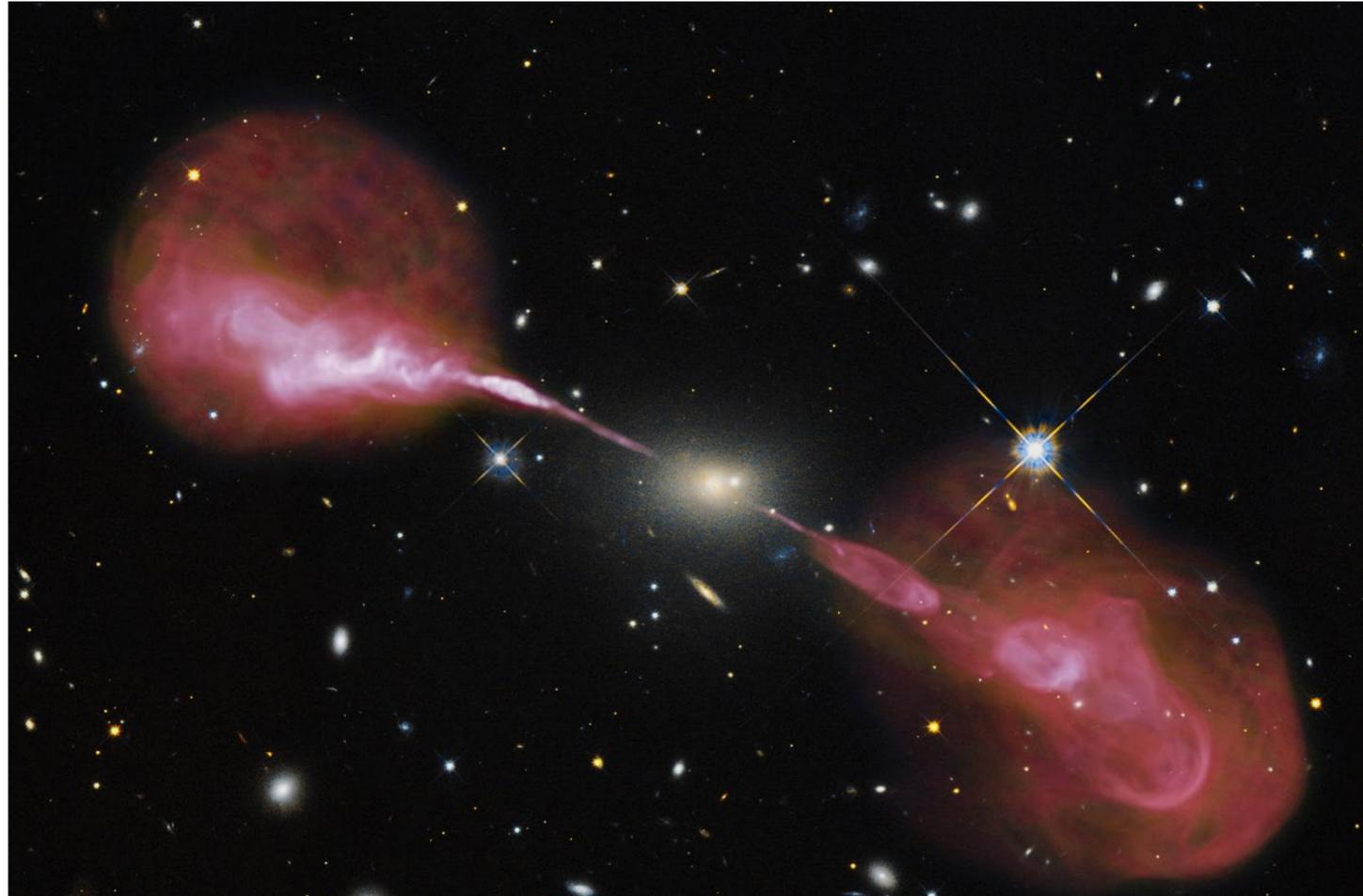


SPECIAL ISSUE 61 OCT 18 JIM SCHOFIELD

SHAPE JOURNAL

QUESTIONING REDSHIFT

THE EVOLUTION OF THE COSMOS AND THE UNIVERSAL SUBSTRATE / A MUSE UPON HALTON ARP'S
INTRINSIC REDSHIFT / A MUSE UPON SUBSTRATE EFFECTS ON REDSHIFTS



Questioning Redshift

Special Issue 61 / October 2018

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The Evolution of the Cosmos and the Universal Substrate

Part I: The Significance of the Redshift

The problem of cosmological redshift could be linked to the evolution of the cosmos as a whole, as well as that of individual new galaxies, and, most particularly, with the latter. For, the evidence of redshift associated with these distant entities gathered by astronomer Halton Arp, cannot be explained in the usual way, because these are also intrinsically associated with “more-recently-created” dwarf Galaxies or Quasars. With various series of these, and each set presumably coming directly from a single source, Arp surprisingly found that their amounts of redshift appeared to be quantised!

Now, it could not be said that he purposely selected-out a subset of such entities from a diverse, non-conforming collection - Universe-wide, just to support his invented thesis, because they don't do that at all! But, such evidence, also, does not gel with the usual consensus explanations of redshift either.

But they might gel very well indeed with the alternative explanation of Quantization developed by this theorist (the author of this paper, Jim Schofield), dependant upon the assumed presence of a Universal Substrate, and its consequent evolution, as an intrinsic part of the Evolution of the Universe as a whole.

Now, all such theories are indeed speculative, and with justice, are disregarded as such, for we cannot observe or study that totally-hidden event: but Halton Arp's idea of the regular-and-continuing birth of new Dwarf Galaxies out of the hearts of Large Mature Galaxies, if true, enables us to observe many examples, and, at various different stages in their development, so these examples could provide valuable evidence about the evolution of the cosmos, unavailable anywhere else.

