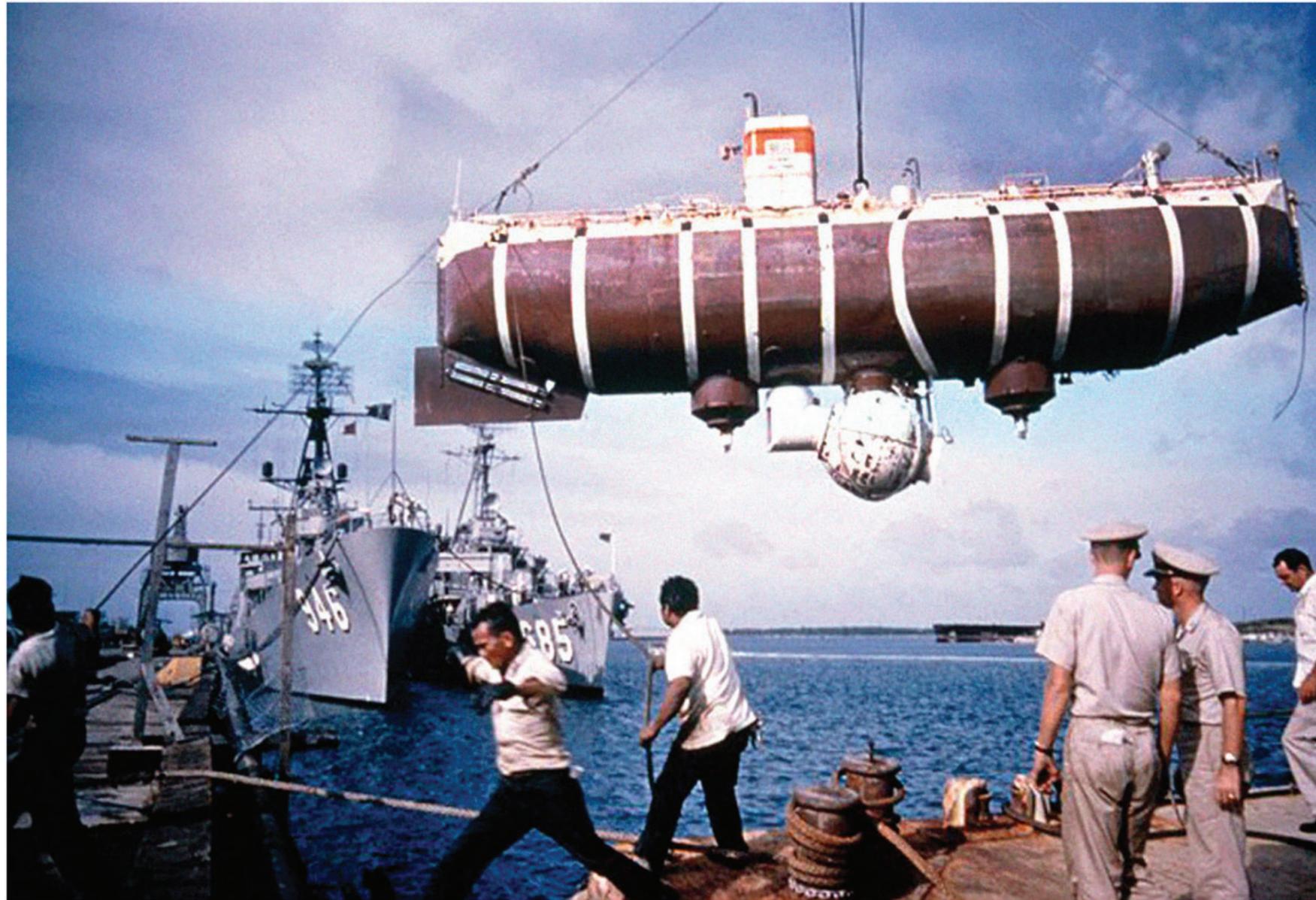




SHAPE JOURNAL

THE UNKNOWN OCEAN - PART 2 - THE NEW VEHICLE & ROUTE

EXPLORING THE UNKNOWN OCEAN THAT IS REALITY / THE WRONG ROAD
THE END OF PLURALIST SCIENCE / THE NATURE OF EMPTY SPACE / CONCRETE EINSTEIN



Special Issue 32

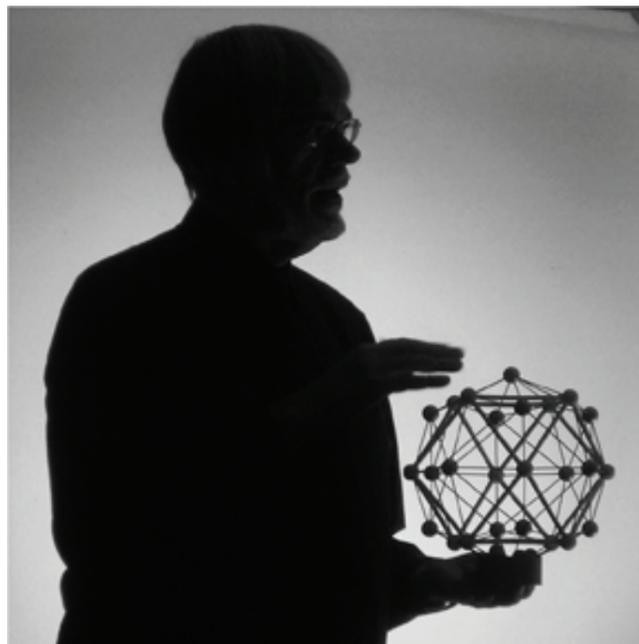
The Unknown Ocean

Part 2 - The New Vehicle and Route

1. Introduction
2. The Wrong Road
3. The End of Pluralist Science?
4. The Real Contents of Empty Space
5. Concrete Einstein

Introduction

The Unknown Ocean that is Reality



Welcome to the second part of our *Unknown Ocean* series and the 32nd Special Issue of the SHAPE Journal. Here we will continue our journey deeper into the uncharted depths of reality, first by reiterating the purpose of our journey.

A major threshold lies before Mankind, which so far scientists have refused to address, and hence never resolved, and, instead they have continued with the old views and methods, which are incapable of transcending this evident impasse. We are stuck and can go no further.

Now, of course, many of the aspects of this new view have been glimpsed upon many occasions by remarkable investigators, but their brilliant contributions have not managed to transform the standpoint or the methodology of the majority of serious investigators. They remain steadfastly committed to both Positivism and Pluralism. And, though, in most involved individuals, both mysticism and religion have long been banished from their standpoint, those alone did not, and indeed could not, deliver the necessary breakthrough that will facilitate the next steps forward. In all the main intellectual disciplines the old assumptions are still well entrenched, underpinning both Modern Science and Philosophy.

In the 21st century, crucial scientific researches are weighed down with these abstractions, constructions, assumptions and principles of a now significantly failing past intellectual stance. For these are no longer worthy of delivering a productive and developing standpoint, essential at this time to produce any real progress at all. Science has run out of steam. Since 1927 Physics has only moved backwards towards an even more defunct *idealist* standpoint.

