

The Cosmology Specials

An invitation to Contribute to an Alternastive Model

Since March 2009 this author has written some 24 papers connected with the field of Modern Cosmology. You might think that to have done this, the writer must be a Cosmologist or an Astronomer, with vast, detailed knowledge in this specialist area, but, in fact, neither is the case. The writer was trained as a physicist, and has since taught Physics, Mathematics and Computer Science at all levels up to and including Higher Education so is extensively knowledgeable in those fields.

But he is not your usual scientist by any means, indeed, while still a student at University he was regularly and emphatically disagreeing with his lecturers and professors, and could not stomach the (to him) clearly evident retreat from real Science heralded by the all-conquering Copenhagen Interpretation of Quantum Theory.

It was not, it should be stressed, any rejection of Atomic or even sub-Atomic Physics, that produced his standpoint, but a total rejection of the stance taken by Bohr, Heisenberg et al, who insisted upon the abandonment of all “scientific explanation”, for a purely pragmatic reliance ONLY upon relations extracted from data gathered in experiments. The rest of prior Science was condemned as pure speculation and indeed, even self-kid. ONLY these extracted equations contained objective Reality and everything should be revealable solely by reference to them.

It was the epitome of specialisation!

Such a standpoint would not survive a single minute in the vast majority of human endeavours and concerns, but with a blinkered and extremely focussed view of only their narrow area of study, these scientists could get away with it, because classical methods were clearly inadequate and were regularly failing to produce what was expected of them in their field of expertise.

Slowly, but surely the traditional extremely sloppy way of talking about Reality within Physics, which had been a major weakness in most scientists for centuries, now actually not only became O.K., but also was deemed to be actually required.

Indeed, if you did not use the established vocabulary and way of speaking, you were clearly incapable of understanding “Modern Physics”, or alternatively were just “kidding yourself” as to the nature of Reality to fit some assumed myth of explicability!

In this situation Form (relations, patterns & equations) were seen as the actual *drivers* of Reality, via so-called Essences, which were directly and accurately encapsulated ONLY in **equations**.

The Word, henceforth, was to precede the Action – the Essences embodied in equations actually preceded, and additionally produced, Reality. And such a stance clearly converted the standpoint of these scientists from **Materialism** to **Idealism**.

It was the most significant retreat in Science for hundreds of years, and it has led to a significant deterioration in the quality of scientific theories ever since.

NOTE: For those who are amazed at such a claim, and mention the extraordinary pace of technological development and innovation that is evident on all sides, I have to insist that such is actually **Technology**, and not **Science**.

Technology asks and answers the question “How?”

While Science asks and answers the question, “Why?”

They are very different questions!

But the issue is confused by the valuable role of Physics, and in particular the sub-Atomic area, in Modern Cosmology, which has been dramatically and indisputably beneficial during the last century. For Sub-Atomic Physics includes Radioactivity, and along with Einstein’s Relativity and his $E = MC^2$ equation, led to the study of Atomic Energy which delivered not only to the production of devastating A-bombs, but also to Energy Production. Clearly, the atomic fusion of Hydrogen (H) nuclei into Helium (He) nuclei was

significant elsewhere too. Indeed, it was this side of Atomic Physics that had a major influence upon Cosmology, because it suggested exactly how energy may be produced within a star!

Subsequent developments also showed how a successive series of processes within stars, involving a sequence of higher order fusions, could also produce the heavier chemical Elements up to and including Iron (Fe)

Physics had been giving Cosmology what it needed to explain the variety of stars in the Heavens, and to even pencil-in suggested life-trajectories for literally all stars.

And Hubble's observations of galaxies, which showed that the whole Universe seemed to be expanding away from some common centre, led to the idea of the Big Bang.

Cosmology became largely Physics, but Physics had become predominantly Copenhagen School with all its major flaws. Starting with equations meant seeking Truth solely within these deemed-to-be "essential driving relations" ONLY.

Physics had become Mathematics, and hence so had Cosmology!

My student doubts slowly matured into scientifically well-founded ideas, and even solid philosophical differences with the all pervading consensus.

I knew they were wrong!

