

## Explanation via Chaos – Paper III

### *The Inexplicable Nature of Crisis*

At this point I feel that I must briefly mention that a serious and profound attempt to address holistic situations in Thought was attempted around 200 years ago by the philosopher, Hegel, and that his ideas were carried forwards to the extent that they were able to guide the analyses and actions of revolutionaries in Russia in 1917.

Returning to the TV programme, perhaps the main warning that should be written in big letters on the “pack” of this offering ought to be

**WARNING: This is entirely put together by mathematicians, with the help of economists, and as such it can seriously damage your analytical health.**

I can make such warnings, because I am also a mathematician, but one who does NOT claim that Mathematics is the Queen of the Sciences, or even that it is indeed a Science, for it is more accurately described only as a vital Handmaiden of the Sciences. For whenever an inversion is made in this regard dire consequences always ensue!

Indeed, my mathematics has been put to the service of experts in areas as far apart as Physics, Biology, Evolution, Philosophy, Music, Dance and Computing - the latter having been of all types, including high level Systems Software. Finally I am a world leader in the authoring of Multimedia Resource Packs in Teaching, and in the Analysis of Human Movement.

The economist Paul Omerod (a part of the TV team), who makes the most profound errors emanating from his “universally applicable science”, informs us, for example, of “our deep desire to control the future, and a very real reluctance to accept the very modern advances in Mathematics”, and, finally, that “there are high levels of unpredictability in predicting the future”. Really?

Now, apart from the mathematical fixations of these people (as you would expect) Omerod also describes the most unscientific elements which abound in this area, which he condemns urgently, just as if we ever believed any of them. Economists DID, of course, and he is really admonishing his own caste of dealers in future success!

Now, though the majority of the arguments in this programme are from mathematicians, historians of Mathematics and economists, the final contributor is most interesting. It is Professor Linda Gask – a psychiatrist at the University of Manchester. We might be forgiven for wondering what she is included for, and who she is talking about when she tells us, “There is a dread that something awful is going to happen”, which she tells us is a consequence of “a history of that anxiety and the mathematics that created it”.

AAAArrrgh!

So, that’s what was driving me round the bend! It’s the Mathematics, of course!

We are told that 50 years ago people talked about a Command and Control Economy, engineering the Weather, and Central Planning.

Which people were these? I don’t remember this! These “people” were quite obviously from a different class to me and any of my friends, relatives or even associates.

All of this MUST be about a particular fraction of the population.

Could it be the very same fraction who invest and “speculate to accumulate”?

The narrator throughout this programme, Malone, is certainly delivering the main thesis of the piece, however, it is not clear who he is and what particular expertise qualifies him to be the leader of the pack. Whose words is he uttering, and on what grounds, are not altogether clear?

These words are, of course, that special kind that condemn the viewer for errors that they don't even know they had been committing.

To be wrong is bad enough, but to be so far behind that you haven't even made the widely accepted errors of everybody else is almost reprehensible! Perhaps you can make up for lost time by immediately embracing the corrections of these obviously well informed experts, who DO know the necessary modern Mathematics to explain this catastrophe. You may not be able to do anything about it, but you will be able to accurately say why, as you are disappearing down the plughole.

Yet, if you are a technologist, ignore this whole section!

As you never will have endured a single day when you didn't know the tasks of control that have filled your whole life. The worries of those un-harnessed to their means of sustenance will not apply to you!

Returning to Malone's urgent explanation, we are informed about the famous atheist and mathematician Pierre Simon Laplace, who articulated a set of beliefs about the nature of everything - and considered it could be likened to, and understood as, a very complex machine. The various relations that Mankind was successively extracting, could, if comprehensive, deliver accurate prediction of everything.

And David Ruelle saw Laplace's vision as both mechanistic and deterministic. Malone asserted that this view involved the belief that *nothing happens without a cause*. Indeed, in principle, nothing is inexplicable! If you understand the mathematical "rules", you understand the World (it seems?).

But, wait a minute!

Mathematics surely cannot *explain* anything?

It is the expression of extracted data as a pattern, which via symbolisation becomes an equation. It is hence just another, if succinct, form of **description** alone - certainly NOT an *explanation*.

To see the World driven by non physical, non-material, indeed abstract "rules", which magically "guide" concrete Reality to its complete set of processes is surely Idealism – the exact opposite of the physical and concrete explanations which we call Science.

Yet the embodiment of Science as mathematical and indeed Laplacian was, and is, widespread!

"If enough people did enough sums, then everything could be understood", we are informed. Monkeys, typewriters and the complete works of Shakespeare come to mind!

Dr. June Barrow Green is an historian of Mathematics at the Open University, and she characterised the consensus, since Laplace, as being that Mathematics could explain everything completely.

But, insisted Malone, right at the heart of Newtonian Mathematics was a problem that, if it could not be solved, threatened "that whole belief structure". As soon as anyone upped the problem of orbits from a basic two body problem to a three body problem, you found that the equations became unsolvable.

The physicist Henri Poincaré discovered that even the tiniest difference inserted into such situations could lead to seemingly identical systems behaving in such a way that their trajectories would differ to a remarkable extent, so that one of the bodies could "unpredictably fly off in a direction for which NO explanation could be found. He realised that this could be due to initial conditions, and stated that this "sensitivity to initial conditions" was perhaps universal.

Now, I have to intervene once again to try to sort all this out.

These arguments are put forwards, presumably, to do two things. First to torpedo Laplace's mechanistic scheme, and perhaps secondly to reveal the "nigger in the woodpile" that is Chaos. Now, thus far, the form of Chaos seems to be quite emphatically unpredictable, and this can only mean that it is entirely random. To address this sort of Chaos seems to be a waste of time – a perfect example of the "give up now you'll never do it" position. Or were they just being dramatic in the unpredictable "shooting off to nowhere" example? Maybe only Barrow Green has such a view. Anyway she calls this phenomenon Mathematical Chaos.

Now we are constantly reminded of the remarkable case of the flapping a butterfly's wing on one side of the planet causing a storm on the other side. Once again the stress is on total unpredictability. Demolishing Laplace's myth is OK by me, but so far in the argument, the only demolition has been via this totally unpredictable element. We have total predictability demolished by total unpredictability!

To be continued

(1,278 words)