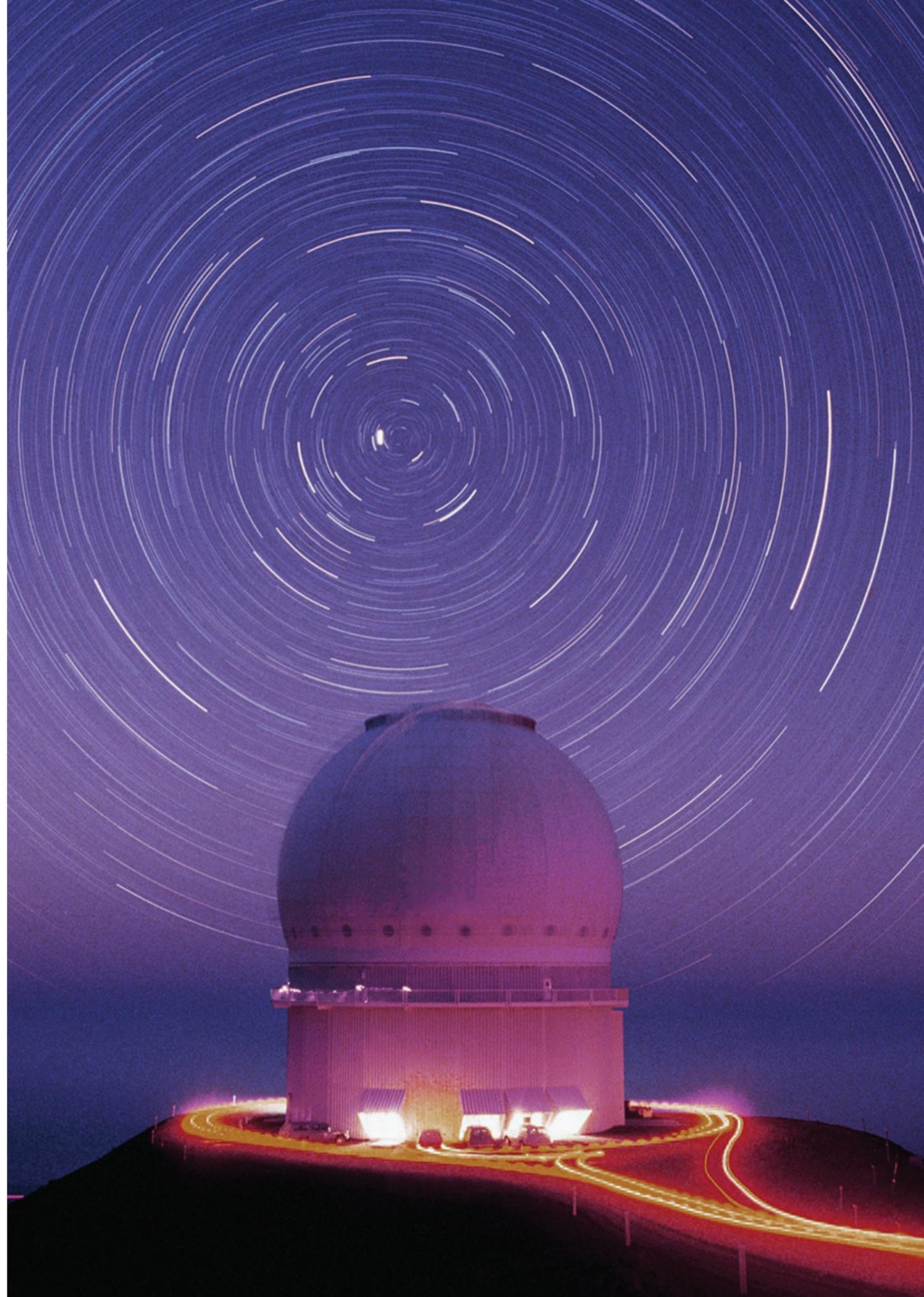
Yet, the way forward has been, at least, indicated, for the last 2,500 years with both the Holism of the Buddha in India, and the scepticism of Zeno of Elea. In spite of a long period of stagnation, philosophically, finally, only 200 years ago, Frederick Hegel, in his main philosophical undertaking, revealed the inadequacies of our concepts, and why they were inevitably so. But, of course, Hegel was an idealist (an obvious disadvantage in his own primary objective of unifying Philosophy with Science) so that, not even his leading disciples, namely Karl Marx and Frederick Engels, saw that Hegel's gains in the area of Human thinking just had to be re-established within the alternative, materialist philosophical outlook, and, of course, intimately wedded to Science. But, that just hasn't happened!

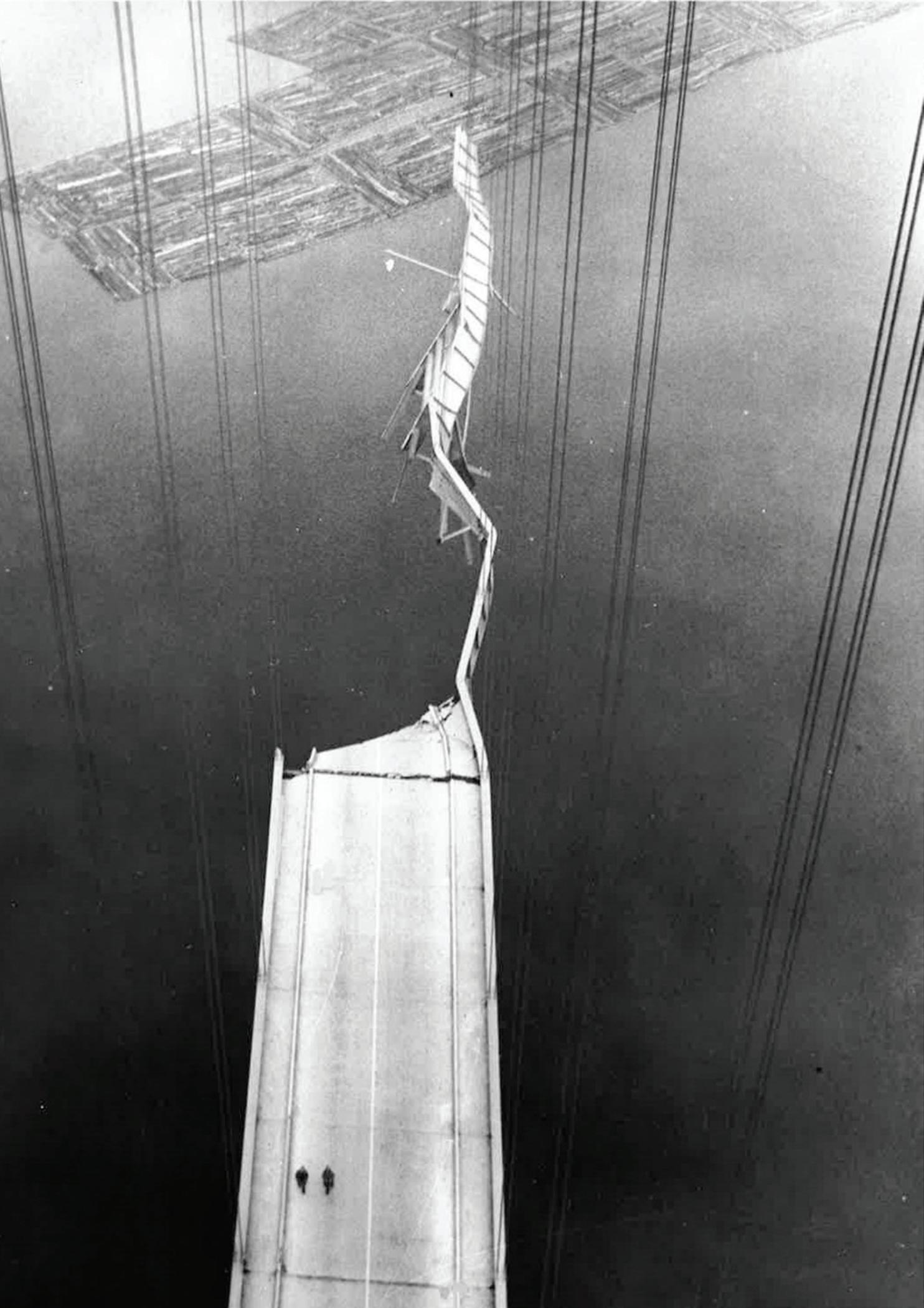
Despite brilliant contributions by scientists like Darwin and Wallace, and the major gains in Philosophy made by Marx, the necessary re-construction of a consequent philosophy among scientists did not occur. And, that has been a major problem.

