

ANALOGUES OF STABILITY AND CHANGE  
THE SIGNIFICANCE OF THE GREAT RED SPOT  
STABILITY AND PLURALITY





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# Editorial

## Turbulence & Persistence



Welcome to issue 27 of the **SHAPE Journal**.

It is perhaps an unusual offering, for it concerns itself with how purely technological advances can reveal aspects of Reality that increasingly question our most basic assumptions, so that if we heed the hidden messages contained therein, they can lead to new philosophical insights of tremendous importance.

A particular example of this is how the very basic objectives of NASA, and its purely technological advances to simply supply us with ever more facts, have instead opened a veritable Pandora's Box of the breathtakingly New, where we previously thought we would just confirm our previous assumptions and merely increase the known details.

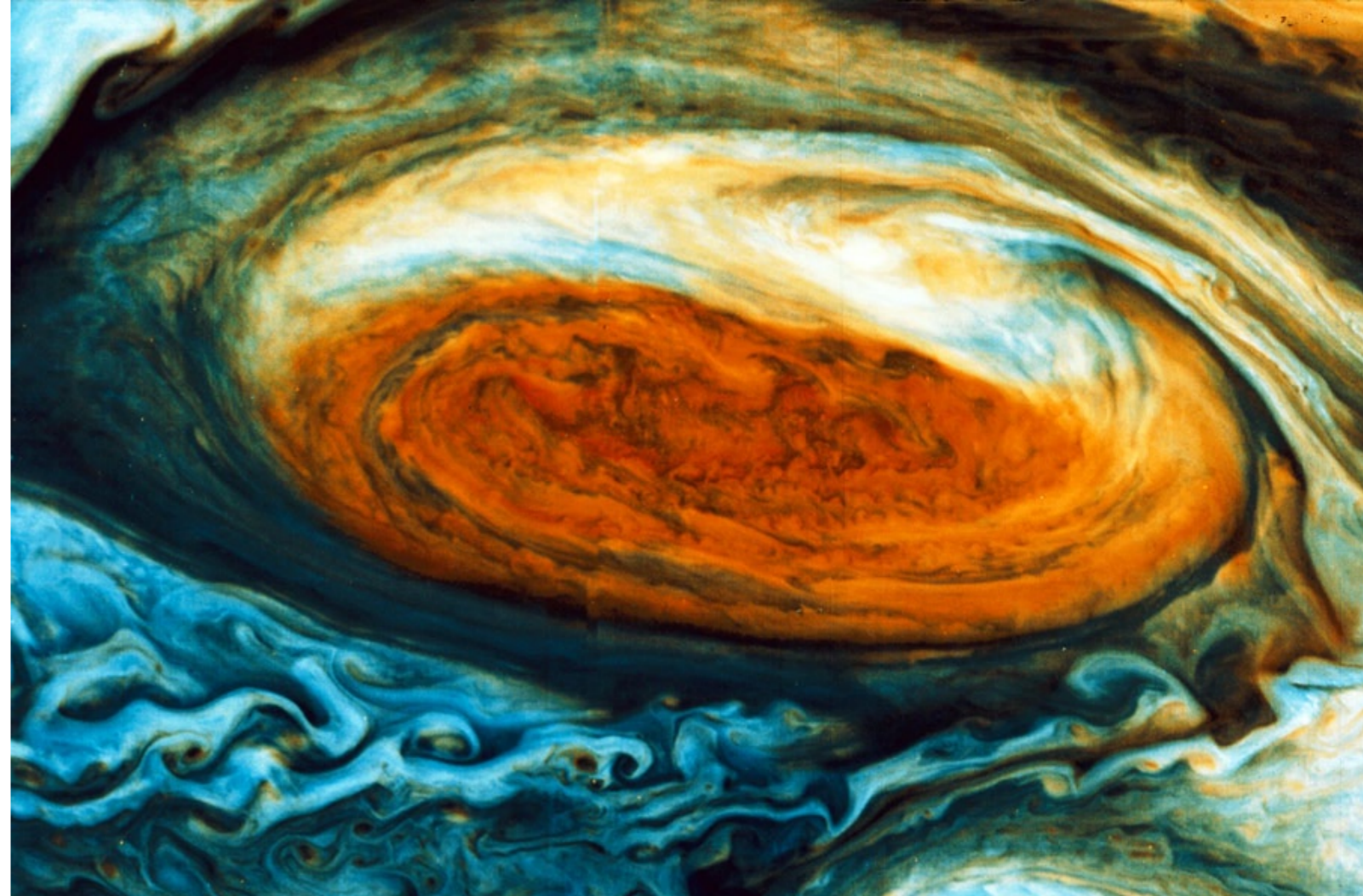
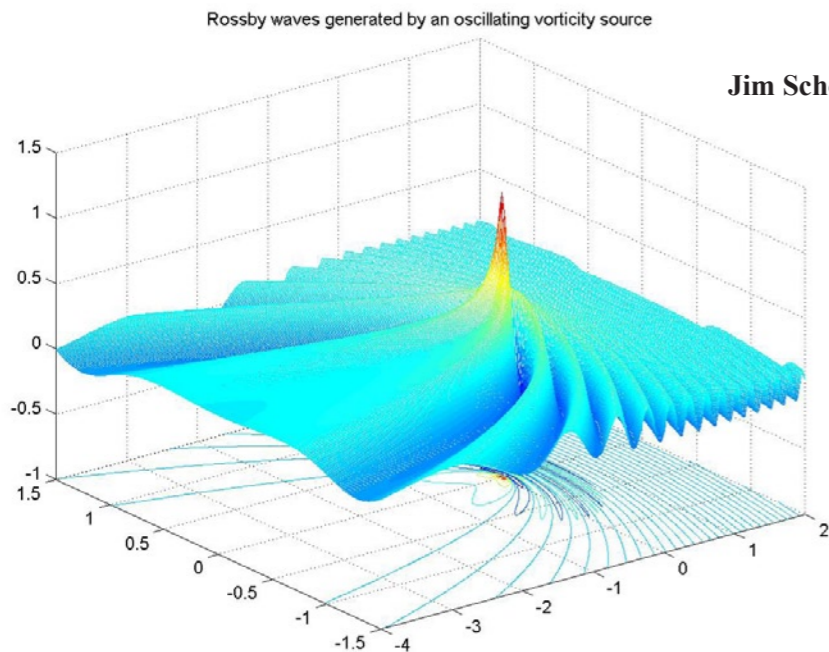
But, extremely detailed still images and even movies delivered by spacecraft sent into close encounters with Jupiter and Saturn are perfect examples of such crucial revelations.