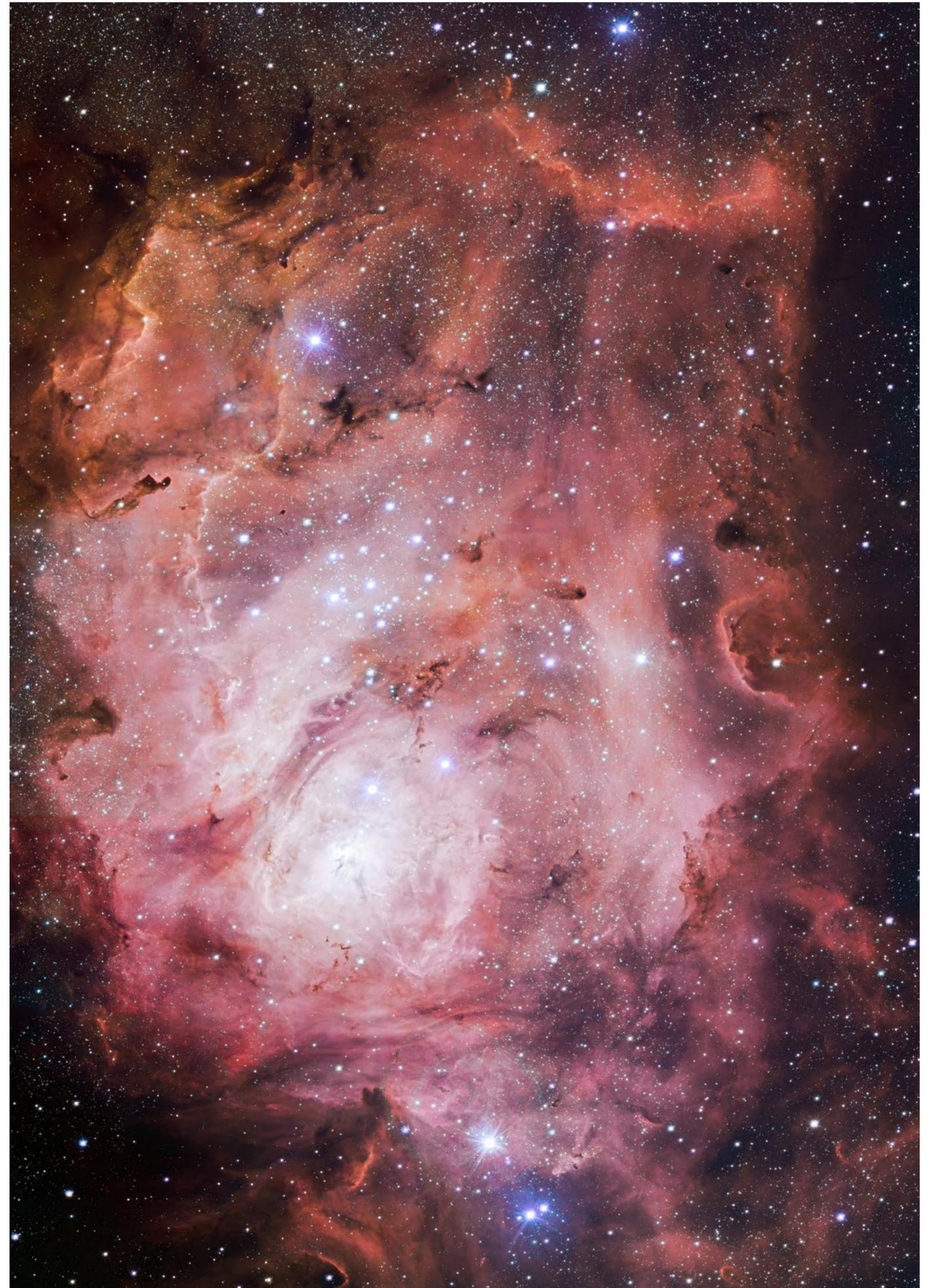
Now, to condemn absolutely all such speculative attempts, out of hand, effectively ignores what we have been able to deduce from what exists now, which has been seriously and fruitfully studied. For, we do now have an increasingly sophisticated idea of the nature of our World, and can sometimes indulge, very effectively, in well-informed speculation - indeed, we often have no alternative! And, such have, on occasion, delivered, if not the Absolute Truth, then sufficient Objective Content to be both useful and even explanatory to a significant degree.

So, clearly, having already successfully employed such a method in physically explaining all the anomalies of the ill-famed Double Slit Experiments, this theorist feels justified in addressing cosmological issues in the same way!

A Justification:

The seemingly intractable problem is always the presence, or not, of a Universal Substrate, for since the Michelson-Morley Experiments the presence of such a Substrate has been dropped completely. And, in spite of there being absolutely no explanation of the Propagation of Electromagnetic Radiation, the subtending of Fields, and even Action-at--Distance, entirely within Totally Empty Space, this stance has become an unassailable premise of Modern Physics.

Even the far-fetched concept of Wave/Particle Duality has been preferred to the alternative of a Particle interacting with an actually-existing, yet currently invisible Substrate.



I am beginning to put this intransigence down to the twin flawed premises of Reductionism and Plurality, within the long-established philosophical foundations of Science. For, these have inexorably led to the exclusive seeking of both ultimate Elementary Particles and eternal Natural Laws, which alone are supposed to produce Absolutely Everything else.

Now, I have taken a different stance! I have decided to seek-out potentially undetectable Particles, totally devoid of easily detectable properties, and of which the Elementary Particles are stable fragments. In a purely theoretical investigation, I considered mutually-orbiting-pairs of what seem to be mirror image Elementary Particles, and I found Three types, which I termed -

1. Neutrित्रons
2. Magnetons
3. Gravitons

These seemed to deliver everything I required, in particular they could be Totally Undetectable when directly sought as such, but delivering all of the observed phenomena when interacting with material interlopers. This extensive work in Substrate Theory can only be mentioned here as the basis for the following Speculations!

The Key Idea, arising directly out of that research, just has to be the alternative, and entirely physical Explanation of Quantization in Atoms, for, it relates on the one hand to the frequencies of Electromagnetic Radiation, AND, crucially, on the other hand, also to the presence of an existing but directly undetectable Universal Substrate. In the first iteration of the definition of that Substrate, it was devised as composed solely of Neutrित्रons - neutral joint particles consisting of a mutually-orbiting pair of one negatively-charged Electron of ordinary matter, along with one positively-charged Positron of antimatter. And, the orbiting kept the components apart, and thus prevented any "expected mutual annihilation". These joint particles would be both tiny, lightweight and without any overall charge or magnetism: and would, therefore, be undetectable, as such. But, nevertheless, it could hold energy internally, just like the Atom, by the promotion of that orbit. And hence when moving freely about, it would have the precise properties of the Photon!

And, if given too much energy, it would dissociate producing a Pair Production. While if freely-moving, separate examples of these two encountered one another, in an appropriate way they would mutually capture one another and vanish - delivering a Pair Annihilation!

But, what about propagation of Electromagnetic Radiation at the Speed of Light? These particles couldn't do that. No indeed, not as Photons they couldn't! And also, as totally neutral, joint entities they surely could not link up into a connected Substrate: they would have nothing to cause any necessary Particle-to-Particle linkages?

Well, as it happens, they could! At most distances apart they would be entirely neutral. But, because of this and their tiny size, they could approach one another extremely closely, without any hindrance. So close, in fact, that a charged sub-particle in one, could both affect and be affected-by, a charged sub-particle in the other. Within a tiny penumbra surrounding each Neutrित्रon, oscillating both attractive and repulsive effects would keep the overall neutrित्रons oscillating in place. And, in appropriate circumstances a connected Substrate would naturally build-up, which I termed a Paving.

And, Lo and Behold, if one held a quantum of EM energy, and an adjacent one did not, the quantum could be transferred easily, and at a fixed high speed, the "constant" Speed of Light, due to the small fixed gap, provided by the surrounding penumbras. And, clearly, this could be repeated, Bucket-Brigade fashion right across the Universal Paving.

And, once this surprising feature came to light, it was also obvious that such a Paving could not only be easily constructed, but also, just as easily, dissociated by an energetic interloper - and thereafter driven by that same cause into a flow of dissociated units and even into the construction of Vortices.