Now, the situation is beginning to change, as this writer, and many others worldwide, begin to question the impasses and anomalies proliferating in all areas of Modern Science, and are endeavouring to construct a new, and sounder basis, and this series of Specials deliver some suggested steps in an advancing a wholly new understanding upon a, so far, unimplemented standpoint in Science and in Philosophy together.

It is, of course, a presumptive claim, so he has broken the argument down into three Special Issues of this journal, of which this is the second.

Jim Schofield Feb 2015





The Wrong Road

If I was trying to get there, I would never have started from here!

Now, an incorrect assumption, in our attempts to understand aspects of Reality, not only led inevitably to contradictory productions based upon those founding assumptions, but also rationally led to other consequent conclusions, which were increasingly far from the truth.

The alternative basic stances of Plurality and Holism certainly generated quite different logical types of thinking too. The pluralist position not only means that we must see overall forms as merely the summation of separate, Natural Laws, but also to the consequent idea of Reductionism, down, presumably, to fundamental, initial entities and their basic laws at some final, base level.

And, in a similar way, the observed Red Shift in the light from very distant galaxies, is also seen to lead to the inevitable conclusion of the Big Bang, and thereafter, to a beginning of absolutely Everything, in a Dimensionless Dot of Pure Energy alone! Early mappings of the surface of Mars, from Earth-bound telescopes, said more about the astronomer's eyes than Mars itself, and led to all sorts of false dreams and hopes (and a consequent genre in literature too). And, many similar examples are too numerous to merit mention here.

What must be done, however, is to consider how our observations can *mislead* us, especially when linked to prejudices about Simplicity, Symmetry and other believed-in principles of Natural Law. Indeed, when something simple is extracted from Reality, we immediately trust it as the Truth, especially if it replaced some prior labyrinthine complexity. But, when we do this, especially when it is solely concerned with Form, we have to wonder just how much is actually Reality-as-is, and how much is the structuring we readily impose upon a situation, in order to purposely, reveal such patterns! Indeed, Newton's Law of Gravitation was considered just such a Natural Law of Reality for centuries, before a more complicated and better alternative finally had to replace it.

It isn't just how we organise our investigations, but also to what level of detail. Blurring detail is put down to irrelevant background noise, and the main simplicity promoted to ascendant importance. We both filter out Pure Form from actual concrete Reality, and seeing such Form being the real content is at least partly down to our prejudices.

Now, once this is realised, we have to then to worry about a conception of Reality, which sees it, essentially, as driven by such Forms as deterministic Laws, and then, by so doing, we are placing the reasons for Reality being as it is upon the most shaky, and idealist foundations for all aspects of the Real World.

But, Pure Form is surely about pattern alone, separate from physical causes, and is therefore, always much simpler than any abstraction from its real World source.

Nevertheless, when we do manage to reveal such simplicity, from out of the usual complex situations, by the way we actually farm these situations, and then "glory-in" them as the found simplicity of Nature itself, we are most certainly kidding ourselves, and really only revealing relationships between Forms alone!

Of course, there is another side to investigating Reality – and that is in using what we find to some intended and useful purpose. So, it is such effective use that confines our path to where it works so well, for the method involving Form alone really does deliver that. For the pre-tailoring of limited situations, in such a way that they are close being pluralistic, was a brilliant invention of Mankind, for you do not need to understand phenomena, if it is so constrained as to behave in accordance with a formal pattern. For then, you can safely predict outcomes – but ONLY in that ideal context – that from which the Form was extracted!

And, of course, such was a coming together of different disciplines with evident common foundations, which enabled all of them!

You have Mathematics – the exclusive study of Pure Form in its own terms alone (which long preceded Science). Then Technology - for the production of effective tools and even weapons long preceded even Mathematics. Finally, Science came upon the scene and was so designed in its experiments to guarantee the very same basis as these prior developments. With the various necessary adjustments, Mankind was bound to bring all three together with Form as their common element.

Now, the inevitable consequences of all this were already revealed some 200 years ago, not long after the start of Science, by the German Philosopher Frederick Hegel, in his researches into Thinking about Thought. He sought reasons for the inevitable emergence of totally contradictory concepts from the very same grounds. Logically, it shouldn't have been possible, but there could be no doubt about it. You could not guarantee consistent developments from the very same assumptions! Hegel's problem was to find out why this was the case!

Now, Zeno of Elea some 2,300 years earlier had realised that this occurred with the Concepts of Continuity and Discreteness, when applied to certain movements, which he then attempted to demonstrate in his famous Paradoxes, but it took well over 2,000 years for someone like Hegel to reveal what was going on. It may seem obvious to us now, but no one had realised that the fault wasn't in either of the concepts but in their erroneous common ground! And, he prophesied that such errors would always ultimately be revealed by such Dichotomous Pairs in our subsequent developments from such invalid assumptions.

But, Hegel, being an idealist, was only talking about Human Thinking, so any next step in both theorising and method (particularly in Science - the Study of Concrete Reality) was clearly well outside his remit.

He could throw light upon incorrect concepts, but in studies of Reality in general, had no means of revealing WHY they were incorrect. That would have to be a job for materialist scientists.

Now, to carry over Hegel's valuable revelations for considering ideas in Science (though they would be similarly determined), to find the mistaken assumptions and correct them could only be addressed in Reality itself! Now, one thing was already a current bone of contention among scientists - could or could not Reality be completely explicable in terms of Form alone? Now, to address this required another major step!

It was the transferring of Hegel's discoveries from solely pertaining to the Human Mind, to Reality itself! It was evident Hegel's methods could be employed in Thoughts about Reality, but the crucial question posed above, needed applicability to Reality as it actually is. In understanding the Development of Reality in ITS TERMS would somehow be similar to what Hegel had found for Thought.

Clearly, the then (and even now) orientation of Science was not in addressing questions of the development of Reality – its Evolution, but, on the contrary, was locked into considering things as constant (or even eternal), and its whole methodology was concerned with adjusting studied areas until they conformed to these ideas before they were investigated. Almost the whole structure, including not only Science, but Mathematics and Technology too, was looking the other way, and had found a methodology that worked (as long as you ignored the contradictions).

This step – perhaps the mightiest yet, was taken by Karl Marx who was originally an able disciple of Hegel, but became convinced that Hegel's discoveries were not merely limited to Human Thinking, but also to the trajectory of Development of Reality itself!

Now, the subsequent contributions of Marx, Engels and other brilliant contributors, with the same perspective, could not complete the task of applying those discoveries to Reality in general – and that meant Science, for their imperatives were directed towards politics and economics, but they certainly pointed in the right direction (as proved by Engels pamphlet "The Part Played by Labour in the Transition from Ape to Man"). But, what was necessary was truly enormous, and would have to involve contributors from all the many disciplines, as well as a solid grounding in Philosophy, to be able to achieve the required objectives. One of Marx's followers Lenin did write Materialism and Empirio Criticism, which was certainly in the right direction, but he wasn't a physicist, and no real carrying-through was subsequently attempted – never mind actually completed.

What the philosophers had revealed, just had to be disseminated throughout all the major disciplines, NOT, it must be emphasized as a mere correction, but as a substantial empowerment of their work in all their chosen areas. It would not be like converting colleagues to a new religion, but releasing them from the manacles of old and outdated ideas and methodology.

The rescuing of Science from its adherence to Formal Simplicity was never completed. And, the predicted Hegelian dichotomies proliferated in Science in general, and in Sub Atomic Physics in particular, until the whole edifice began to collapse under

innumerable such contradictions. Yet, the scientists chosen solution was incredible!