For these pictures present important questions, which if both addressed and, of course, answered, must transform the way we consider Change and Development wherever it occurs.

For though not dealt with in the papers presented here, recent relations have been revealed between Earth's atmospheric Jet Streams and the North Atlantic Gulf Stream with atmospheric systems on both Jupiter and Saturn, which have been put down to so-called *Rossby Waves*, and also raised important questions of both Turbulence and Persistence in such systems.

We must take advantage of these surprising 'mirrors' on our own world to begin to address how Emergences actually occur in all developments, in whatever circumstances they arise. These three papers do not deliver full and comprehensive conclusions on these topics, but they do treat the revealed images as the beginnings of an alternative and relatively 'alien' source of relevant information that cannot be as easily tidied away as can most more local evidence.

**Jim Schofield** Aug 2012



## Analogues of Stability & Change

### An Introduction to the Great Red Spot

This author has been deeply involved for many years in researching the Emergence of the Wholly New in developments of all kinds. Indeed, it has become clear that particular interludes of significant, qualitative change occur throughout the development of Reality itself at all possible Levels.

Now, the usual model for such innovatory developments has always been a basic continuance of the usual deterministic, incremental one governed by Natural Law (equations). And within this view the normal cumulative and incremental changes are supposed to merely accumulate until they pass some natural threshold and thereafter change phase to a new level. Such levels are conceived of as forming a natural consequential hierarchy to ultimately deliver everything that we observe in the Natural World. But, such a belief is very difficult to prove, and impossible to demonstrate conclusively by experiment as it is supposed to have happened naturally in entirely unfettered Reality. Indeed, it can only be demonstrated as individual discrete and individually demonstrated phases, each with its own carefully arranged conditions, and supplying their own independent equations.

It is like explaining movement by providing a series of still photographs. And though scientists keep on trying to complete the necessary full set with ever more powerful and complex equipment, all that they can ever achieve is to prove that each new set up can provide yet another "convincing still" in their assumed chain. Nothing in such a process integrates the individual gains into clearly comprehensive and necessary sequences.

But, even the very best of these brilliantly conceived of, and cleverly constructed, investigations can never achieve an Explanation of why things happen the way that they do. "Obeys this equation!", is NOT an explanation: it is a description – a succinct and useable description, but only a description! And in every single case, such equations can never deliver the actual Origin of their particular situation: that is never addressed!

Such regular discoveries, nevertheless, do give the impression of constant progress, and this is seemingly confirmed by the effective use of these discoveries, and their equations, in ever more effective tools and enabling equipment.

So, what are actually technological developments reveal ever more facts, which can be turned into ever more flexible and useful products. Everyone is convinced of the march of scientific progress by these developments. Yet, it is an aberrant growth, and is NOT accompanied by an equal and absolutely essential development of ever-deeper Explanations of all these discoveries. It is a pragmatists' heaven, and not a scientists' heaven!

Indeed, such explanations have been permanently condemned by the vast majority of scientists, who insist that all such attempts at explaining why things are the way that they are, are now impossible.

Ever since the victory of The Copenhagen Interpretation of Quantum Theory at the Solvay Conference in 1927, physicists have abandoned all explanations as self-kid, and have instead endowed the extraction and abstraction of relations from experimental data as the revelation of the true, driving essences of Reality: equations now terminate the scientific endeavour, and the role of a scientist is to constantly add to the store of such Essences, and find, within them alone, further, deeper formal relations and even entities. And, with this switch, Science has ceased to be materialist, and has embraced Kantian Idealism, or Positivism, wherein many things in Reality are henceforth to be considered as Unknowable Things in Themselves, and cannot ever be explained. But they can be represented by extracted, abstract relations, which can be reliably deliver predictions, and hence allow USE without the rejected "metaphysical" explanations of a crucially "mistaken" past phase of Science.

Now, there are still many of us left who profoundly disagree, and in studying the fundamental assumptions and indeed principles of Science in general, and the positivists in particular, have revealed the "wrong turn" due to a belief in Plurality as the source of the inevitable demise of classical Science, and its deterioration into dead-end positivism.

This principle, which is the basis of classical Analysis, sees each and every Whole as composed of a number of discrete, separable Parts. And this enables a hierarchy of researches into phenomena, via a series of analyses at ever deeper levels until a final and eternal set of basic entities will be revealed with their eternal and final laws of interaction.

In contrast to the incrementalist and level-by-level analysis of these scientists, the opposition has revealed that such studies are inevitably limited to stable situations, either naturally occurring or engineered to be such by Man, and they never address the real qualitative change that is certainly involved, when one stable situation replaces another.