The problem was, in a milieu dominated by my opponents to single-handedly deliver answers to the by now complicated fabric of assumptions, ideas, equations and inspired speculations.

Initially, I did not turn to Cosmology: the problems certainly lay elsewhere, and they must be tackled first. It was clear that the first tasks were in both Philosophy and Scientific Theory.

I therefore attempted to trace through the most basic Processes and Productions of Abstraction, which were clearly profoundly significant in how Mankind attempted to understand the World.

This was a major undertaking, but invaluable in addressing these questions. From the solution to that problem it was possible to trace the different methodologies of both Science and Mathematics, and it did finally prove possible to identify exactly where these disciplines diverged. Perhaps the most important discovery was that equations DID NOT exist within Reality-as-is, as we both formulate and use them. They were extracted ONLY within extensively farmed and then controlled localities, which were termed Domains of Applicability.

The philosophical errors were then investigated to see where exactly Science and Mathematics had actually taken their own different paths and where they led, but what was initially revealed was much more basic and profound.

The crucial first assumption in both these (and many other) approaches turned out to be **Plurality** – which saw Reality as composed of contributing **Wholes**, which themselves were made up of constituent **Parts**. The crucial error was to see a hierarchy of all these Parts as *wholly separable*.

Now this is extremely significant, because it assumes that though these Parts will be acting along with many others to produce the phenomena of the real World, they were also assumed to NOT be in any way transformed by their interactions: they remained the same!

They continued to retain their individual integrities and merely acted simultaneously together with others.

And this succession of unchangeable Parts went all the way down level by level to finally arrive at what could ONLY be immutable, and eternal basic or fundamental units, with associated final laws of their interactions.

This idea, termed **Reductionism**, became the main principle concerned with all theories, and was, in fact, derived directly from the assumption of Plurality.

It was of course, completely UNTRUE!

Plurality is NOT the mode of existence of all things in Reality. Indeed, it is very much closer (though not completely accurate) to see Reality as entirely **holistic**!

However, the pluralistic assumptions could indeed help, but *only* when Mankind could so control the given situation, that most things would be held firmly constant, and a Domain was thus created in which Plurality was close to being true, and hence for a small subset (usually a pair) of key parameters, they could be revealed as clearly and definably related.

This did not seem to be a problem, as long as the Domain could also be identically set up for when the extracted relation was to actually be *USED!*

Then, it did indeed give correct predictions and enabled a vast useful technology-penumbra to be erected around every pluralistically extracted relation or its abstracted form - the **equation**.

The problems arose, however, if the Domain's boundaries were transgressed.

Then, the equations no longer worked, and the new situation had to be similarly controlled and investigated to allow yet another, different pluralist Domain to be erected and maintained, and in which *its* relevant pluralist relations could be extracted.

So, Mankind wasn't too inconvenienced, and motored on at an increasingly accelerating rate.

BUT, if ever such Domains of control could NOT be set up, you didn't get anywhere; those avenues were CLOSED!

Indeed, you were in such deep trouble that you could not follow the well-defined pluralist path of isolation, extraction and abstraction via controlled Domains.

The cleverer scientists tried to **emulate** the non-interveneable situation via a series of artificially set-up stepping-stone Domains with **thresholds** that would indicate exactly where to switch Domains and equations. But two things worked against such a frig.

FIRST, many situations could not be splittable into these erected Domains, and

SECOND, they could only be *retrospective* frigs, and hence could never reveal the emergence of anything entirely new. And there are yet a further two sound reasons for this. The first is that to cope with threshold-triggered switches, they just had to have been extracted from real observed data, and secondly the assumption that the individual, multiple contributions would remain unchanged after switching is almost certain to be incorrect.