They simultaneously embraced pragmatism and mathematical formalism, while abandoning Explanatory Theory entirely! Indeed as Jim Al'Khalili stated only two days ago on BBC TV (09/12/14), "*Explanations at this level are now impossible, and we can depend only upon our extracted equations to take the subject further!*"

What he was insisting upon was that explanations in terms of entities and their properties were now impossible and such Theory had to be replaced solely by Formal Equations alone! But, this was decided long ago, in 1927, by Einstein had been defeated by Bohr and Heisenberg at the Solvay Conference, which could only have occurred if the majority of Sub atomic physicists were already veering to that conclusion. The result was the Copenhagen Interpretation of Quantum Theory – an idealist position, which included Wave/Particle Duality as an undeniable situation in the sub atomic realm.

Now, the vital task of correcting this "wrong road" is actually much more difficult than has been revealed so far. For Reality-as-is turns out to be much more complicated than can possibly be fully reflected in the usual simplified and idealised Forms – in other words Equations are incapable of delivering what is required!

First of all, we forget that it includes ourselves. We are undoubtedly a product of Reality-in-Development, as is our Consciousness and our Societies. To even consider that we will be able to tackle such things using the concepts and tools of modern Sub Atomic Physics is a travesty (though they do try) Indeed, when Reality-itself is the sole basis for our conceptions, many other unavoidable factors, interludes and phases of development have to be taken into account. *Form* as the common deliverer is a total fiasco!

Of course, the actual track taken by Mankind was unavoidable. You cannot reason beyond your experiences, and with the experience of all human beings, for hundreds of thousands of years was much too limited, to think of anything actually developing *qualitatively*. To Man, during the vast majority of his existence, things seemed both constant and entirely separate, so a whole mythology with such as its principles was bound to develop – it could not have been other! Man had to do remarkable things: he had to actually invent wholly new skills, such as tool-making, Language and Writing – latter to record, over-time, how things actually changed. And, only then, could History tell a tale of change and development.

And, of course, very much later, the study of the rocks beneath our feet, and in many places across the World, allowed the realisation of vast periods of History for vastly longer than in our writings, and the beginnings of our ideas of a Developing Reality also began to emerge. Let's face it some significant idea of Evolution was only cracked in the 19th century – some 190,000 after Man first emerged!

Yet still, everyday happenings could be fitted into unchanging tailored-contexts, and seemingly eternal Natural Laws extracted.

Now, there had been a bifurcation in Man's thinking about the World, usually placed about 2,500 years ago, when Greece and



subsequently the West developed the *Formal Road*, while in India, via the Buddha, there arose a very different Holistic view of both Man and the World. But each distilled out a principle, which became so “obvious” that it was never challenged. On the Formal Route it was the Principle of Plurality, while on the alternative in Asia, it was the Principle of Holism.

Naturally, they diverged, rather than coming together, and this had effects both on how context was seen, and how “appropriate” methods were devised and used. The oriental route, on the other hand, became exclusively “religious” (if that term is stretched somewhat), while the occidental became “scientific”. Clearly, these two had, somehow, to cease to be yet another Dichotomous Pair, and thus be transcended into a higher level, which included the best of both, while eliminating the base assumptions that had underpinned both of them. The best chance had to be with the followers of Marx, for it was only they who attempted this necessary transcendence. But. It didn’t really happen, though their analysis of the trajectory of development in Human Society from prehistory to the current Capitalist stage was described very ably by V. Gordon Childe, archaeologically, and by Marx, economically, right up to his death. And, the trajectory involved in these analyses, was very different to the usual pluralist views, for, very clearly, development was not conceived of as a slow series of incremental changes, but as an alternation of long periods of maintained Stability, interspersed with relatively short Interludes of significant, qualitative changes in crucial transforming events, termed Emergences. But, even those descriptions were inadequate.

For, each Emergence created a wholly new Level of Reality – like The Origin of Life, and that of Consciousness, and more detail was required to trace through the whole sequence of changes, and intermediate phases, that were necessary to accomplish such clear Revolutions. Without such detail, Emergences became magical and unpredictable transformations, which is not what was required. And, apart from this within-an-Emergence trajectory, what also had to be addressed, was the unavoidable increase in the number of co-existing Levels, yet maintaining a certain nature within an established Level, that ensured the applicability of pluralist methods, as long as farmed and maintained Domains, would be involved.

And, other important features also required further explanations. First, the subsequent relative independence of the New Level, from that immediately below it, AND secondly, an alternative to pluralist Reductionism, across the whole sequence of co-existing Levels, also need to be addressed.

And, confusingly, because of his now universally applied pluralist methods, Man seemed to be delivered of all the current laws of ALL levels simultaneously, as if they were all part of a single totally encompassing set of Natural Laws. Individuals could easily believe that whatever they discovered by their investigations, were simply steps in a continuous reductionist sequence from bottom to top.

Also, the absolutely crucial top-down constraints between levels could never be considered, yet they are vital. The assumption, which came naturally to Mankind, even when he realised this hierarchy, was that each level produced the one above it, by mere *complication*, and hence that, via a “depth search”, an exploration would reveal causes for each and every phenomenon.

And, of course, thereafter, causes for the causes, all the way down to the bottommost level. Ludicrous as this seems, it is still the view of our present day Sub Atomic physicists, who believe they are investigating that bottommost level, and hence the ultimate cause for all phenomena at all the levels above. But, they couldn’t be more wrong!

For not one of the producing levels remain as they were when they formed the basis for an entirely new Level. For, the newly created Level was not a natural and incremental consequence of the Level that seemingly produced it. On the contrary, for extremely long periods the current Level not only maintained itself as such, but also prohibited the creation of the entirely new, and it could only be via Crisis, then dissolution and finally collapse of that Level, in a given area, that the prior stability was so totally dissociated, that an entirely new set of conducive relations could begin to start the process towards an new and entirely original Level out of the debris left from the dissolution of the old level. This kind of interlude – termed an Emergent Event, not only established and maintained itself, but also changed the remaining regions where the old level still remained, to protect its own continued existence.

Causality may well be largely bottom-up *within a Level*, but it can also be top-down, especially between adjacent Levels. The “producing” Level has been modified, by the very thing that arose out of it.

So, what investigators seek in delving Level below Level for a continuous series of causes will always fail, because the necessary Level they seek is no longer there!

So, in a surprisingly arrogant way, they attempt to create these prior levels for themselves. WOW!

And, an avalanche of assumptions is then brought into play to work out what the prior Level probably was, it will be followed by a whole series of atom smashing colliders, built to “re-create” the key transformations of the History of Reality. What else are the Large Hadron Collider (LHC), and the search for the Higgs’ Boson? Yet, absolutely no one is investigating true Transcendence – either in Thinking or in Natural Development!

But two truly great biologists attempted it with Natural Selection and the Origin of Species (Darwin and Wallace), and in the present century the French physicists Yves Couder also attempted it with his current experiments involving multiple resonances and recursions involving oscillations and rotations to alone create new stable entities. But, here has been literally no one else.

The real problems were not really scientific, but philosophical assumptions – some of truly great age. So, the writer of this paper started there, investigating principles such as Plurality and Causality, and from this, only then. Applying what he had unearthed back into Physics.

Clearly, modern scientists have not merely made a couple of misinterpretations, but have managed to paint themselves into a corner, from which no single (even correct) changes will be able to extricate them. To again get back onto solid ground, they are going to have to totally demolish a vast and erroneous superstructure. And, for these practitioners, that is clearly asking too much!