What is more, these researchers have also shown that apart from an always temporary stability – lasting for long periods, there are always intervening, short interludes of significant Qualitative Change, which differ considerably from the incremental/quantitative changes of Stability, and indeed involve both cataclysmic and complex sequences of phases, destroying the old stabilities and replacing them with new forms of stability. And these occur throughout a developing Reality, where these changes only occur in these interludes - termed Emergences.

The birth of the very first star was an Emergence, as was the Origin of Life on Earth, and many, many lesser revolutions of the same sort have occurred throughout the history of the Universe.

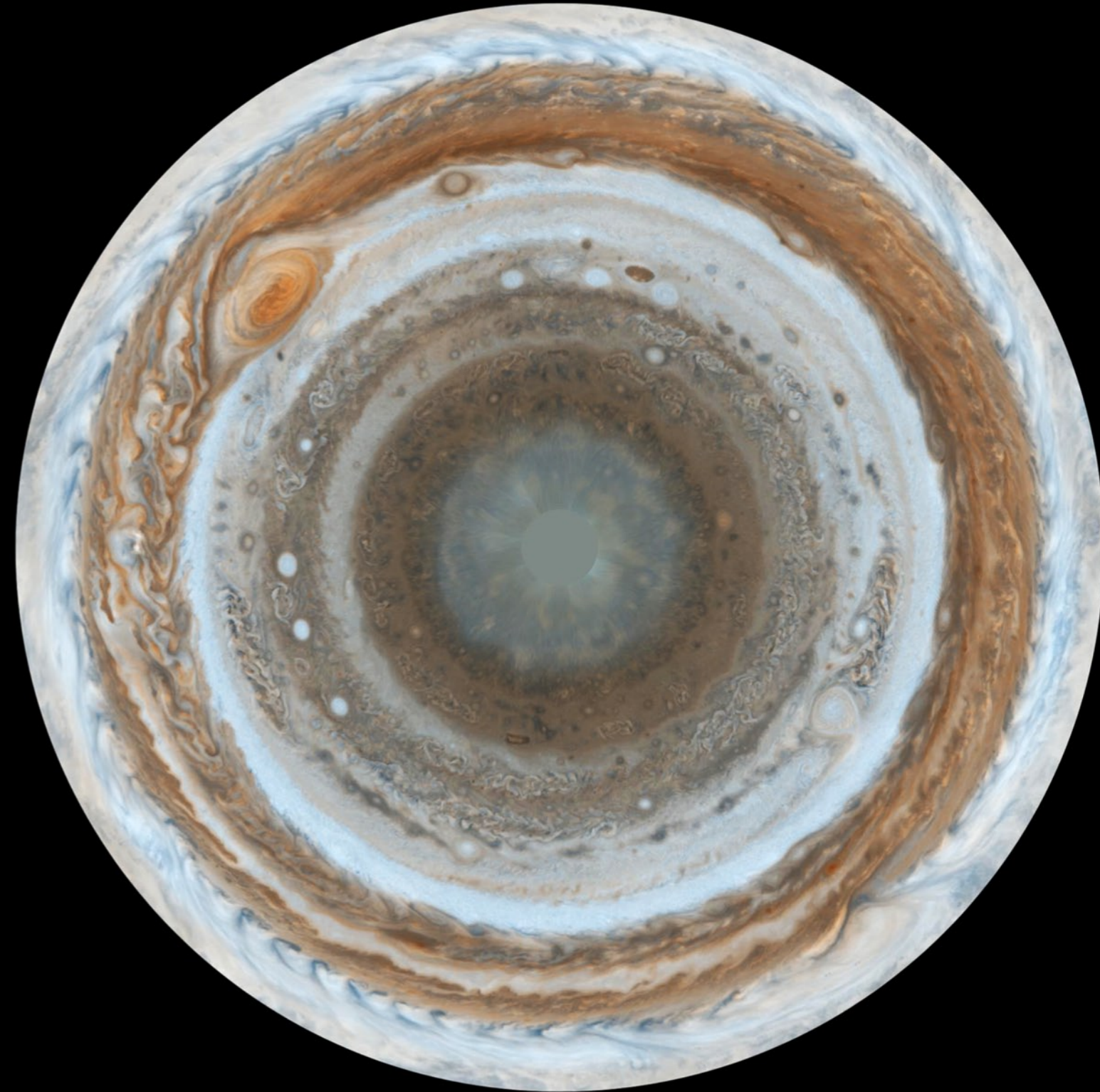
But, super mammoth turnovers are very rare, and most have occurred long before Mankind emerged and at some much later time began to study his environment in a systematic, scientific way. Man cannot usually observe Emergences EXCEPT in particular much higher Levels such as Society, where Social Revolutions have happened and are indeed Emergences. While, Ideas in Human Thought are certainly of a similar nature.

Now, merely the identification and description of such Events are, of course, by no means enough. For example, to identify the Origin of Life as such an Emergence must be taken further to a full explanation of what must have actually occurred in a whole related series if such Events, and also an explanation of why and by what means they established what they did.