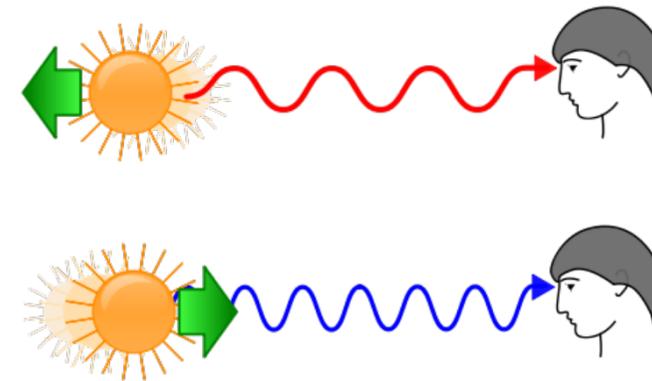
Now, all of these modes were theoretically-established, but their crucial existence within atoms also turned out to be vital, physically too. And, this was because the orbiting Electrons repeatedly traversed the exact-same-path though the Substrate - The Orbit, enabling each caused and associated Vortex to be reinforced with extra energy on each circuit. And though, the orbit would lose energy by this means, it could also receive-back energy from the vortices too.

And clearly, only certain radii would arrive at such stable balances between the two - The Quantised Orbits.

The necessary links have been revealed!

Clearly, in such a scenario, the Universal Substrate plays a role in the Production of Electromagnetic Energy, and differences in it, and, in exceptional circumstances, will indeed affect that radiation.

It must play a role in Redshift Phenomena: The question is, "How?"



The Evolution of the Cosmos and the Universal Substrate

Part II: The Origin of the Redshift

The question I posed at the conclusion of Part I is, of course, crucial, and by no means easy to address. For, the more you think about it, the more seems to be involved, and crucially, literally all of it well beyond our investigative reach. With regard to the Cosmos, the crucial events most certainly happened very long ago. And, even when we switch to more recent creations, as revealed by Halton Arp, the tempo is such that, as far as we can tell “nothing is currently changing there”, so we have no evident processes to analyse.

So, in attempting to tackle the dynamism of significant Qualitative Change, we have access only to “a series of wholly static still frames”!

Very clearly, current entirely Pluralist Science (with its concentration upon Stabilities alone) could never cope with such a problem: for it, most certainly, requires a Holistic version of Science, not only also addressing Qualitative Change head-on, but their modus operandi of Emergent Transforming Events, and the consequent creation of the wholly New.

ASIDE: Change *is* admitted, but only Quantitative Change: so all overall changes are considered to be achieved entirely incrementally - epitomised in the idea of “Quantity into Quality” - sufficient monkeys with typewriters, and enough time, will produce the complete works of Shakespeare etc... Of course not!

Evolution may be predicated upon random damage to genes, but the consequent Natural Selection and population-wide transformations are certainly not reducible to that.

As soon as you allow holist mutual modification of simultaneous processes, the number of possible outcomes increases at a colossal rate. And, as soon as you also allow outcomes-to-modify-causes, it goes through the roof, with entirely new possibilities, which can, and indeed do, radically change the game!

To expect to address the Evolution of the Cosmos, either originally, or even with much later creations, entirely with Elementary Particles and eternal Natural Laws is guaranteed to fail.

It interprets the whole trajectory of The Movie, in terms of a detailed Still of the very last Scene.

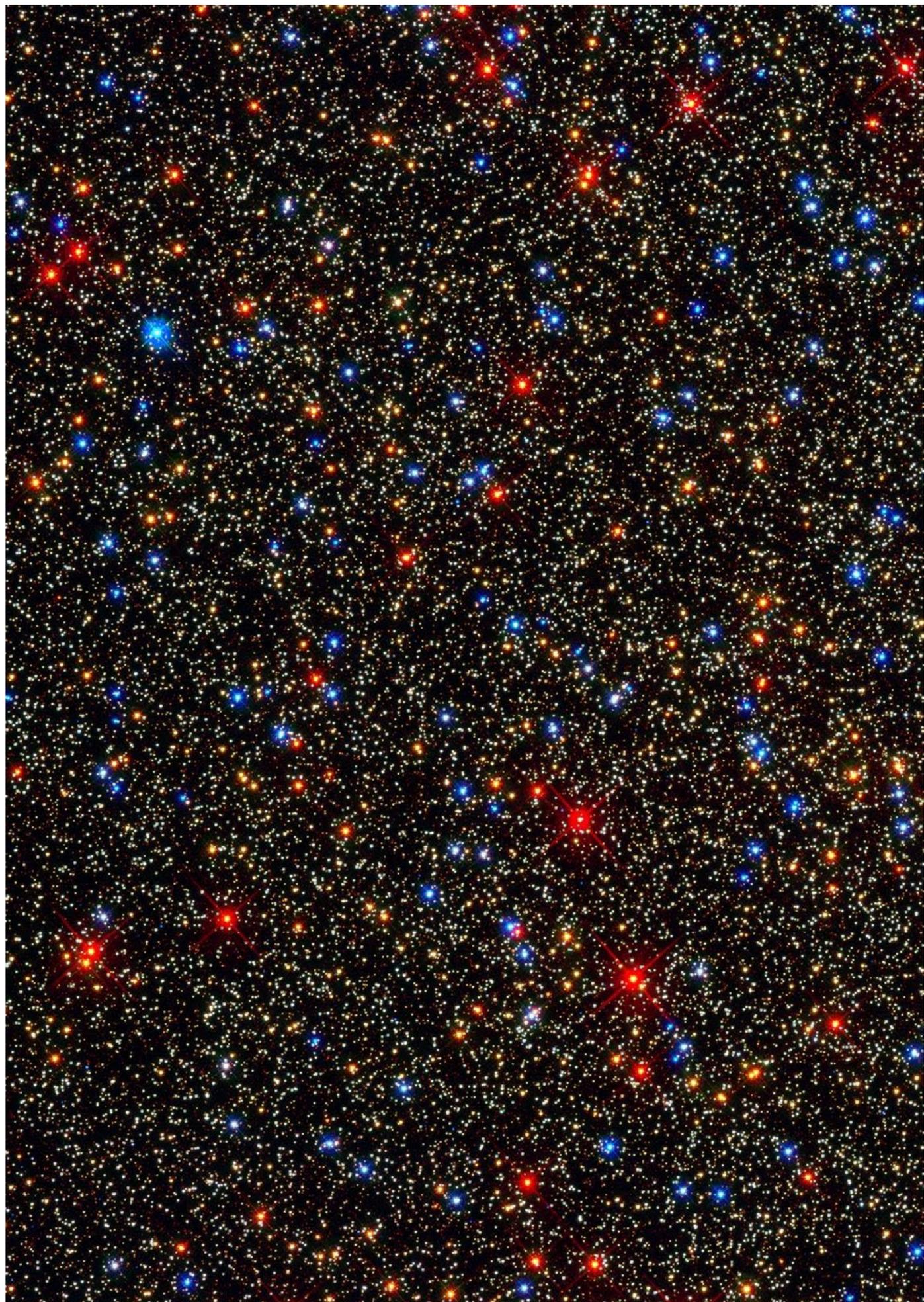
Even the amazing Origins of both Life and Consciousness must be addressable as an essential part of any applied means.

The pluralist principle which prohibits mutual modifications between causal processes, and their set versions in the form of fixed Laws, could never encapsulate such trajectories: they, at best, address the Stills extracted from an always ongoing Movie of Development.

Clearly, the kind of approach must primarily be Holist and study Emergences, and further delve deeply into the temporary balances of simultaneous processes, within Stabilities, but, crucially, also their diverse dissociations and halting-yet-creative resolutions of the consequent “Chaos”! All of this will be essential for our defined task.