Let us briefly catalogue the problems. They are as follows:-

1. The Principle of Plurality
2. The Farming of areas of Reality to get them close to Plurality
3. Abstractions assuming Simplicity and also Idealising what has been observed.
4. The assumption that Natural Laws create Reality, rather than the other way round.
5. The belief in eternal Natural Laws
6. Crediting Qualitative Changes entirely to incremental quantitative changes.
7. Hierarchies of Reality – delivering straight through determinism – Reductionism.
8. The final abandonment of any Explanatory Theory and a sole reliance upon Formal equations only.
9. Absolutely no conception of the existence, never mind the role, of Emergent Interludes
10. A hierarchical Scheme, which maintains each Level as eternal, and rejects top-down causality completely

Now, with such a catalogue of mistakes, there could be, and is, NO theory encapsulating the actual quantitative Development of Reality, with it evident alternating periods of Stability, with intervening Interludes of Crisis, Collapse and Rejuvenation upon new grounds into wholly new Levels. It is no wonder that every effort made to resolve the increasing heap of anomalies, and totally contradictory Dichotomous Pairs of concepts derived from the very same erroneous basic assumptions, has inevitably failed. Indeed, the decline has become so extensive that a veritable Revolution is the only solution!

The only way forwards is now entirely beyond the scientists currently involved. It has become a philosophical task, and only by another major switch from the current essentially idealist position to a well-founded and proved materialistic and holistic alternative, can any real progress be made.

The actual task will involve no mean feat. It will mean the establishment of a real, useable basis for a truly Holistic Science, and will cause major revelations in Mathematics, and in both Experimental and Theoretical Physics.

The End of Pluralist Science?

A new reader of my scientific papers might well be somewhat at a loss to know what is meant by Pluralist Science - and its preferable alternative Holistic Science. For, it was a decision made some time ago by this theorist, to criticise the former and instead pursue the latter, and it, therefore, isn't usually explained in every single paper. But it is indeed crucial!

So, what are the major differences between them, and why are a final abandonment of the first, and an energetic embracing of the second, now so vital to the continuation of all scientific exploration?

We have to start with the original invention of the Scientific Method, which was based upon the Principle of Plurality, for it was a revolutionary breakthrough without any doubt.

For, the very first time in human History, it became possible to delve into clearly intractable parts of Reality by "holding things still!" This discovery was NOT, as was generally believed, a means of delivering a realisation of something eternal and essential in Reality, but, on the contrary, was initially a pragmatic noticing of the fact that, if certain factors were removed, and others held firmly constant, the observed situation could be greatly simplified, so much so that individual factors could be identified and even measured. And, it was these sequences of measurements that clearly revealed certain formal relationships in that arrived at situation.

Of course, such an approach could not have occurred until Mankind had enough knowledge to effect the necessary controls, but as soon as that was possible, it rapidly became *The Method* of investigating Reality. And, clearly, relationships could be extracted, and even encapsulated into useful mathematical forms - Equations!

But, such techniques were only half of a fully revealing methodology. For, Man had also to guarantee effective use of such extractions too! But, it finally became clear that though this method revealed these relationships, they were NOT independent their contexts - to work the equations had to be used in the very same conditions to those in which they had been extracted. We may think of these as Natural Laws, but without their specific and essential conditions, they did not deliver! Yet, this crucial relationship was not seen as vital to the supposed "Law". Instead, it was considered, in applications as a simple means to an end, and the belief was that truly Natural Laws could by such means be revealed. The methods involved were merely a means of dispelling a confusing "fog"! The experimentalists were the experts at so farming Reality to reveal their underlying Laws, while the technologists were the experts at finding situations in which they could be used to some productive end.

NOTE: The fact that the technologists became adept at making appropriate environments for use, in a variety of situations, seemed to dismiss the essential nature of context in the producing of such Laws. It was so important that they had to establish this in a fundamental Principle - that of Plurality!

Now, at the same time, conclusions, about this Method and its assumptions, were greatly empowered by the amazing

achievements possible with these ideas and methods.

For, they undoubtedly delivered significant progress in dealing effectively and fruitfully with a whole range of features in Reality. Mankind was certainly empowered, and this solidified the discoveries that had enabled these achievements, as major steps forward. The principle of Plurality wasn't even thought about: it became the "obvious truth"!

There followed an absolute avalanche of found laws in appropriate environments, about which those involved had no doubt of their value and their truth!

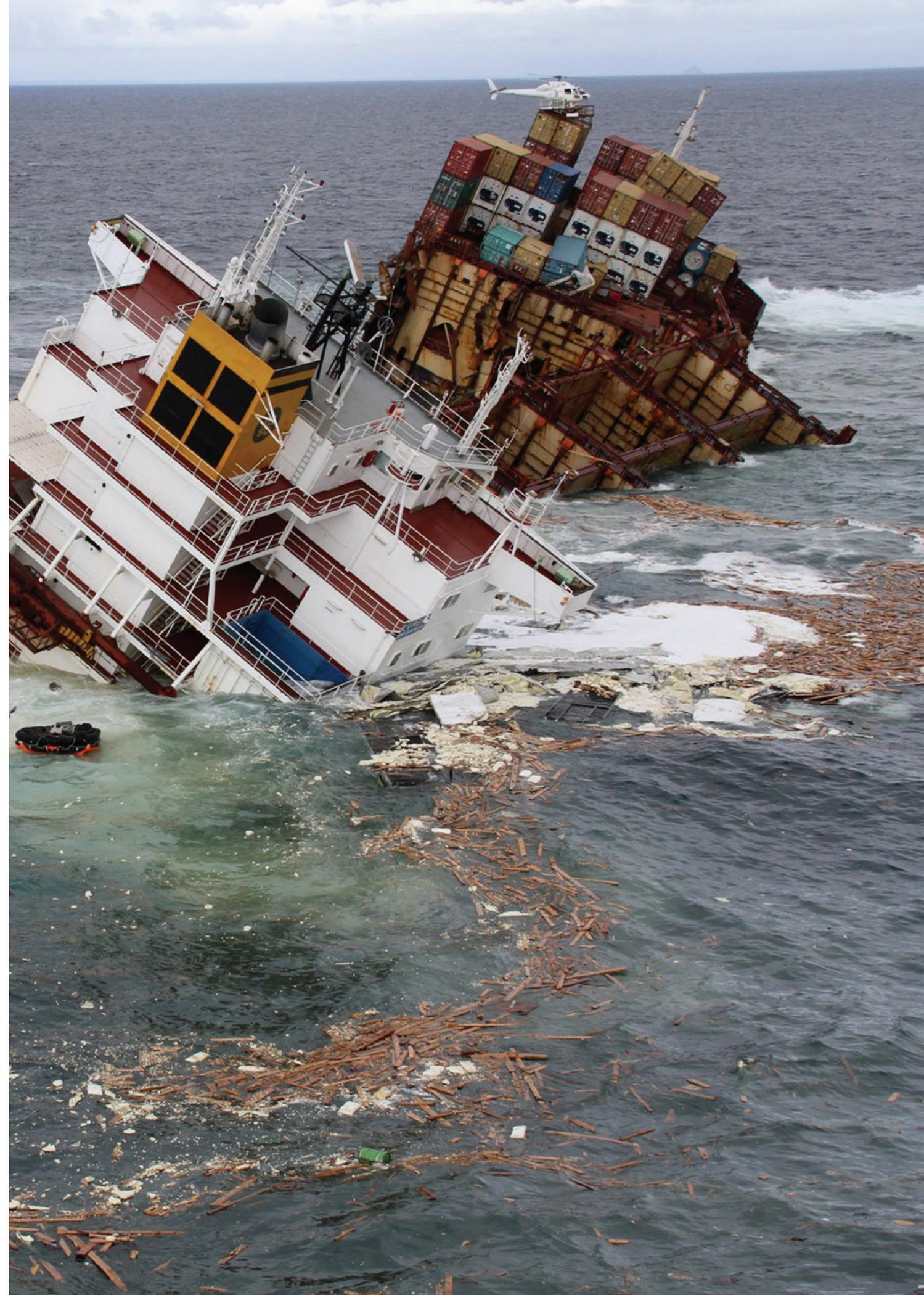
But, a vital mistake had been made in the conceptions and principles that these achievements generated in both their finders and their users. They were all absolutely certain that their farming of Reality had actually revealed Natural Laws, and crucially that they were not caused by the necessary contexts of their revelation and extraction. And the assumption that allowed such a conclusion was that these were separable from each other and any context too. This basic belief is the ubiquitous Principle of Plurality!