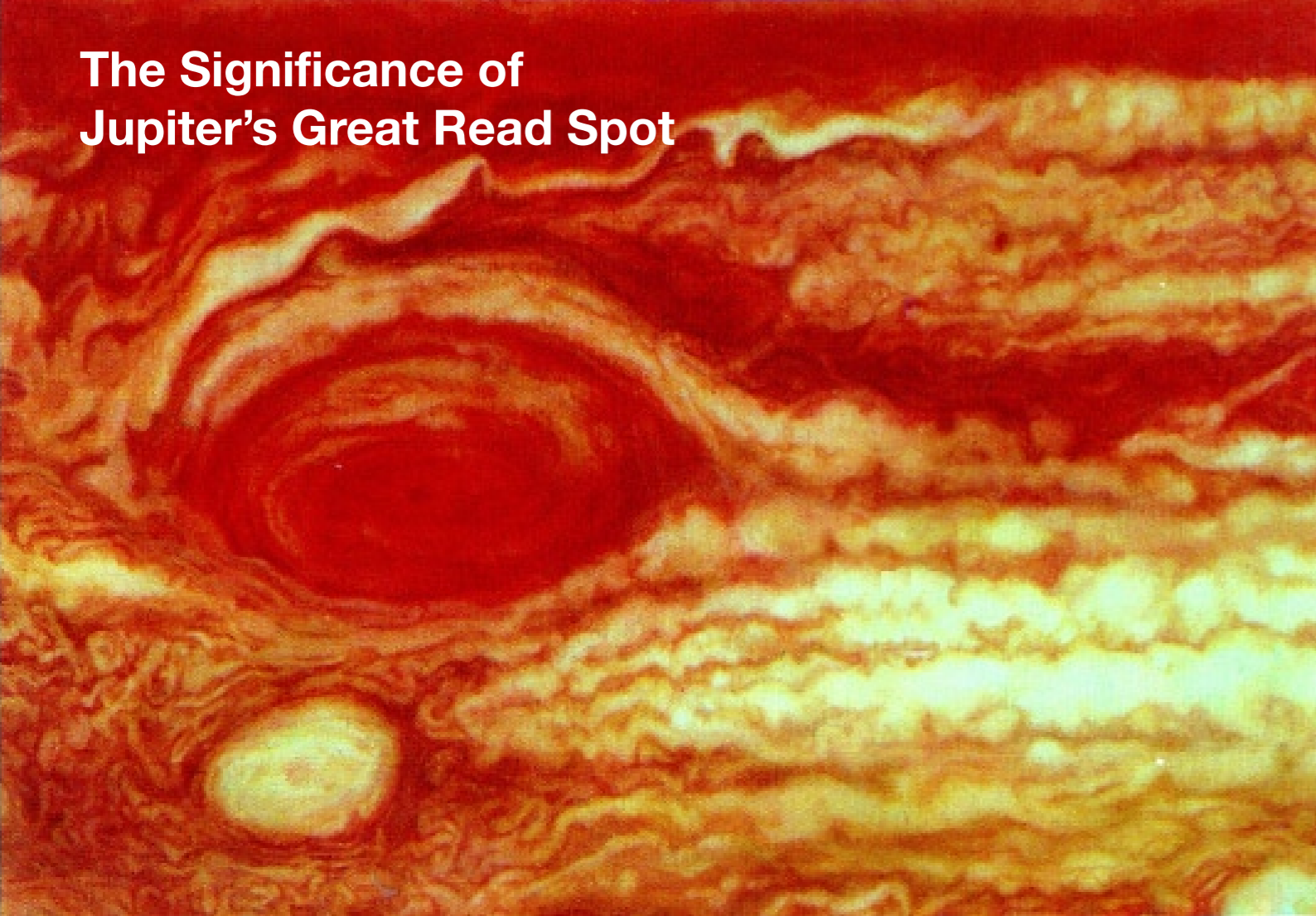
Now clearly, these are enormous questions and cannot be addressed straight off.

First, we have to relate the periods of Stability in Reality with those cataclysmic Events, which must both terminate a prior state, and create and self-sustaining new state. And, the whole of Reality must be inspected to find examples, or even formal analogues, of these Phases, and how they relate to one another.

The following paper takes the Great Red Spot on Jupiter, as just such a model of Stability surrounded on all sides by what appears to be turbulence bordering upon Chaos. It is a unique example, which poses both the question of why it continues to persist, as well as suggesting how it might disappear.



# The Significance of Jupiter's Great Red Spot



Study this photograph of the planet Jupiter's Great Red Spot!

Notice, first, its persistence both of existence and position, and its evenness of colour and structure. Then finally compare this with the evidently extensive turmoil that surrounds it on all sides. To see an actual movie of a series of such photographs, taken over a relatively short period of time, shows that such features of evident stability must be considered in a context that is in fact generally dynamically changing all the time.

And, this takes place solely within an atmosphere of totally non-living gases and vapours. Yet we are really stretched to apply what we know of our own atmosphere on Earth to this perplexing picture. For the planet is many, many millions of miles from the Sun, so that the heat from that place is so low that without some sort of internal source, what we see would be impossible to understand.

Indeed, such a moving picture belies its current theoretical explanation. And, clearly, though the planet is large enough to have some, still very large, residual heat of its own, almost certainly including a significant measure of heat from nuclear (radioactive) processes, certain features still defy explanation.

Why should this significant atmospheric "storm" persist for so long?

And though the scientists of NASA may long ponder the cosmological answers to such questions, there are other even more basic questions involved in this situation concerning Stability and Change in general!

Extracting the situation somewhat from its concrete context, we have to consider why the evidently high energy turmoil of the peripheral motions surrounding this persisting feature do not disturb it, and even actually dismantle it? Instead, in spite of their evident energy, these disturbances merely run around the Spot, as if it is being powerfully maintained in its continuing state. So, on such a planet, what might provide different forces within the Spot, and so strongly maintain its integrity?

