

## Explanation via Chaos – Paper V

### *The Inexplicable Nature of Crisis*

The solution to the problem of dealing with an holistic World was to be found by a surprising and circuitous route, that began with the profound studies of the geologists, and came to full flowering with the Theory of Evolution. Serious thinkers began to take **Hegel's** programme seriously, and look for an explanation which could encapsulate all of these things. The answers were there in **Hegel's** work on the *Science of Logic*, but were never worked through. He was right but too early, and his Absolute Idealism walled his work off from those who might be his greatest allies - the scientists. They were rapidly concentrating into a group who could see no alternative to Materialism.

A series of other components were to reveal a possible integration. Perhaps the most important was the work of **Michelet**, who spent twenty five years carefully gathering unheard of quantities of primary sources in order to write a comprehensive and understandable *History of the French Revolution*. This opened the eyes of many to what became known as the Materialist Conception of History, and the possibility of both understanding the past, and even learning from it seemed to become possible.

Now, though remarkable advances were made by the **Young Hegelians**, and those who later became the **Marxists**, the crucial questions, as we have come across them in this account of a TV programme were not entirely cracked.

Only later, did small groups of academics start to talk about **Emergences**, which seemed to be situations in which system effectively exploded, and reformed into entirely new Levels with new entities, processes, and even laws.

The task was becoming one of seeing Reality itself as a **development**, and this seemed to have alternate periods of predictable, incremental changes, interrupted episodically, by revolutionary transformations. The FULL explanation of Prediction versus Chaos was nigh!

But, let us NOT run before we can walk. Let us return to our TV programme of Chaos!

Now, the narrative suddenly becomes very predictable.

Everyone had looked around for who was to blame for the catastrophe of the 1929 crash. Who had actually caused it?

But, our experts informed us, these people didn't understand that nobody was to blame. The inherent instability of the system was the culprit, almost anything could finally tip it over, and nobody could possibly predict when it would happen and what its content would be when it did.

You couldn't BLAME anyone. It was an Act of God!

NOTE: Am I distinguishing a resonance here? Could our present situation in 2008 be similar - No-one to Blame - inherent instability and all the rest?

Here our commentators (speaking generally) criticize the naïve attitude that "reasons would in time be found for such catastrophes". Such wrong-headedness must be contrasted with their own accrued wisdom, that these things will NEVER be explained, for they are inherent in the nature of all complex systems in themselves.

The series of "icons for progress" which successively seemed to have periodically re-established the naïve belief in determinism was next to be seen in the entirely new appearance of that wonderful device – the Computer.

The Computer seemed to be THE tool for Laplacian determinism.

As was erroneously stated in one archive clip in the programme, "The only difference between the computer and the human brain is that the computer is faster!"

Ouch!

The possibility of actually completing vast calculations involved in the now universal Numerical Methods was now available. In yet another howler, the computer was said to be “the ONLY tool necessary to understand(?) the atomic explosion itself”

There again was the repetition of the obvious statement that prediction equalled understanding. It doesn't and never has! The implication was, that we had control over the atomic bomb, hence we could control anything. This we are told, was the source of our confidence in Science and Maths.

As a wise old doubter, the programme was even able to find a place for **James Lovelock** to contribute a fragmentary half sentence or two, which seemed to agree with the overall thesis of this effort.

Then, returning to history, when all seemed rosy in the determinist World, along came the meteorologist, **Ed Lorentz**. He ran a fairly simply model on a desktop (?) computer, and found that it gave vastly different results, when he ran it with what he thought were the exact same numbers, (but which had in fact been rounded off). The very tiny differences, instead of having a minor effect, had instead led to very different outcomes.

I must, I'm afraid, once again interrupt the flow of our devisers argument to comment.

It says a great deal about how we consider what is generally termed “noise” – *random variations*, and particularly in mathematical models in circumstances *sensitive to initial conditions*. This approach is very important because all such models are always simplified, which means that they don't include all the many evidently existing and contributing factors. The problem is, ”What do we include and what do we ignore or tidy away by some means or another?”

Are our chosen “dominant” parameters direct measures of the real determinators, or mere consequences of such forces?

We always assume that many small variations have NO significant consequences, they just disappear. Lorentz countered that when a system changed in the way he had detected, it wasn't because some thing *extra* had caused it to veer off, but that the seeds of the change had been there all along, slowly growing, and which finally came to fruition. It was Lorentz who first called this phenomenon – The Butterfly Effect. Now, though his contribution was very important, his interpretation was absent. So, something was there which developed differently to the usual equations, and seemed to be located this in initial conditions, but was he really saying that our equations did not behave in the way we assumed all equations would - that they suddenly displayed quite unpredictable behaviour? If the tiniest of differences in initial conditions guaranteed unpredictable outcomes, and we couldn't be sure of exactly what they were, then determinism was dead. And exactly HOW these tiny changes produced the results must be down to chance?

We also have other profound problems with our parameters. Any experimental scientist will agree that what we choose as our parameters may NOT be the actual causes of what we are studying. Holistic Reality presents level upon level of seemingly essential form, which on further analysis proves to be caused by many other things acting together. Though we have always found that our assumptions in this regard have been useful, they involve a belief that the combined behaviour will always conform to the same overall law. What if the underlying and producing components change, not only in quantity, but in the qualities of the combined effect? If what we are really doing is ascribing a placeholder “cause”, which changes due to a varying combination of its components, we may think that we are steadily varying a cause, when what we have in our hands is a complex effect. And, as such, can pass a threshold and, as a result, obey a different combined equation. Even a seemingly simple equation may include this underground activity.

**To be continued**

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