

Formalising the Heavens – Paper I

The Ground

On re-reading the fairly recent populist offering in a previous issue of New Scientist (2682) on the saga of Modern Cosmology, I feel that I must preface my intended and detailed criticisms with a few more general and methodological comments.

From being a synthesizing arm of Astronomy, Cosmology has definitely been converted into a subsidiary arm of Modern Physics. Now, this might seem a reasonable development, as Cosmology without Physics would be very thin gruel, but I must therefore stress that I am talking about “Modern Physics”, and its now current philosophical basis.

For there has been a significant change in that area, which long ago abandoned Science - *why things are the way that they are*, for Mathematics, - *how things behave* when isolated, extracted and abstracted into purely formal equations.

Now this change is even more of a retreat in Cosmology than in Physics itself, for Cosmology has the major disadvantage of **not** being available for carrying out experiments to justify its theories. **It can only be observed.** Thus for Cosmology to turn exclusively to equations (as “theory”), means that it can ONLY go the way of all flesh, and tailor the Universe to “fit” into its available mathematical Forms.

But, I suppose, it could be said that they brought it on themselves.

For the first glimmerings of such Formalism within Science came precisely *from* Astronomy itself - where planetary orbits were isolated enough from extraneous “noise” for quite simple equations to deliver fairly accurate and useable results. Though it must also be mentioned that Newton and his contemporaries DID use physical concepts such as Mass, and Gravitational Force to *explain* why their equations were appropriate.

The fact that heavenly bodies moved about obeying such simple mathematical forms, plus the increasing ability of Mankind to impose and maintain rigid controls on earth-bound phenomena when under investigation, enabled those also to be entrenched in simple formulae too. Such exciting prospects led to a change in the conceptions as to why things behaved in the way that they did, not only in the Heavens, but everywhere else as well.

The assumption became that all things in Reality were the way that they were, because they **obeyed** formulaic Laws, and any diversions from these “absolutes” were caused by many other simultaneously acting and even contending laws muddying up the “primary” situation.

The purpose of Experiment became changed too.

Instead of it being to log Reality in some systematic way (as with Tycho Brahe), the purpose became to reveal the underlying equations, which *drove* each and every feature under investigation. The job was clearly to isolate as completely as possible the related factors, to extract them and finally abstract such discernable relations into rigid, eternal Laws.

Notice that the World was no longer the result of physical entities, properties and forces, but solely the product of purely formal disembodied relations. It was like talking about fathers, mothers, sons and daughters without any people being involved. The relations were disembodied *from* Reality as *driving essences*.

Now, such is the exact opposite of Science, which sees equations as extractions from a specially constrained Reality, but then always attempts holistic explanations of Full Reality in terms of entities, forces and the rest.

Instead of Science being entirely Materialistic, it was changed into something which is solely Idealistic.

The main, and most important effect of these changes came to a head in the early 20th century with the so-called Quantum Revolution, which increasingly unearthed phenomena which contradicted the previous attempts at “scientific explanation” Now, such revelations are not new. Indeed, the whole development of Science **required** such impasses to overhaul and remedy Science regularly. Absolute Truth is unobtainable in real Science, and what can be achieved – Relative Truth, must be constantly updated and improved.

That is what Science is!

But on this occasion, a wholly new conclusion was drawn. It involved the overt and “principled” abandonment of “scientific explanation” completely, and the total reliance instead on equations alone.

Let us be absolutely clear what this meant.

Whereas Explanation, no matter how imperfect it was, always attempted to explain WHY things behaved the way that they did, Mathematics, on the other hand, only **described** HOW behaviours in a purified formalistic way could be encapsulated. The “solution” therefore, was to BAN explanation, and replace it solely with derived and eternal equations. Now this word “eternal” will be contested, but such cannot be upheld, when the situation is worked through logically. These New Men do NOT see equations as being temporary at all. It is all a matter of dominances between the MIX of many such equations. They never cease to be true. They are just swamped by other such equations as conditions change. It was sincerely believed that if you could predict behaviour accurately, you understood it.

NOT SO!

Prediction is NOT the same as Understanding at all. History is full of successful predictions at every scale, but based on “historical forerunners” only. By studying similar situations that have occurred in the past, the result of “identical” situations in the present and future can be successfully predicted. But, that does not mean that the causes are known and understood.

Prediction is a retrospective mechanism, and works when situations recur. Explanation is a separate and different process, in which the attempt is made to construct a coherent whole out of many phenomena.

An equation doesn't, and can't, do this!

To be continued

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