Now, having painted myself into a very tight corner, I must now plan and execute a way out! And, we must start by establishing what we will be addressing and why.





We must start with exactly how Electromagnetic Radiation is produced, at a level we already know something about. The source is invariably, within an atom.

An Electron, in orbit around the nucleus of the atom, can be promoted to a higher (more energetic) orbit, but just as easily emit a quantum of energy, and by so doing, demote the orbit to a lower level. The energy so produced will be characteristic of the particular kind of atom involved, and will be at a given frequency of oscillation. And, different kinds of atoms will produce different frequencies of energy.

Now, interestingly, a general source of such radiation will be from the Sun or other stars in the sky, and will involve many quanta, containing EM energies at a wide range of frequencies, which we see as "White Light", but we can split it into its component frequencies using a Prism, which spreads the light out into a Spectrum of different colours.

But, upon close inspection, we find that it isn't entirely continuous: it contains many Dark Lines, at various frequencies. And these were shown to exactly match the emission frequencies of certain atoms.

So why would the light from a star omit the characteristic frequencies for certain atoms?

Well, of course, it didn't: It delivered them all! But, if the radiation passed through an interstellar gas of certain kinds of atoms, they would absorb Light at their characteristic frequencies, so removing it from the beam. So that, when we received that Light, it displayed Dark Lines, so betraying which atoms it encountered in transit to our position.

Now, as more such spectra were analysed, an anomaly was revealed: often the Dark Lines were shifted slightly towards the Red End of the spectra, which came to be called its Redshift! And, of course, the problem arose as to how to explain this very general anomaly.

The initial solution was that it was a Doppler Shift due entirely to the different speeds of the producing Star and the receiving Observer.

In other words at time of extraction, in transit, they would be the same, but on receipt they would be spread

out giving a lower frequency due to a relative movement away from one another. The Universe must be expanding!

And, astronomers now also had an independent Measure of Distance (assuming a general fixed speed of expansion over all times and all distances), and all the stars were relocated as to their distances away from ourselves as delivered by the Redshift.

But, Halton Arp disagreed!

He had spent many years collecting data for his book on strange galaxies, and within his prodigious personal studies, he found many situations which did not fit the consensus assumptions on redshift. Basically he began to find "connected" galaxies that their very different redshift signatures made impossible! He found Dwarf Entities, in pairs, and on either side of the minor axes of much bigger galaxies, which always had very similar redshifts. Also, the further away they were from that "now-supposed-parent-Galaxy" the lower would be the Red Shift.

This evidence did not stack-up with the consensus interpretation of cosmological redshift at all. And, while I was in no position to accurately judge Arp's case, I did already subscribe to another seemingly unrelated Theory, which strongly argued for the universal presence of an undetectable, but strongly affecting and affected Substrate.

Could such a varying Substrate be associated with these redshift anomalies?

The Evolution of the Cosmos and the Universal Substrate

Part III: Where Does Redshift Act?

The particular place where the Redshift makes its changes will depend upon exactly what its real cause actually is. But, for the usual interpretation, and also for that which claims it is due to the Universal Substrate, both, at least, agree that it must be what the affected Radiation has actually passed-through, which initially causes the Dark Lines, and this is achieved by actually absorbing particular frequencies determined by Electron orbits within known kinds of atoms which must have been encountered there.

Yet, surely, the most likely place for such changes will be where there are sufficient atoms to significantly absorb their characteristic frequencies in sufficient amounts, and that is, surely, immediately outside the involved emitting star. And, if this is so, it will also surely be the most likely recipient place for a substantial surrounding of ejected atoms - forming a "local-&-different" Substrate, so to speak. Though, for the usual interpretation, that will generally be only boiled-off atoms, and nothing else. While, for the Substrate alternative, it will involve a highly disturbed Substrate in addition to those atoms. And, the inside of the involved atoms will be very different in these two cases!

The radically altered case will certainly be the one involving a Substrate, for it is likely to be a high-energy, disturbed situation within it, and hence one in which the Neutritrons of the Substrate will all have long been released from any Paving, and be acting solely as a randomly-moving "Gas" of higher energy. Yet, the Orbiting Electrons will still be driving the Substrate units into a Stream, following the line of the orbit, and still be causing Vortices.

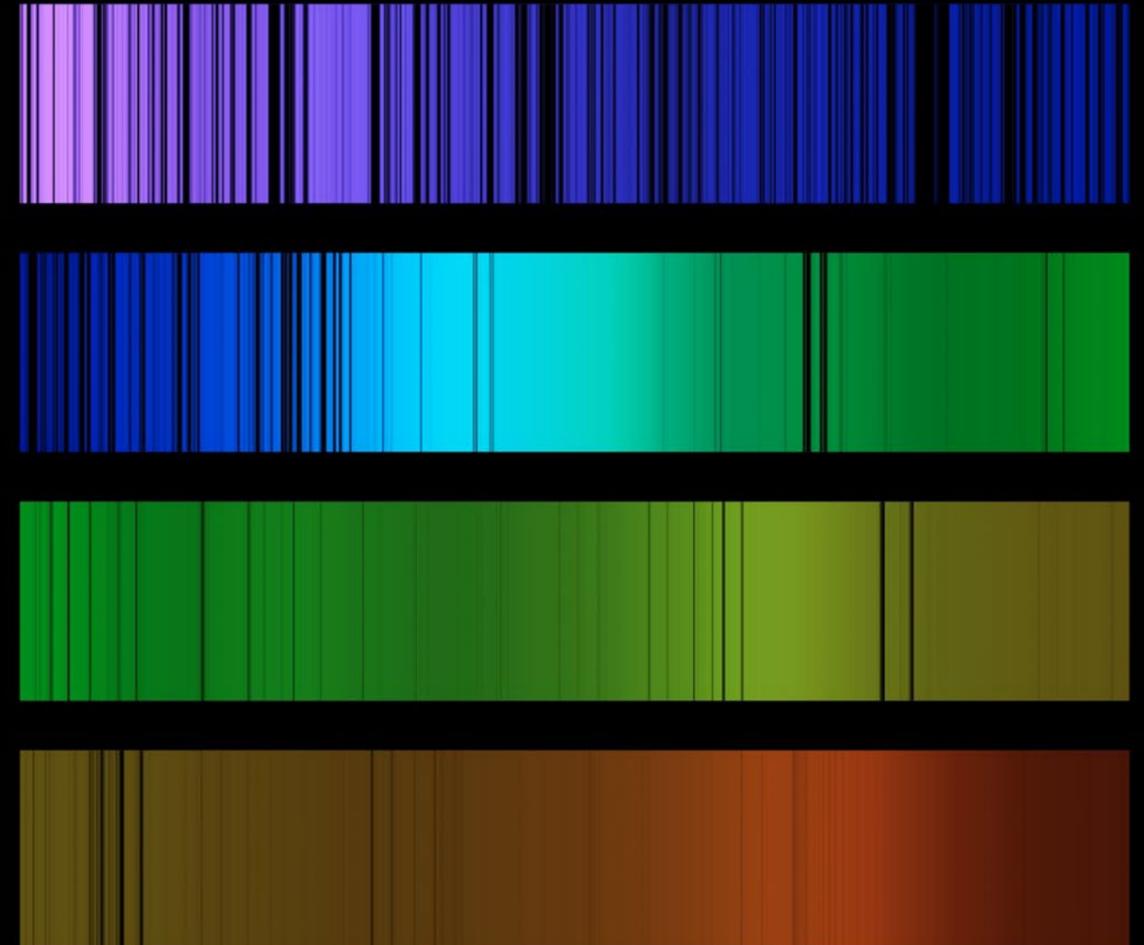
So, the energy required initially to establish the stable, balanced orbits within the atom, will be changed, because of not having to also dissociate the Paving, but only the driving of the Substrate Units into the Streams and Vortices. So, to get to the level-at-which the energy flows between orbit and Vortices actually balance, will surely occur earlier, (less energy would be required) making that final balance occur at a larger radius. And, if this is the case, the absorbed energy from any radiation will be at a higher frequency, thus establishing the usual, initial form of the radiation. All Radiation from stars thus will be naturally "Violet-Shifted" (or Blueshift)!