Such methods implicitly assume everything except the relation to which the trigger is attached will stay as they were. This has no foundation whatsoever in data collected. It would be true **ONLY** if the Domain **remained** applicable for other relations when the key relation has to be terminated. [There do occur situations in which this is true, but nowhere has it been properly established, in fact the justification can only be by inference when, after a switch, we still get away with the other relations still holding, and the new set up delivers something like what is the case

Now also, and quite separately, a computer-based alternative was increasingly being used [Yes, we did use to do simulations by hand, without computers, but I don't recommend it]

Here, though you didn't control Reality, you *could* "set up" a "Domain" as part of a computer simulation. In these circumstances the chosen Domain could be artificially, and indeed virtually, created when it couldn't be in concrete Reality. With a whole series of such simulated Domains within such programs, the "researcher" could create his favoured threshold triggered switches between them. Of course such computer systems **HAD** to also get incoming data to enable the software to run the simulation and fire the triggers in response to real data, but the "world" reacting to this concrete data, was decidedly **virtual!**

These programs got to be so commonplace that most people actually "expected" these simulations to be able to predict anything, including unique situations that had had never happened before and hence were **NOT** programmed for.

People's expectations of Weather Simulations are the most common case in point.

But such programs cannot predict what their software does not include as a possibility, and hence they never will get such situations right!

What we needed in Science was what can only be labelled as a **Holistic Scientific Methodology**, which would enable mutually defining contributions to be dealt with effectively. All pluralistic assumptions would have to go in ALL dynamic, qualitatively changing processes, and there a wholly new kind of Science would have to prevail.

The question is, “What would such a form of Science have, to entail: what indeed would replace our banker **pluralist experimental methodology**?

Now this IS indeed the problem!

Our whole method rests upon holding down most active features, to reveal the simplified relation between those we have left to vary. As soon as such controls are impossible, we somehow have to treat Reality on-the-fly – all happening at once, and everything affecting everything else.

How on Earth can we do that?

The answer is that we have to understand holistic changes – that is complex, multi-part and mutually affecting, integrated and wholly qualitative process of changes. And to do this there are big as yet untackled problems.

For one thing, the way that significant, qualitative change occurs is via *episodic* Events called **Emergences!**

NOTE: There is a myth that large amounts of incremental quantitative changes actually accumulate to produce real qualitative changes, but it is incorrect. We are talking about integrated and indeed holistic Systems, where all elements affect and mediate one another: in such a context this myth is untenable.

And during such revolutionary Events, which occur TO complete and stable systems, these become first gradually undermined and then actively dismantled, so that after a major qualitative and indeed creative Event, a wholly new, stable Level emerges from the ruins.

Now such New Levels have many entirely new entities, properties and indeed laws (the Origin of Life is an excellent example), and many of the key parameters of the prior Level (isolated, extracted and abstracted into predictive equations), DO NOT carry across as such into the New Level. Thus, the assumptions of continuity embodied in Reductionism finally bite the dust!

You cannot derive anything about any such New Level from variables, properties and laws of the prior Level. No one has managed it yet in any such transition, and indeed, never will using our current assumptions and methods.

Yet similar transitions, such as Changes of Phase (e.g. Solid-to-Liquid, and Liquid-to-Gas) can, and indeed, **must** be explained holistically very well indeed!

And Darwin’s theory of Natural Selection is a holistic law, as is Wegener’s explanations of Plate Tectonics.

Thus, to tackle the difficulties now presently cropping up all over the place in current Science, a very different methodology to that based on Plurality must be revealed and developed.

These questions require new tools, indeed a New Science!

Now it is clear the Cosmology is just such an area of Reality, where pluralist assumptions and methods are NOT applicable. We cannot (though many purport to try) arrange a Supernova, or set up a trajectory of actual star development, or even experiment with Big Bangs.

Like much of Geology and literally all Evolution, this area cannot avoid real, qualitative change. It is peppered with Emergence Events throughout, and clearly a sound Cosmology MUST be grounded in the soundest understanding of this crucial type of Transforming Event.

Without such an approach, Cosmology is being dragged into the same bottomless pit of purely formal considerations like Physical(?) Singularities, Parallel Universes, and entities popping in and out of total Nothingness, which along with others of the same ilk abound in this sorely, wounded Science.

NO! Cosmology, as with all other investigations, which involve Evolution (that is significant, progressive and qualitative change) MUST start from Emergences, and to even begin, it requires a revolution in assumptions and methods.

The problem has been known for over 200 years!