Now, believe it or not, such questions are not limited to the planet Jupiter: they turn out to be absolutely vital for Science in general. Indeed, wherever such Stability persists for extremely long periods, we must understand why this is.

We need to know about Stability and Chaos concretely, and not just in our own simplified forms based on useful assumptions and principles and derived from our own experiences on Earth, for many of these bases do not

actually exist, but are taken on board because they allow us to find pragmatic answers, in many particular situations, close to home.

Indeed, real Qualitative Change is almost never addressed as such: it is invariably replaced by constructs, which we know how to handle, and can indeed suffice in tightly controlled situations, or in analogues, which perform similarly, but for very different reasons.

Indeed, it is not taking it too far to assert that Qualitative Change is avoided like the plague, and most Science is carried out in very special man-made situations termed Domains of Applicability.

For, though this will be readily admitted, it will also be rigorously defended as the only reliable way to clearly isolate, display and then extract the many individual relations, which make the World behave as it does. The basis for this standpoint is the Principle of Plurality, which alone justifies our analytic scientific methodology.

*NOTE: Plurality assumes wholes and separable Parts – the basis for Analysis of causes.*

Now, this discussion is not straight forward, because in most of the areas where this methodology is used, it is in fact sound. If our purpose is to extract laws and then use them to both predict and produce, we can make Reality conform to Plurality, by the method of devising and constructing tailor-made Domains, and both experimenting and producing only within them.

It is all possible, because we are majorly concerned only with *Quantitative Changes*, yet the areas where this can never be achieved are those where *Qualitative Changes* are the important and defining ones. These we rarely address directly: we hop from Domain to Domain, within which we can use our pluralist methodologies and we do not articulate how Reality transforms naturally, and necessitates our methods.

Now, most scientists would insist that such alternates are already part of the wide content of Science as a whole, and will quote primarily Biology (in particular Evolution) and even Geology and the clear development of the Cosmos since the Big Bang, as areas where such things are quite definitely addressed.

But, though they are right to mention these areas, they are certainly wrong to claim what is done there for all of Science, as it is carried out at present. They are indeed the exceptions to how most Science is carried out.

The truth about Science in general, and crucially in its philosophical standpoint, (and consequent methodology) is that it investigates Reality by nailing it to the floor! It rarely deals with ever-changing and developing Reality

as it actually is, but first divides off a small locality and completely isolates it from its surroundings and carefully controls in various ways most of its dominant factors, and eliminates others.

It does this to deliberately reveal, as clearly as possible, relations that were only glimpsed within the totally unfettered ferment of Reality-as-is.

By observation, intelligence and the necessary facilities of control, the Domain is appropriately adjusted until the required relation is very clearly exposed, and easily extracted by a series of measurements. Such methods allow a relation to be extracted from the "farmed" context, and by subsequent processing finally end up as an abstract equation, which can be applied not only in the given, arranged Domain, - a Pure Form, but also in other totally unrelated Domains, only requiring the allocation of different constants in the universal equation.

Thus the given equation has, by such techniques, been released from its original concrete context to become a widely applicable general and abstract Form, suitable in many different areas.

Indeed, because of this evident universality, there has grown up a whole community of researchers who deal exclusively in these equations: they are, of course, the mathematicians. And they specialise in turning their backs on all concrete contexts as the Domain of the scientists, to consider instead these purely formal relations alone, and in total isolation as purely abstract forms as their sole areas of study.

Now, this apparent diversion has been essential, for modern Science has come to look primarily for such equations in almost every area of study. Indeed, when they find them, and establish that they can be used with confidence, and when they can predict with accuracy, they call them Laws, and often consider that their task is complete. They sometimes even conceive of the whole World (indeed Reality itself) as actually driven by a nexus of such Laws. And hence their continual efforts to expose Law after Law, is considered as their contribution to the understanding of Reality-as- it-naturally-is.

Yet, the whole methodology is based upon a crucial and incorrect assumption. It is the aforementioned principle of Plurality.

Now, this is usually looked on as the absolutely necessary basis for Analysis. For it takes every conceivable and extractable Whole as analysable into its constituent Parts, and clearly the principle "always applies", so each Part can itself be similarly analysed. Repeated application of such a principle assumption is intended to rake us down through layer after layer of Reality, a process that is only finally terminated by arriving at the ultimate fundamental bits

that along with their laws of inter-relations have produced absolutely everything that exists. This is borne out by the current position in Physics, where the major research is into these sub-atomic particles and laws.

But, it is also there that this descent crumbles into chaos! Plurality is clearly no longer true: it cannot be used there.

Now, this is a paper elicited by a look at non-living processes occurring in the atmosphere of the giant planet Jupiter. If Plurality was a universal truth, it surely should be applied in this limited context too – after all, it cannot be so different to our atmosphere in its fluid behaviours in response to the same factors of heat and planetary movements.

We should still be able to talk about “weather”, with concepts extracted from what happens on Earth. There would have to be depressions and anticyclones, with periods of precipitation and variable winds. It would be on a glorious scale, it is true, but surely our Science, should cope as well with the phenomena evident in this picture of the situation on Jupiter, (as it does on Earth).

But, is that the case? Do our concepts of Earth’s weather translate relatively unchanged to Jupiter?

Well, two things must be said.

First, these ideas don’t seem to relate directly at all. And secondly, we don’t do that great a job with weather on Earth.

Now, I am sure that the latter of these two statements would be disputed by most earthbound meteorologists. But consider how very different weather forecasting is from the vast bulk of Science on Earth. Because we cannot set up highly constrained Domains within isolated localities to enable individual relations to be exposed, we have to do what to most scientists is absolute anathema.