While later, traversing much colder Cosmic Gas Clouds, the encountered atoms will have smaller orbits for the balance will require more energy from the orbit to get the necessary balance, thus inflicting, apparently, Red Shifted Dark Lines into the Radiation.

Whereas, with NO Substrate, both situations would have the same radii, and all of the above would not be happening.

We can put the Redshift down to the presence of the Substrate, and hence the amount of Redshift down to how far it has subsequently travelled, and encountered Cosmic Dust Clouds.

Also the Red Shifts found by Halton Arp. also fit in with this explanation because those creation situations will also be high energy, which will decline with time, thus reducing the initially-imposed Blueshift and the ultimately observed Redshift!



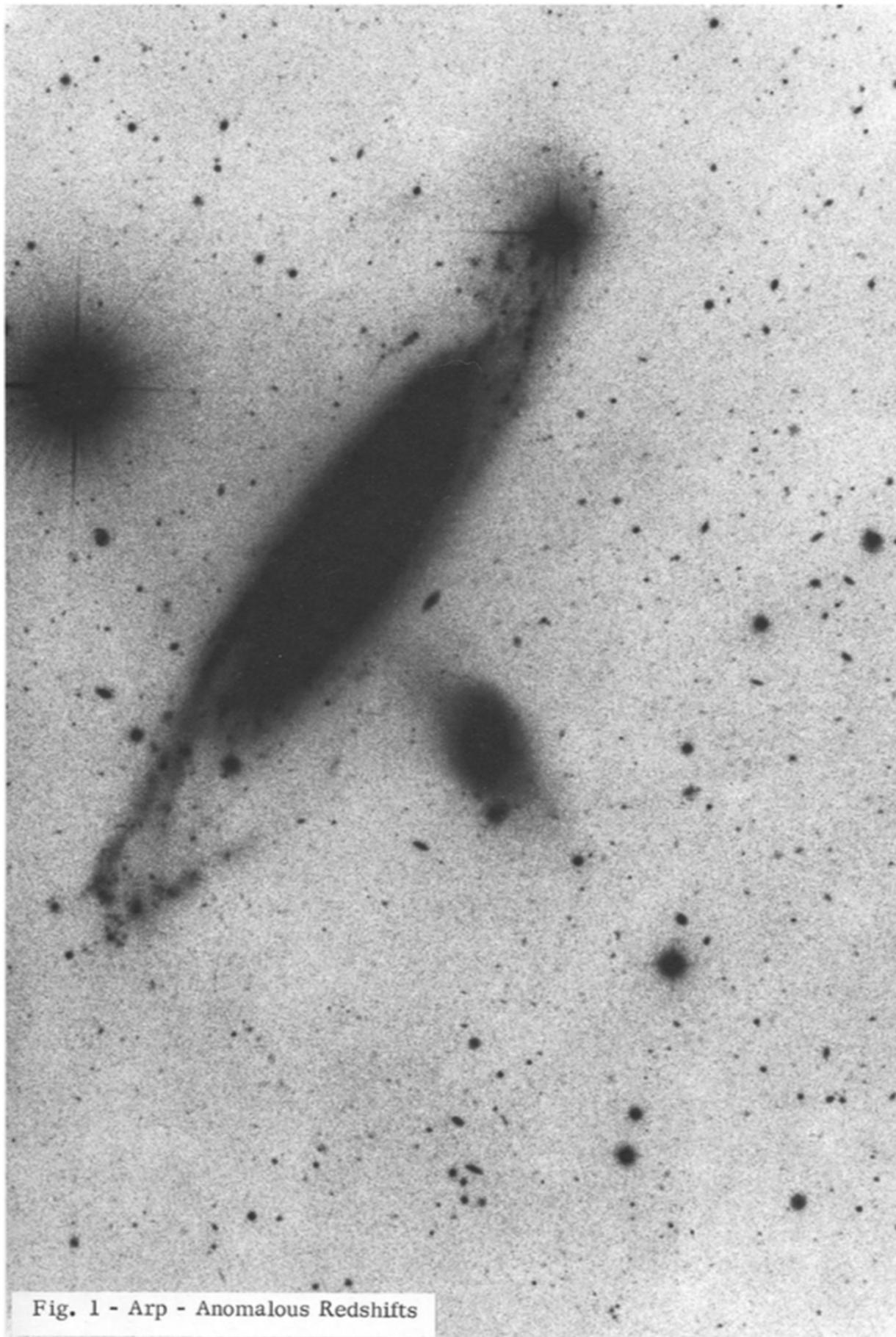


Fig. 1 - Arp - Anomalous Redshifts

A Muse upon Halton Arp's Intrinsic Redshift

Halton Arp was a brilliant Astronomer, whose observations increasingly challenged the consensus theories in Cosmology. But, he more or less stood alone, and the bans on his continuing to have access to the world's greatest telescopes, and the difficulty in getting his interpretations of published Observations themselves being accepted for publication, has severely constrained the propagation of those conclusions.

And, as the means to obtain relevant data are now almost totally restricted to multi-million dollar devices like the Hubble Space Telescope and the Large Hadron Collider, such exclusions are ever easier to institute.

The defence of past positions becomes ever easier, and counter proposals are easily shut out by peer-review, and don't get effectively aired!

Now, neither I, nor anyone else, is in a position to gainsay or agree with Arp, for that would certainly at least involve a directed observational undertaking to prove or disprove his conclusions. But, Arp has found such undertakings impossible to arrange, as have many others.

Yet, if only some of Arp's conclusions are true, they would be truly revolutionary.

Arp made his name with his best-seller - *Atlas of Peculiar Galaxies*, which led to him notice a whole series of cases, which seemed to suggest intimate associations between mature galaxies, and what seemed to be "nearby pairs of dwarf galaxies" in which their Redshifts in their spectra made nonsense of such an association.

For, Redshifts alone placed the pairs of galaxies at vastly different distances from the observer than the supposed "Parent Galaxy" - but only if the usual *cause* of Red

Shifts was the correct one, due entirely to the speed of movement away from us.

Arp could suggest an alternative cause, which he termed the *Intrinsic* Redshift, which was not only due to the age of the dwarf galaxies, but also varied in a quantized way, with time and distance from their birthplaces!