Once this was your basis, complex Reality came to be conceived of as a collection of mere summations of entirely separable, eternal Natural Laws.

NOTE: Now, when this actually occurred, was crucial. For over 170,000 years of the existence of Homo sapiens - Mankind, such ideas were impossible. But, the then occurrence of the Neolithic Revolution changed everything! The invention of Farming, both in growing crops in prepared fields, and in the Domestication of animals, also significantly changed the thinking of Mankind. For, both these processes tailored what was being done to most effectively fulfil Man's needs. He selected situations from Reality, and prepared, and then maintained them, to maximise the production of his chosen outcomes. It was this dramatic achievement that was the ultimate ground for the Principle of Plurality.

The new methodology was assumed to be revealing things as they actually were in Reality. And, this marked the birth of the consensus Pluralist standpoint! But, it was, and still is, a mistake - unavoidable then, but unforgiveable now! The laws revealed were not, and could never be, independent of context, but actually depended upon that context to be what they were! Instead of Reality revealed by contexts making certain relations happen, we had flipped into an opposite stance where separable, eternal Natural Laws made Reality what it is, but a proliferation of many simultaneous Laws confused our conceptions of what was going on. The new methods had cut through this fog to arrive at the crucial Laws (or so we believed). A materialist perspective had been transformed into an idealist man-centred one!

Interestingly, long before the arrival of Science itself, Mankind had noticed formal patterns, in certain simple situations, and had learned to extract them as Idealised Forms, and investigate their properties and inter-relationships, isolated completely from their contexts in Reality. Man had invented Mathematics, and this was long before he conceived of Science!



Now, Mathematics is the study of Pure Form in its own terms alone – it is concerned only with disembodied pattern! And, of course, at that early stage, any attempt at explaining why a particular Form occurred was never asked – each was discovered as the “essential content” of the situation being studied. What else could it be? It became an unearthed Truth in itself, and in handling these Forms, usually as the “causes” of things, meant that, from the outset, mathematicians were idealists – absolutely no physical cause and effects were involved. What else could they be without any means of investigating Reality “as substance”?

So, with such a prehistory, Science, when it finally arrived, immediately recognised a relevant co-discipline in Mathematics, as a means of dealing with these underlying, and seemingly determining, patterns of the Real World. So even then a pluralist stance was laid-in as a principle foundation stone of the new discipline. The two disciplines were seen as a division of labour between those studying Form, and those studying Substance, as different sides of the very same thing.

And, what this elicited was an important analytic view of the nature of Reality: it was indeed investigatable and its underlying causes could indeed be sought! Thereafter, every conducive phenomenon would be controlled and investigated in such a way as to reveal its “producing laws”. And, they would be arrived at, level-below-level, presumably ending up with a final set of further-irreducible particles and their fundamental laws – presumably mathematical forms, to explain absolutely everything!

The philosophical assumptions involved in this position determined the subsequent nature of Science in its Analytic Methods and its consequent theory of Reductionism. But, what if these initial conceptions were mistaken? What if these formal relationships were NOT primary and determining, but always a product of the involved physical content of a situation? What if Laws would change depending upon context? How then could Mankind develop a methodology that could still reveal the true nature of Reality? It could be done, but only by proxy! Studying many different Forms, each in their own contexts, also posed the new question “Why”? and the lame answer, “Because it obeys this law!”, could only be a placeholder for a required physical explanation in terms of entities and properties, rather than mere produced pattern. With the current “scientific method” in experiment, along with the pluralistic stance in theory, they were totally ill-equipped to be able to do this. Whilst with the alternative of the variability of laws, what should we be doing to address the real explanation of phenomena?

After this seemingly undermining alternative view, let us quickly re-iterate the current universally agreed method! Presented with a confusing, varying Reality, we gradually learned how to control certain features in a given context. Indeed, we also got so skilled at removing or controlling variability, until we could clearly see a single relation exposed between a limited set of variables. So then, we kept things constant, while we extracted data concerning that evident relation, at that state. We then compared our obtained data with known mathematical forms, and invariably found one that was essentially the same pattern. And, this same data enabled us to also tailor that form to exactly fit it, and produced (pluralistically), what was seen as a separate Natural Law. We had learned to farm Reality, much as we had farmed the land after the Neolithic Revolution.

Now, there is absolutely nothing wrong with this, as long as you don’t kid yourself as to what you really have in your hands. You do NOT have Absolute Truth at all, but only aspects or simplified parts of the truth that can be effectively used! But, what we actually have is a measure of what is more correctly termed Objective Content – which is not only merely partial, but also, and significantly, wrapped up in conceived of generalised principles, which will always, ultimately, lead to unavoidable contradictions, whenever the limited domain of its validity is exceeded. Indeed, Man is a clever animal, and is brilliant at conceiving of Models that deliver such discovered Objective Content as if it is the Whole Truth. These are appropriately termed Analogistic Models, for they use already known features from elsewhere in Reality as receptacles for the new knowledge. But, in doing so, the modelled content is always both simplified and idealised, and, indeed, further extended with a larger area of assumed applicability. But, importantly, they are nevertheless extremely useful in the right circumstances.

The major problems occur when structures, put together out of such models, come unstuck, as they inevitably will! They will cover a given ground very well, and enable an accompanying Technology, and valuable production-for- use. But, such facilities have been constructed via a carefully farmed Reality. NOTE: Returning briefly to this issue of Farming – it is clear that we change the studied situation, and keep it as close as possible to an ideal, which induces maximised production possibilities. And, to achieve this, we cultivate the land, to increase its productivity, as well as removing literally all of the natural population of plants and animals.

We STOP the prior natural context from continuing to exist, and hence its development is no longer by the usual means of Natural Selection, but instead we substitute a short-term, man-devised regime with very different purposes. The Slash and Burn methods of the early farmers transformed the landscape fundamentally, and it was literally millennia before a better-informed methodology was developed. And, of course, in so doing, we inevitably stopped ourselves from really understanding those crucial natural developments. Indeed, to begin to understand people like Darwin and Wallace had to return to the totally virgin areas of the World to really observe the questions posed in Evolution. Whenever we divert from such constructed roads, we hit Reality-as-is, and our domain-situated “laws” don’t work any more.

As the philosopher Hegel discovered, we would unavoidably arrive at impasses, where the very same assumptions and principles within which we situated our extractions would lead to pairs of totally contradictory concepts, which couldn’t both be true. Any attempt to explain one of them in terms of the other would always fail! For, it would always be the underlying assumptions that were at fault. Our usual response was, and often still is, to ignore the contradictions, and use whichever of the contradictory concepts that worked in a given situation. We would then suspend disbelief for pragmatic purposes! But, of course, by so doing we abandon any attempt to transcend the impasse: we keep both the contradictory ideas, and use them purely pragmatically.

Now, this is both good and bad. It is good because, by so doing, we are accepting that each contains some real Objective Content. But, it is also bad, because we do NOT advance our understanding in this particular area. It comes to a halt!

Now, hidden well below what seems to be being addressed in such situations, is the real cause – Plurality – for this sees the World as produced by a collection of separable natural laws, embodied in the Principle of Plurality, and it is this crucial mistake which prevents us from ever finding the real Truth. Our impositions, upon what we think Truth is, prevent us from ever addressing such impasses. Indeed, it is essential that we realise this and understand what Pluralist Science actually is!

So, what can we do about it? Many difficult things turn out to be involved! Our most cherished principles are without any doubt, those of Plurality and Reductionism, which must be replaced with something better. Several major changes will be necessary. Our reliance upon the study of Pure Form alone – Mathematics, can no longer be considered the best path to THE TRUTH! And, something different to our usual farming-based experimental methods will have to be conceived of, and established as a productive methodology.