We have to attempt to cope with complex and dynamic situations on-the-fly, – as they occur naturally. Our whole pluralist methodology is impossible when dealing with the weather, and we end up with data determined thresholds and relation switches, which are NOT theory led but data-led.

Why is this important?

It is because to apply what we learn in one area to another we have to develop true theories, rather than mere retrospective rules and threshold directed switches between applicable equations. For these aren’t real objective understanding, and it is that which we need when applying analogues to different situations. Only with real understanding can we make such transfers, otherwise we are imposing straightjackets and not discovering what is

really going on. And, if we don’t have that understanding, we invariably get it wrong.

Thus, the situation on Jupiter, with its permanent Great Red Spot is inexplicable. And, the significance of this is in how that fact undermines the techniques we depend upon when attempting to tackle unfettered Reality, wherever that is imposed upon us.

More and more, we abandon attempts to understand, with real, holistic theories, and instead rely almost exclusively upon Simulations – still entirely pluralistic, but “fitted” as closely as possible via summed pluralistically derived laws, plus thresholds and the switching or re-weighting of laws or their relative dominances in an entirely pragmatic way.

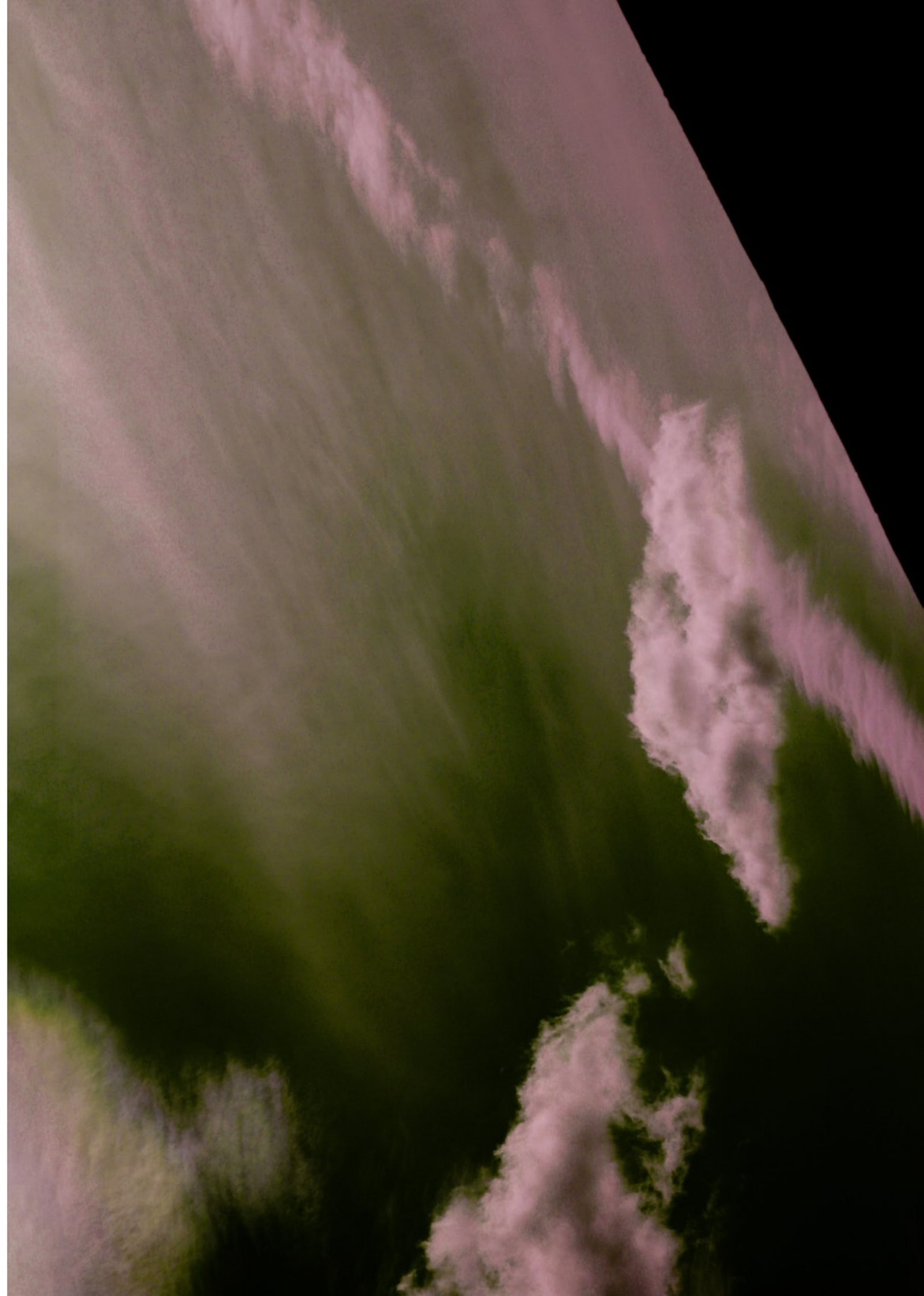
So what would our expert meteorologists do when confronted by the anomalies on Jupiter? They could only treat it as another Earth!