His evidence, as he has presented it, is persuading, mainly because of the seeming visible associations with a "parent Galaxy". For, these pairs appeared to be equidistant on either side of the Parent, and positioned upon its minor axis.

Having noticed this many times, Arp began to purposely seek them out, and remarkably found more than single pairs involved. In fact, further pairs on the same minor axes were found, and their Red Shifts decreased with distance from the parent - NOT continuously, but in a quantised pattern.

Clearly though, directed searches for certain configurations among billions of Galaxies, might turn out to present a "selected-out false generality". But clearly, if the correct scheme was devised and undertaken, such remarkable chance conformities would be easily revealed.

Of course, if Arp were right, the whole of the current Cosmological Theory would be undermined, and new answers required literally everywhere.

And Arp was aware of these difficulties, and attempted his own alternatives to the usual Big Bang scenario. Yet, literally thousands of reputations and multitudinous published papers have been produced, all over the World, by prestigious and eminent scientists. Many would have a great deal to lose if he were right!

Now, the writer of this paper, a theoretical physicist, also has an "axe to grind", concerned with the necessary presence throughout the Universe of a totally undetectable Substrate, which is both affecting-of, and affected-by entities and processes taking place within it.

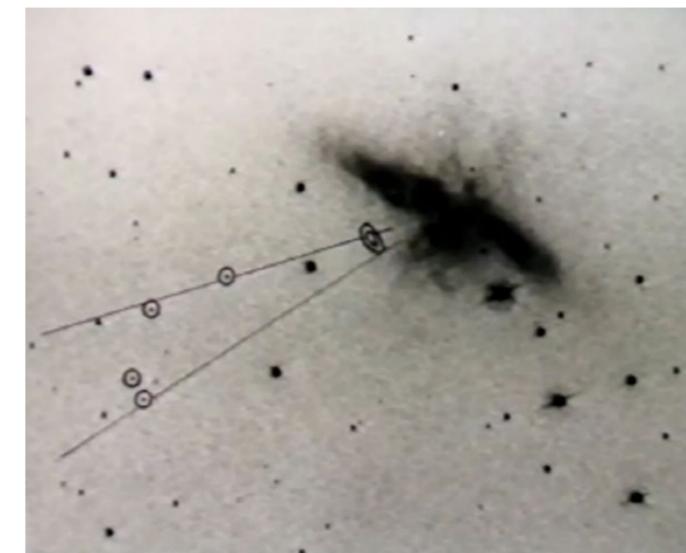
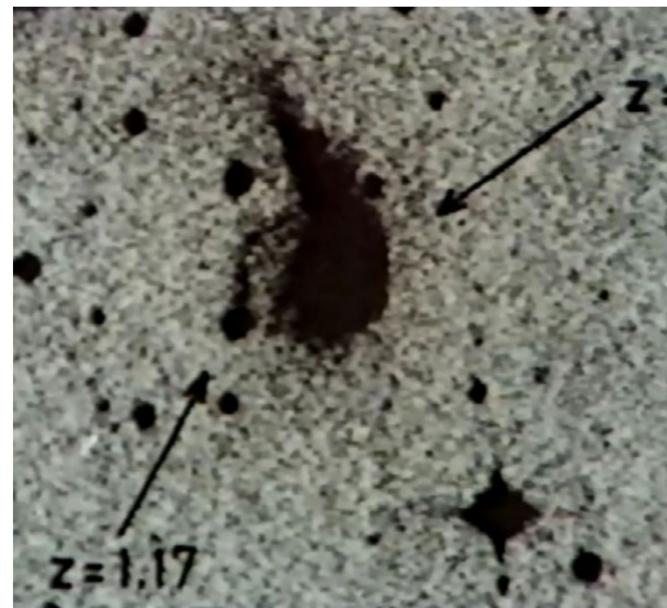
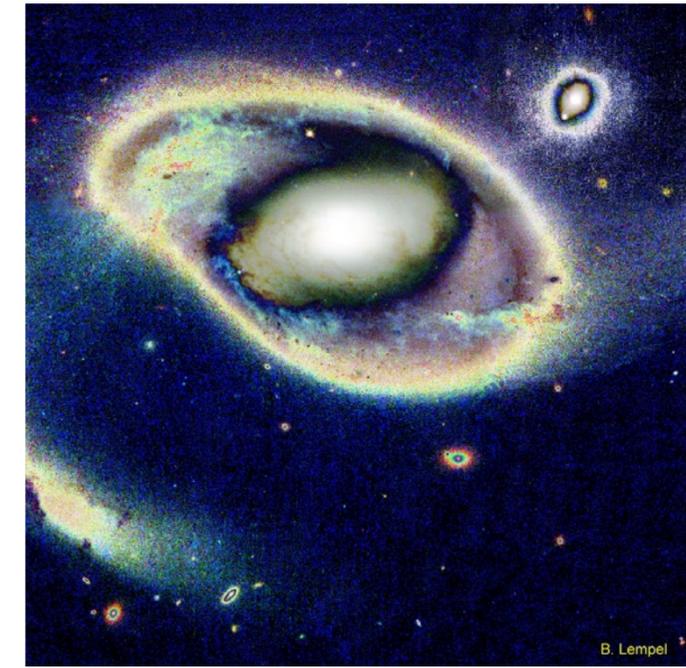
It too seems a very way-out suggestion, except that unlike James Clerk Maxwell's description of the then universally believed-in Ether, the undetectable units of such a substrate have been theoretically devised involving only known Elementary Particles, and with only this single inclusion, every single one of the anomalies of the Double Slit Experiments have been physically explained.

In addition, both the Propagation of Electromagnetic Energy through so-called "Empty Space" has also been cracked, as have the physical extension of active fields in the same situations.

Now this research is still ongoing, but it too affects everything currently supposed to occur in Empty Space, due to the densities of the Universal Substrate in different circumstances, as they also do Arp's theories. And another potential resonance occurs with the Origin of Matter. in both the new theories it comes from the pre-existing Substrate.

Clearly, both theories might be buried by the necessary research, but if they are wrong, so be it!

But, there is obviously also a great deal wrong with the Copenhagen Interpretation of Quantum Theory, as well as the consequent Theories of the Cosmos, and such research might well rid us of those too.





A Muse upon Substrate Effects on Redshifts

Part I

Philosophical researches into the trajectory of development of Science Theory, over its quite short History, have clearly revealed that its capabilities have always been both limited and distorted by temporarily fruitful, but ultimately-mistaken, assumed premises. For, access to such fundamental bases are never either obvious or direct. Indeed, they usually involve quite significant simplifications, or are strictly limited to hard-won imposed-stabilities. And, the acquired results, overall, have always led to a contradictory collection of alternative premises. And the necessary switches between them, are justified by that most ancient premise of all, namely, "If it works, it is right!" - the ubiquitous tenet of Pragmatism. And, even today, that Amalgam of contradictory stances still holds sway, but currently, and more energetically, with a new "Lingua Franca" - now emphatically believed to be the seemingly coherent and consistent universal descriptor termed Mathematics.

But, more locally, and in particular areas of study, various semi-successful premises have been established, which are taking significant periods of time to be revealed as incorrect - some of which clearly critically-constrain and distort current Theory.