But, we are not totally without ideas as to what an alternative holistic Science would involve. There are some already existing excellent pointers. Staying within what we currently think of as traditional Science, we have the revolutionary work of Charles Darwin and Alfred Russell Wallace regarding Natural Selection and the Origin of Species. That method was certainly NOT pluralist! And, in spite of unavoidable faults, it was the first successful foray into a holistic approach.

We also currently have Yves Couder involved in a more interventionist kind of Science, who abandoned the successive stripping away of confusing components, and the confining of situations to reveal simple relations – the pluralistic route. And, instead, took a single, simple substance – silicone oil, and by inserting a series of independent oscillations and then tuning them to affect one another via both resonances and recursions to produce a complex entity with both stability and a set of wholly unexpected properties. His methodology was based upon a very different paradigm. Instead of attempting to reveal underlying truths via removals and rigid controls, he, instead, attempted to actually build something, by successively adding more energy via oscillations carefully tuned to get some sort of self-maintaining NEW entities. Instead of Reductionist methods, he developed Constructivist methods. He didn’t attempt to analyse what was causing known phenomena: he instead brought together elements to actually cause phenomena, using known elements, but remarkably carefully adjusting purposely produced oscillations until resonances and recursions took what was usually just a mix, into a real self-maintaining entity.

Now, it would be wrong to limit the available contributions to a nascent Holistic Science to these few revolutionaries. For, the History of an holistic view of Reality is actually very old. Two thousand five hundred years ago, two brilliant individuals questioned the then prevailing consensus. In India, the mystic Buddha put forward the holistic view of Reality, and founded a Philosophy with that as its basis. At about the same time, in Ancient Greece, Zeno of Elea was aware of the fatal flaw in Formal Logic (a pluralistic invention of the Greeks), and devised his Paradoxes to reveal its inadequacies. His Achilles and the Tortoise and his The Arrow Paradoxes totally undermined the prevailing concepts of Continuity and Descreteness. And, though these did not gain a hold in the subsequent development of Science, there was always a holistic strand in Mankind’s thinking thereafter, thought it was sometimes quite tenuous.

It took Frederick Hegel in his Thinking about Thought to investigate a thorough-going holistic, philosophical stance, and he even was able to explain the emergence of contradictory Dichotomous Pairs in human concepts, and even his alternative Dialectical Method of attempting to transcend the unavoidable impasses, which had caused them to emerge. And, at about the same time, the geologists, mostly in Great Britain, had begun the study of the rocks beneath our feet, and revealed, beyond any doubt, both the truly great age of the Earth, and its indisputable Evolution! Indeed, a whole range of fossils of past living things was found there in sequence from the very early Stromatolites, via a galaxy of further forms, including dinosaurs, all the way to modern Mammals and Man. Any conceptions of totally eternal laws did not lie easily with such clear creative developments. And, even History was being transformed by great investigators and writers like Michelet, with his brilliant and revealing account of the French Revolution. And in Philosophy, Hegel, (along with his remarkable contributions), has “turned upon his head, or rather on his feet, “ by Karl Marx – Hegel’s best disciple, who transformed all Hegel’s discoveries to an entirely materialist standpoint. All these developments were questioning the usual Formal Logic methods of reasoning, and the Pluralist version of Science, which still dominated worldwide.

If you insisted upon keeping your head down and concentrating upon an established and exclusive area of study, you could manage to stay in old ways. But, any generalist, head-up thinker, whatever his or her field, would soon begin to question the old methods and philosophical standpoint. Crucially, the unavoidable impasses in Physics now became so regular that by the 20th century many scientists were seriously considering a totally idealist Science, and by 1927 at the Solvay Conference, Bohr and Heisenberg had engineered the defeat of Einstein by saying that the only salvation lay in the subject being entirely Equation-defined, and convinced the majority of their colleagues in subscribing to the idealist Copenhagen Interpretation of Quantum Theory, as the ONLY way to cope with the innumerable impasses, and their consequent profusion of explanatory contradictions. The only conceivable salvation was to abandon Reality and its physical explanations as the place to find Absolute Truth, and, instead, concentrate solely upon the World of Pure Form alone, which was the realm of Mathematics. BUT, it was, of course, not Reality, but Ideality that they would thereafter be investigating!

Yet, at the same time as the presumed to be most basic of the sciences – Physics, was finally settling into their purely formal World, the real World, on all fronts, was precipitating ever more crises, as both the current social structure of Mankind – namely Capitalism, was increasingly running out of alternatives, while the Living World itself was being radically skewed by Man’s increasingly careless presence. Yet, try as they might, and without any doubt, they are certainly doing that, those who accept the situation cannot ignore what is actually happening, and in the last few years, a whole sequence of nations in The Arab Spring lurched towards Social Revolution, and very nearly challenged the present World status quo.

While also, on every side, Mankind was beginning to question how they are ruled and ridden by their current rulers, and increasingly trust NONE of their politicians, of whatever colour. In Science and in Society things are approaching a crisis of colossal dimensions, and the questions posed here are an important part of that too.



The Real Contents of Empty Space

It may seem a funny place to start in addressing the question posed by the title of this paper, but I am convinced it represents an absolutely crucial anomaly in present day sub atomic Physics. It is the conundrum of the famed event termed Pair Annihilation, in which an electron (matter) and a positron (antimatter) are supposed to disappear, leaving behind only a mere “puff of disembodied energy”. For such an idea doesn’t match at all well with its avowed opposite – Pair Production, in which an undetected quantum of energy somehow condenses into Guess what? It is, indeed, one electron and one positron, both of which, somehow, involve actual concrete matter, though of different types.

Now, this is, supposedly, considered to be sound, “mutually-confirming” evidence, from these two phenomena, is, in fact, even more incomprehensible. For, Mankind had spent at least half a century attempting to make energy from matter and also matter from energy, and when they finally achieved it, they did it via Atomic and Hydrogen Bombs. The amounts of energy involved were tremendous. So, explaining these two, much tinier events has never been satisfactorily explained. Of course, it does “fit in” with the conception of Empty Space as totally empty except for propagating disembodied energy. Now, if the separate existence of these two identifiable abstractions vanish as detectable real entities, what has been lost, and what would have to be re-created, in the opposite Pair Production event, when these two are supposed to emerge again created entirely from disembodied, pure energy?

First, we must commence with both a negative charge in ordinary matter (the electron), and a positive charge in antimatter (the positron), to explain the first of these two phenomena. Yet, with such a consequent invisibility, what we are immediately forced to consider is the actual cancelling out of the two opposite charges (which we know “attract” one another”. Could these two alternatively achieve this by forming some joint particle, which also made their two opposite matter contents undetectable too?

But, what could this resultant joint particle be? The two components are supposed to mutually annihilate one another, so in spite of somehow instead co-existing within the same joint particle, they would also have to be kept permanently apart! Could that be achieved?

Then, a possibility was suggested by the existence of the atom – could these two mutually orbit one another? The two entities involved are mirror images of each other in literally every respect, and the same size! So, if this version of a joint particle could occur, it would be charge-neutral, it would also have the two moving charged particles delivering exactly opposite and equal magnetic effects: it would also be magnetically neutral too. And finally its two opposite matter types would be exactly equal and opposite too!

Clearly, such a joint particle would be undetectable by all the usual means. The two sub particles would vanish into a total absence of anything material – “Let’s say it is a quantum of disembodied electromagnetic energy”, said the usual theorists, “That would do it!”

But, alternatively, according to the reasoning above, it could be an invisible joint particle – with NO matter into energy involved at all! But also, as it involved internal orbitings, these could (like those in the atom) be promoted by the insertion of energy to a higher level. Amazingly we would have an invisible receptacle, which could carry precisely one quantum of orbital energy above that necessary for its existence.