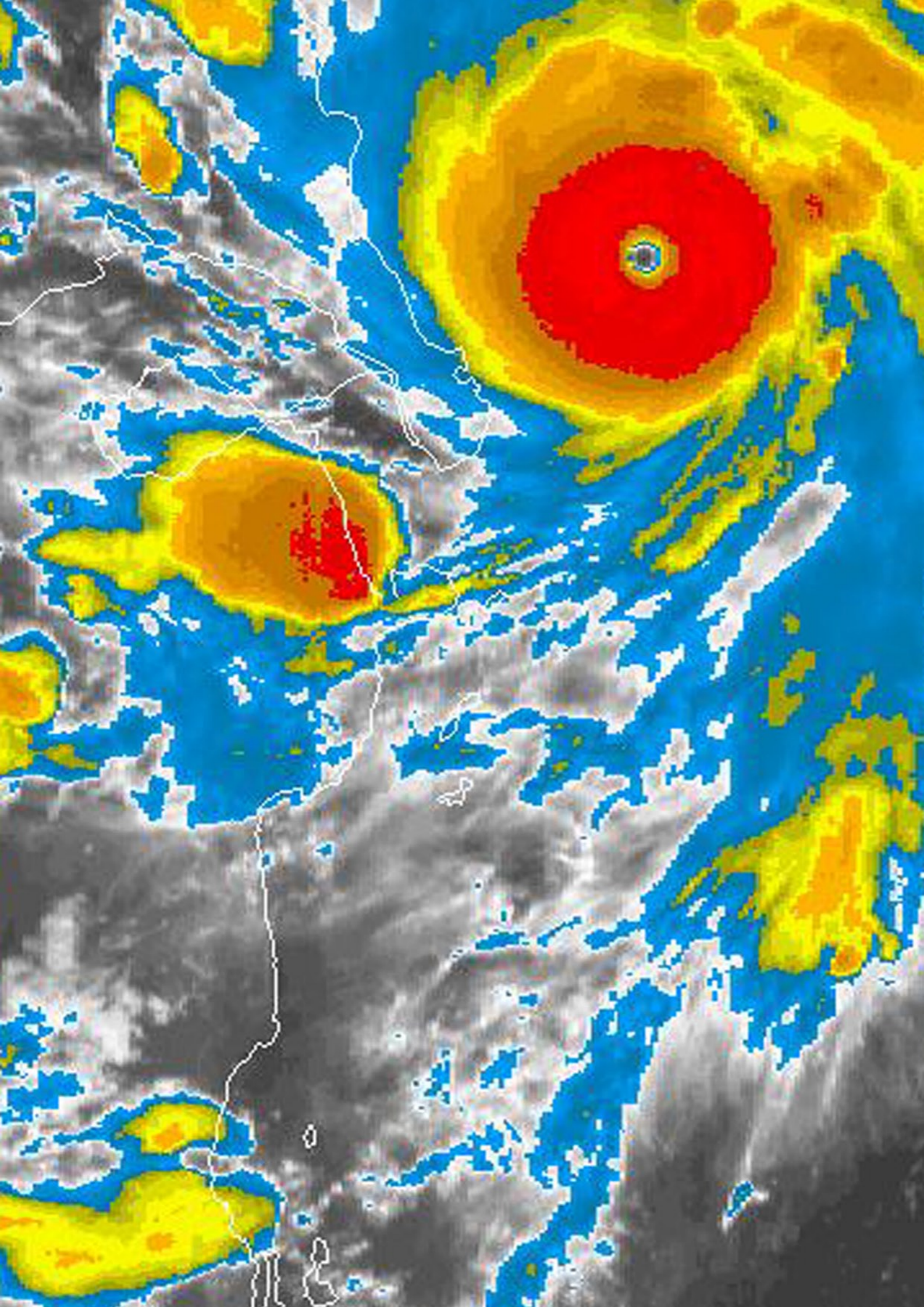
And, they would be brought face to face with their absence of real theories. For only with the latter would they be able to modify them in the new situation and attempt to reproduce situations like the great red spot. Instead, with purely pragmatic and retrospectively based simulations, they have no alternative but to force-fit Earth’s shoes onto the big feet of the Giant Planet.

And this is also true for ALL phenomena everywhere, which are holistic. We now immediately go to the storehouse of pluralistically extracted abstract equations, and attempt to construct a new simulation. We do it without any significant misgivings, because we mean from the outset to use real data gathered directly from the unfettered situation to constantly monitor our simulations against Reality. We convince ourselves that such methodology is all we can do, and indeed sufficient unto this task. But that is NOT Science: it is very much closer to Technology than Science!

Now, this may be criticised as being much too biased against the scientists involved in these areas. For, it is certainly true that there are real scientists studying the weather and extracting generalities, and naming, describing and even explaining various entities and phenomena that they have discovered. But, they can almost never apply them, as they would need to do.

No controlled Domains can possibly be set up, so these theories are cast into a tumultuous ocean of innumerable relations – all affecting each other and producing quite different localities of unknown composition and duration. As always the pragmatists treat the theorists with disdain, and though they use the theories to “explain” to the uninitiated, they trust only their data-based simulations. After all, they are weather forecasters, and certainly neither philosophers or scientists.





*NOTE: It is interesting how the “tail now wags the dog”, and most researchers think they have achieved their aim, as soon as they can deliver an equation, which, in the current circumstances (Domain), can accurately predict. But, that is surely only the beginning of real Science, and not its sole objective.*

One final point should be made about such methods. The requirement for predictable Domains, can be approximated by identifying localities within unfettered Reality, which appear to be naturally formed Domains (such things as Depressions and Anticyclones are certainly of this nature), and theories developed from such defined circumstances can then be applied, but the problem is that because of the turbulent context, the limits, both in space and in time cannot be accurately determined, and precisely what will follow them is never certain. Nevertheless, the inclusion of these theories in the Simulation mix, gives the appearance of real science dominating. But that is untrue.