By far the most fruitful extra-premise, which I have been forced to institute, in my own theoretical researches, in order to develop better Explanatory Physics, has been the inclusion of an underlying Substrate into problematic situations. And, these are always where none were previously considered to exist. And, within which, all phenomena must not only now-occur, but also both affect and be affected-by that Substrate.

What was definitive, in my developing of these new hypotheses, was the usually assumed to have been experimentally-established belief, that NO such Substrate could possibly exist there, as none had ever been separately detected even when purposely sought. But, as substantial other evidence, to the contrary, also always existed, which clearly intimated the exact opposite, it was decided to seek a theoretically-devised Universal Substrate, which, by its very nature, would also be usually undetectable.

And, those above-mentioned researches were all concerning just such a Universal Substrate, extending absolutely everywhere, currently considered to be totally Empty Space.

Now, such a Substrate's actual Units had to conform to seemingly totally contradictory defining features. For, otherwise, they would have been very easily detected in those prior, purposely-seeking experiments. They must, somehow, be effectively self-masking! They had to both actively interact with interlopers, while otherwise being completely undetectable.

In that prior research, the problem was, clearly, the actual nature of the Units comprising such a Substrate. So, it was decided to use mutually-orbiting pairs of Leptons, with maximally opposite-and-cancelling natures, to deliver the invisibility: and this feature could either be intrinsic to the individual joint-Units, or alternatively, exist as a product of cancelling-populations, composed of mirror-image components, in numbers and such possible modes-of-movement as to entirely cancel out. All of this is spelled out in detail, elsewhere in this journal, and so it will not be replicated here.

But, of course, the same, theoretically-successful approach will naturally be used here too, if similar opportunities arise! So, let me begin to outline a new problem, also to be tackled in a very similar way. For, the most exciting feature of the prior research had been in effectively explaining quantized orbits in an entirely new way.

For, elsewhere, in addition, and in a very different, and wholly experimental way, Yves Couder, the French physicist, has reproduced “quantized” orbits for his purely-energy-constructed “Walkers”, actually at the Macro level, by creating them solely within a silicone oil substrate, with an overall rotation of the whole experiment. And, when this was tackled theoretically, by this researcher, the very same physical explanation was developed, for both Couder’s results, and for the quantized orbits of electrons within atoms!

In fact, the setting up of Vortices within the Substrate, and their subsequent ultimately stable-maintenance, delivered a single, purely physical explanation for both those phenomena. So, the newly suggested research is, once again, to investigate the same orbiting of electrons in atoms, but here within a Universal Substrate of varying density.

The question very quickly became fairly obvious:-

“How will a varying density of the Universal Substrate affect the electron orbits in contained atoms, and hence, perhaps, give an alternative explanation for the Redshift in Cosmology?”

For, though universally discredited, by his peers, the excellent astronomer, Halton Arp, found what he considered to be, striking evidence, for there being a Red Shift in newly created Cosmic entities, emanating axially out of Black Holes at the centres of mature galaxies. If the premises of that research were valid, then a varying Density of the Substrate could cause the possible change in stable (quantized) orbits of electrons in atoms, to be moved to different radii, and consequently also deliver “shifted” promotions and demotions of the orbits.

There will, then, unavoidably, be wholesale shifts of all the possible orbits, so the pattern of dark-absorption-lines within the spectra of the light, will remain the same overall pattern, but shifted up or down, depending upon the density of the local Substrate.

Where such changes in Density occur will obviously be crucial. Arp intimates that it could well be in regions where wholly new Cosmic entities are being produced.

But, it might also change for other valid reasons too.

For example, a local event could well change the density of the immediate Substrate, which, as it spread outwards, would be diluted, as ever greater volumes of Substrate would be involved.

Of course, basic assumptions about the initial creation-and-spread of the Universal Substrate, itself, will certainly have consequences, for its density in different areas, particularly, if it involves a relatively fixed amount spreading over ever larger volumes of Space.

Indeed, it could not but have the effect of imposing a Redshift upon Light coming from ever larger distances from some centre of that creation.

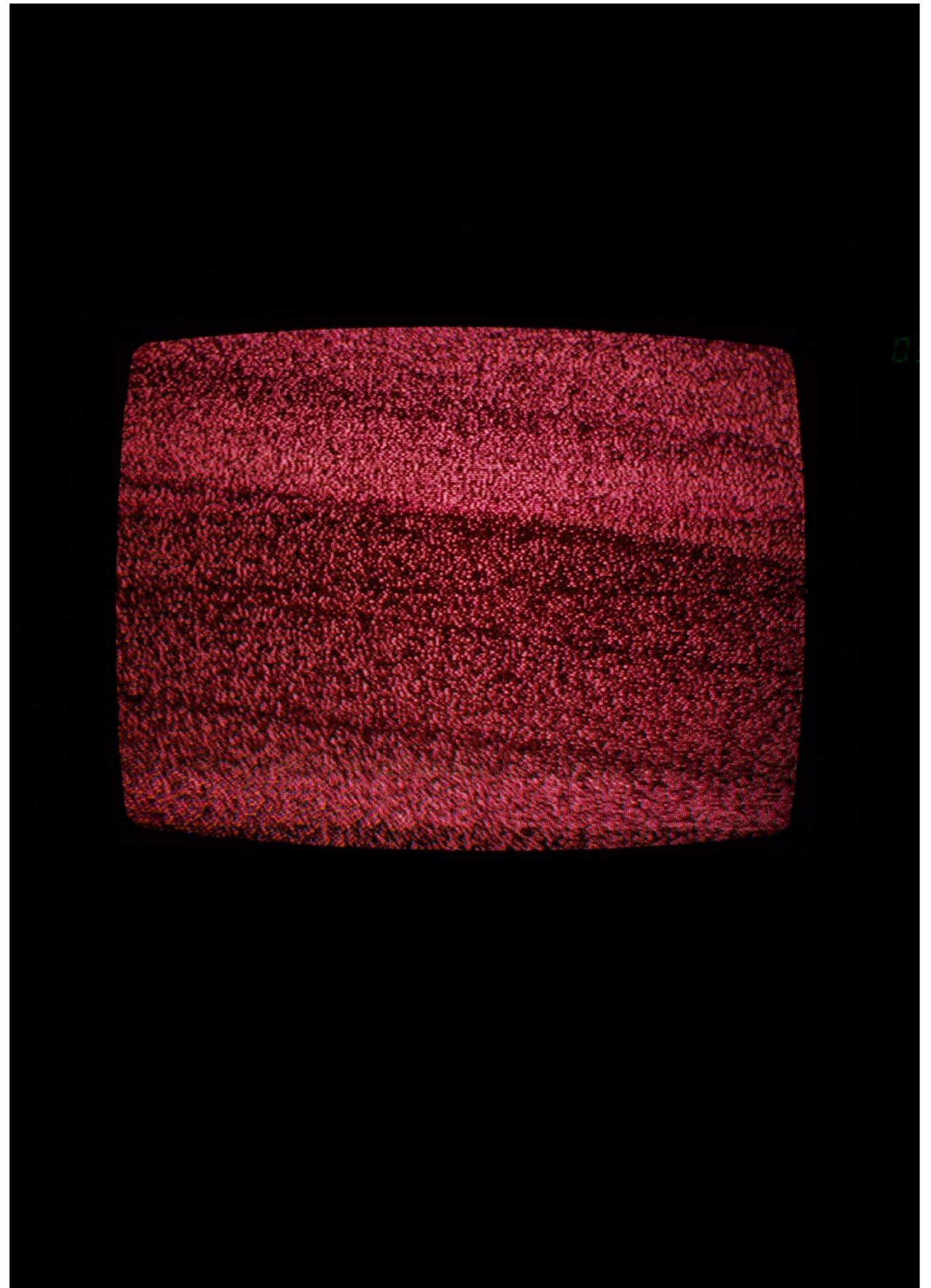
And, in addition, as prior theoretical research has demanded, a Universal Substrate must be composed of both several different kinds, and indeed, different sizes, of Substrate Unit, in order to deliver, both the Propagation of Energy, and the subtending of various kinds of active Fields, and, these too, will affect the density, as they can take-up very different spatial-modes, in their various different states (some of which will be independent of spread, while others will not!).