Hegel clearly identified it, and indicated that a Science of Qualitative Change was already essential, but he was “*only a philosopher*”, and though extremely well informed of the Science of his time, both he and it were not yet ready for such a task.

The time for it is now! Indeed, it is considerably over-ripe for this necessary development. And yet the task is still hardly begun!

For this reason I have decided to present my own contributions in various ways. There is a substantial body of work on Emergences. Indeed 2009 saw the production of the **Theory of Emergences** (published August 2010), and the work on Cosmology will be delivered in TWO different ways.

The first will deliver all my contributions in chronological order, and will include everything as published (warts and all). The reason for this approach is that as it is based upon a different philosophical standpoint and gains have not come easily, it is important that I do NOT deliver a carefully sanitised and massaged version of my ideas to insinuate them into my readers support. On the contrary, I KNOW it is vital that readers see the errors as and when (and indeed why) they arise. For, try as you might, a present day investigator is constantly sucked into the usual assumptions and techniques, and only slowly do you realise your **OWN** problems in carrying out such a task.

To lay everything out, as it actually occurred, and to see at what issues reviews, corrections and even wholesale changes were necessary, will certainly encourage the reader to actually join in with his responses to clearly evident mistakes.

This is NOT a one-person job!

Indeed, it is very much more difficult than pursuing a specialism within a generally agreed consensus. The researcher has to constantly be questioning what most scientists assume has already been conclusively established by others.

So, in reading these papers in the order in which they were written, will NOT be like reading a polished and “perfected” book, but more like listening to, and responding to ideas in a discussion in a new area: indeed like being an actual participant!

There were (unavoidably) many mistakes and wrong turnings, and observing the trajectory from the outside, will certainly make these easier to see, and perhaps easier to formulate your own alternative. The presence of this author’s realisations and corrections in following papers also allows the reader to compare them with his/her own, and they themselves begin to erect their own coherent view on these issues.

Now, such an approach is not only unusual, it is almost unknown. You cannot use the usual paper publishing sequence to do this, it is much too spread out in time.

With this method, all the papers are available together, and the reader’s responses are immediate and can be immediately compared with the author’s slant on a solution. In the time it takes to read the whole series, the reader will have developed their own view of the whole thing. Only with such immediate feedback can everything be remembered and re-weighed!

It is why I spend most of my time reading my own writing: it is by far the most important source of new contributions.

In the usual process of publication, a great deal of trouble is taken with most papers to convince the reader that all problems have been given due attention and what is delivered there provides the best solutions. And books are even more massaged to deliver a seemingly unassailable trajectory of logic and proof.

So, this alternative will certainly elicit criticism, **and so it should!**

But criticism always demands a consequent commitment – the critic must provide his alternative. A diatribe, which only pulls down a particular point, is NOT what is required here.

And, by delivering the whole body of work, such individual “point-making” will hopefully not be what happens, if only for the reason that the error may well be addressed in the next paper.

Both this author AND the critic is helped by the immediate availability of the whole sequence of writings.

By the time a genuine critic has finished reading the whole set, he/she will also be in a position to present a coherent alternative.

That is what is required!

Now, I will also deliver (at some point) a second version of my contributions on Cosmology, but they will represent the culmination of this body of work. This will be a single coherent work (a book) in which (hopefully) all errors will have been addressed and a coherent comprehensive and understandable narrative delivered. And such was always the purpose of my researches from the start. But, though they may make the ideas digestible, they don't particularly aid criticism/

That is why BOTH versions will be made available. You do not pack your books with a complete description of every single assumption and the externally delivered ground that you have used, but in the individual papers these are much more clearly available and will give other researchers grist to their own mills of investigation.

Finally, I must also admit that I am well aware that the considered exposition as is usually delivered in the book form, will often suit a certain kind of reader, who really wants ready-made knowledge, and therefore wants to be able to follow, and later regurgitate what he has read.

Such a passive requirement is NOT what I am attempting to deliver, but I must somewhere also deliver this extensively improved and comprehensive contribution, and no doubt it will be read and related by such passive (and always selective) readers, but they will not be disciples of the ideas contained in my work.

To do that involves not only relating it, but indeed *replacing* it with much better stuff.

Jim Schofield August 2010

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