Indeed, we would have something akin to the fabled Photon! But, it would be devoid of the prior conceptions of that entity’s many anomalies. It would be an undetectable particle, particularly if it weren’t evidently moving compared with its immediate environment. And the contradiction of the fast moving disembodied Photon travelling at the Speed of Light, could be countered by a more believable entity which could both hold and pass on a single quantum of energy. Indeed, these entities would not even have to move to deliver Speed of Light propagation. If they were incredibly numerous, indeed a major real component of so-called Empty Space, then our gobblet of energy could be passed on from entity to entity, bucket brigade fashion to deliver exactly what we know actually happens – the propagation of quanta of energy across the void at the speed of Light. Also, if too much energy were pumped into such a joint entity, it would dissociate – into one electron and one positron!

Come on! Isn’t this idea eminently better than the usual theories of Propagation and both Pair Annihilation and Pair Production based upon a totally empty Space?

Now, all this could be merely well-informed and suitably equipped speculation until one event happened, which transformed it all! They actually discovered the suggested joint particle in the Tevatron at Fermilab in the USA, and called it the positronium!

But, of course, it was in a high-speed Accelerator or Collider, and the entire methodology being employed there was to smash fundamental particles together at colossal speeds, and analyse the resulting debris. And, of course, almost all of that was short-lived fragmentary sub-particles, and in that context the positronium was seen as just another of these fragments. And, as it only managed to exist as such for a tiny fraction of a second, it wasn’t considered as being able to play any significant role anywhere else.

But, the conditions in which it was created must certainly have been significant. And, even the alternative derivation devised by this researcher (Jim Schofield) would definitely dissociate, in such high-energy conditions, back into an electron and a positron. Presumably, it was only identified by them in the Tevatron by its almost immediate dissociation into entities that were easily identified even there.

Now, this theorist (Schofield) had very different purposes, and was considering a very different context, for the existence in and performance that particle in totally Empty Space. He was looking for an entirely undetectable particle, which was capable (like the atom) of carrying electromagnetic energy within its internal orbits, and was indeed relatively stationary in a sort of universal paving of Space. His major requirement was that in such a context it could indeed propagate electromagnetic energy

across the Cosmos. And with bucket brigade like transfers of individual quanta between adjacent units of such a paving, that energy could certainly be propagated. And, even more remarkably, the Constant Speed of Light in these circumstances could merely be the speed of transfer between adjacent paving units.

There was certainly enough in these ideas, to proceed with more general investigations. And, the first major problem to be tackled, most certainly, had to be the anomalies in the famed Double Slit Experiments.

Remarkably, the insertion of such a paving of these dual particles, now renamed the *neutriron*, managed to remove all the wave/particle anomalies completely. There was, indeed, something in these ideas!

But, other major problems still had to be tackled concerning the true nature of Empty Space. For, beyond the mere propagation of electromagnetic energy, there was the ill-famed Action-at-a-Distance, particularly concerned with Fields. The whole area of electrical, magnetic and even gravitational fields had to be explained in terms not unlike those addressed thus far. Needless to say, research continues, though now with an established direction. What else could Space contain that was both undetectable, but active?



Concrete Einstein

With the demise of the Ether as a Universe-wide substrate filling Space, the bottom dropped out of any material basis for all the phenomena, which, undoubtedly, occurred in what was now considered to be a totally empty void. And, Space and Time were both made even more purely-abstract as mere reference systems, against which, as “absolutes”, all phenomena could be measured and relations discovered.

But, the propagation of electromagnetic radiation, and the inexplicable Action-at-a-Distance of forces such as Gravity, electrical forces and even magnetism remained to be adequately explained. And the seemingly concrete ground for these had now gone. But, scientists like Einstein knew that such a situation could not continue. And, with zero evidence of anything filling that void he did what scientists always do in such circumstances – he attempted to make formal abstractions of what must be happening there. Not, it must be emphasized, a material explanation, but the best and most all-embracing formal description that he could muster. And his result was the Space-time Continuum. Yet, it did differ, very significantly, from the purely formal: it was both affected by mass, and could also affect material objects moving through it. I’m sorry, Einstein, but that has to be some form of substrate! Still, no mention of what exactly it was that did these things, but these effects could be formalised (as usual) into Equations, and used, as are all such formal relations – formal abstractions of patterns, to predict outcomes without explanation. It was all he could do given the evidence available. It seemed that Space was empty, yet capable of being affected by and even affecting material things.

Now, many important areas of Science still depended upon some kind of medium to explain phenomena, and the removal of the Ether didn’t stop them using their equations (even in Space) as if it still existed! Indeed, all wave-like phenomena were simulated using analogistic models of known-to-exist media. Even the famous equations of James Clerk Maxwell were predicated upon a medium, though brilliantly conceived of as involving interactions of sub components, which he described in some details and called them vortices and electrical particles: to him they were actually existing entities making up the Ether. But note that these were not simply carried over from the usual media. Maxwell had to conceive of something different to deliver what most certainly occurred in “empty space”.

Now, following the discovery of the quantum, which effectively explained Black Body radiations well as the Photo Electric Effect, things started to dissociate theoretically, and the crisis culminated in the contradictions inherent in what came to be known as Wave/Particle Duality. This thoroughly idealist trick embodies the two opposite sets of features – both Waves and Particle phenomena in the very same entities – which could switch between these incompatible states, depending upon changed circumstances. Frequently, scientists yearned for the Ether, for wave phenomena were easy with such a basis. But it was most certainly NOT THERE.

Then, this researcher (Jim Schofield) decided to re-instate the idea of a universal substrate, which could never be detected by the usual means, and attempted to describe it in terms of particles and their properties, both already known and, indeed,

universally accepted. The task was to define a joint particle, which appeared to have zero charge, zero magnetism and even zero matter – could this be a possible union of known particles? After many attempts, he finally settled upon a mutually-orbiting pair of one electron and one positron, which he termed the neutritron. This seemed a reasonable bet, as both sub particles were known, and if they could unify without the predicted mutual annihilation, then the resulting entity would indeed have equal amounts of opposite charges, opposite magnetic effects and finally opposite kinds of matter (matter and antimatter). And, its orbits would be capable of absorbing energy, by their promotion to higher levels, and the giving up of such by their subsequent demotions.

Such particles in a Universe-wide Paving of Space could propagate quanta of electromagnetic energy, without the individual particles even moving! The quanta of energy would be passed on (as we know the atom can), but here by a bucket-brigade fashion at the constant speed of transfer between such particles, which we know as the constant Speed of Light! Yet, with very large insertion of energy, such joint particles would be dissociated into – one electron and one positron – the known phenomenon of Pair Productions. To cap it all, this very particle was actually detected in the Tevatron at Fermilab, and there named the positronium. It did indeed exist! Now, though the evidence had this particle only existing for a tiny fraction of time, it was in a High-Energy Accelerator. So I assumed its stability in Empty Space, and proceeded.

The basic supposition was that such particles normally formed a Universe-wide substrate, which ensured the stability of its components, yet was itself both undetectable, because of its balanced internal structures, BUT active in the propagation of electromagnetic radiation. The Wave/Particle Duality of particulate entities divided, now, into particles interacting with an undetectable Paving. The two sets of properties were mutually dependant upon one another, and in the famed Double Slit Experiments every single one of the anomalies was dispelled using these new ideas.

Now, Einstein’s Space-time Continuum, with its properties of deformation and consequent effects, could only be the formalisation of some similar kind of undetectable substrate, as has been described here. Clearly, much is yet to be done, and it is already clear that a Neutritron-only substrate cannot deliver all the features we can observe. But, already the addition of other similar entities looks like they can indeed deliver fields in Empty Space, as rearrangements and distortions of the substrate.



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