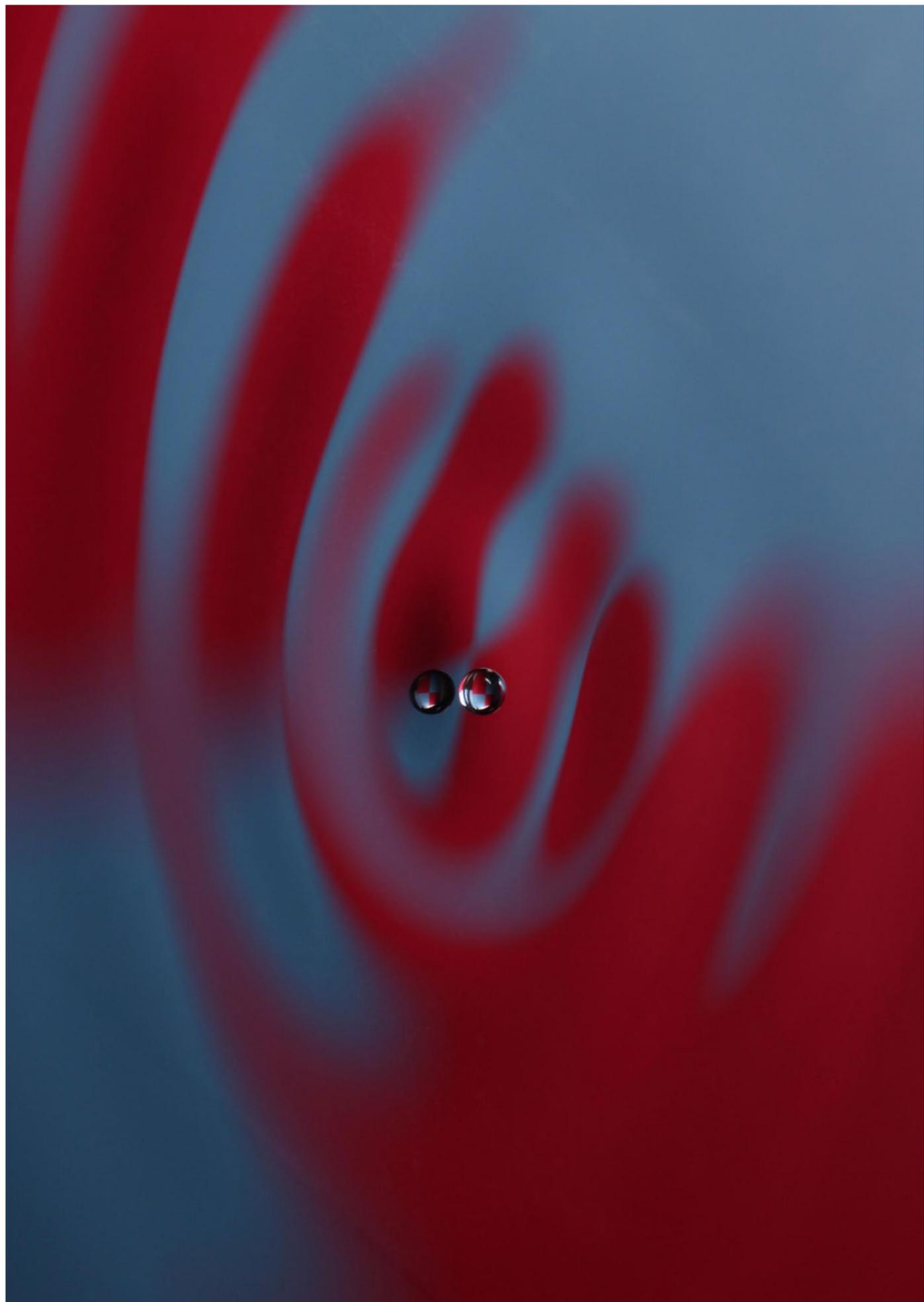
Postscript:

The Key question is in deciding which is the more likely cause of Redshift phenomena - for it must be a generally applicable cause underlying all the phenomena involved!

Is it really a general expansion of *space itself*?

Or could it be the creation and spread of an underlying Universal Substrate?





A Muse upon Substrate Effects on Redshifts

Part II

We must consider Yves Couder's Walker Experiments, alongside my own suggestions about varying densities of a Universal Substrate, particularly as involving important similar phenomena, within the two very different areas, which had productively led to physical explanations related to Maintained *Vortices*. And, not only such similarities, but also the significance of important differences were also evident, and suggested further study.

So, the areas of study were immediately potentially extended to a range of situations located both totally within such Substrates, as well at the terminations or edges of such Substrates - either bounded by air, on the one hand and liquid on the other - or involving solid boundaries as produced by the Ground in Weather Systems. Further extensions seemed to be suggested by whirlpools into sinkholes, and even the routing of such disturbances into orifices beneath bodies of water - perhaps producing Waterspouts.

While Halton Arp's dwarf galaxy emanations from the centres of mature Galaxies, and hence "out of Black Holes", might well deliver a possible terminal feature of an over-filled "sink", the capacity of which must certainly NOT be infinite.

But, in addition the kind of physical explanations, that were emerging from these studies, were uniquely not formally constrained - as, of course, are all equation-defined situations. For, instead of meaningless Singularities, which terminate all formal relations, we were actually finding physical reasons for transitions to result in qualitatively different phenomena.

In other words, we may well be approaching "holist", rather than the usual "pluralist", transitions, and in Physics finally breaking the bonds of the Copenhagen Interpretation of Quantum Theory!

Now, this researcher's primary motivation for his contributions to Physics Theory and Philosophy, over the last decade, has been to find a route to a strictly Holist Approach to combat the idealist Copenhagen Stance. But, a strict head-on assault has certainly not been successful! And, though it was clear to me that the problems lay in the long-established Amalgam of contradictory stances, such a pure philosophical explanation would never be enough to change things.

For, the situation, ever since Poincaré and Mach, has been to make a virtue out of the contradictory Amalgam of stances, via pure pragmatism. And, without an established Holistic approach, no purely philosophical argument would be heeded.

What had to be done was a Physical and Theoretical assault upon the innumerable anomalies of the Copenhagen Stance, enabling things impossible to explain via Copenhagen, to be clearly proved holistically.

And, this is now coming to fruition!

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