Such fragments are always swamped by the overall complex mix that is Reality. And even with the widely distributed weather stations measuring all the time, they are never in a position to know what actual type of locality they are in when measuring, for such phenomena occur at every possible scale too! Also it is also worth pointing out that when they are measuring, they are forced to identify only generalist quantities such as Pressure and Temperature, and these are not causes but overall consequences of what is actually going on. It reminds me of those “scientists” who credit equations with making Reality what it is, whereas it is Reality which produces the equations and NOT the other way round.

Perhaps, there is something that must again be emphasized about Simulation, and that is the way that it depends upon Plurality in addition to its practical methodology. And this is the belief that the analysed Parts of any phenomenon are indeed wholly separable.

What this means is that a law playing out in a complex and totally unfettered context, will be exactly the same as that which was isolated, extracted and abstracted within a purposely constrained Domain. So, laws found in the laboratory (for example) under the usual highly “farmed” conditions, can then be conceived of as components acting in exactly the same way, but along with many others out there in unfettered Reality. The inference is that the overall situation is merely a “summation” of all these components. Reality is, with this assumption, determined by a multiplicity of contained laws, which quite legitimately and accurately could be extracted from ideally structured man-devised and constructed situations.

Such a supposition of Synthesis is obviously the inevitable corollary to that Analysis, which was the assumption, involved in the original extractions. Clearly, the basis of Simulation is that it attempts to model this “summed”

process, and its ground are all the extracted laws found under pluralist assumptions and conditions within the laboratory. But, is this legitimate, either philosophically or concretely?

In our main exemplar – Weather Forecasting via Simulation, we have to ask a whole series of questions.

Is our atmosphere perfectly mixed or does it have significant differences in different areas, so that any dominance of particular laws will outweigh others in well-defined local areas?

Clearly, no even mixing existed, so the simple-sum type of simulation, had to be drastically modified in an entirely pragmatic way.

Study of wide-ranging data, and the real weather that was happening in the precise places where the measurements were taken enabled researchers to “match” the passing of certain threshold values in given overall parameters (such as Pressure, Temperature, Humidity, Wind speed etc) to a range in the dominance of the laws being used. Thus new simulations were produced as changes in the laws treated as dominant. This meant that new data and hence new “threshold passed” could correct (literally on-the-fly) the current simulation regularly and accordingly

Such programs had therefore to be run almost continuously, so that when new circumstances arose (as indicated by thresholds exceeded), which the current set up of the simulation could no longer deliver, then new additions to the system had to be made.

In addition, it must also be emphasized that these were not analogue systems, but attempts to emulate such on purely digital computers, using programs, which were still linear sets of instructions.

So, instead of real continual changes (as happens in Reality) these were instead Cyclic Model Systems, where each cycle assumed an unchanging set of laws and dominances, only changed in a housekeeping phase when the outside inputs were monitored and changes made for the next cycle. Hence, even at their very best, these programs fell well short of what was actually happening, and indeed could never be improved theoretically: they were wholly pragmatic in nature. But they could be improved pragmatically – that is without any improvement in the theories involved, but merely by pragmatic adjustments made in response to both changed inputs, thresholds passed, and reference to previous experience. They were always a pragmatic frigate! Understanding was not their purpose, while prediction was! Now, it must again be emphasized that they could not do any different, given the techniques involved and the History of both their Technology and their means to simulate available to them.

*NOTE: The author of this paper many years ago, owned an analogue computer from a fighter aircraft, which used air pressure inputs from all over the aircraft, which were communicated by tube into a genuine analogue processing device, in which various physical sub systems turned particular sets of conditions as measured automatically into particular actions to either inform or even directly assist the pilot. This was a real, continuous analogue device, but was discontinued because the air pressure technology could not be improved beyond the point reached in this device. But also, being about the very limited world of a given aircraft in a given patch of air; it could get everything that it needed easily. You couldn't do that with weather could you?*

Indeed, it must be emphasized that the pluralist/incrementalist standpoint dominates Computer Programming. This is not an uninformed opinion of an outsider, but that of a Director of Information Technology in London University (this author), who has by now spent over 40 years dealing almost exclusively with computers and programming including University posts in both Hong Kong and Glasgow. And in spite of the great advances that have been made, it has to be emphasized that it is not an understanding of the Jungle, but of the Horticultural Plot, that has been involved. And, more than that, it constitutes a study of Equilibria, or more generally, of Stability.

Indeed, a close study of areas where Qualitative Change cannot be avoided, as in Geology and the Evolution of Life, it swiftly becomes clear that concentrating upon stable situations, either naturally occurring, or carefully constructed by the investigator, leaves a whole vital area out of the reckoning.

Let me demonstrate!

A researcher is using a particular law in a given area where, with care, and constraints it can be used reliably. But, quite beyond the efforts of the investigator, the law begins to fail, and give ridiculous results. What does our researcher do?

Either based on prior knowledge (or otherwise) he switches to another quite different law, which “fits” the changed situation. That is what everybody does, if the alternative is available, but the crucial question; “What has changed and why?” is not addressed.

Such a switch, without scientific reason has to be unacceptable for the true scientist. And answering the above question is exactly what is necessary, if we are to make sense of what on Jupiter, (or indeed on anywhere else) to which we are exporting our practises from our much closer to home areas of study.

It is fine for the technologist: that is, after all, his job. But the scientist must address such transitions – such times of significant Qualitative Change, with the sole purpose of explaining why it happens. Pragmatic frigs hopping directly from one Stability to another, may be sufficient, when there is the chance of establishing the “jumped to” Stability and finding the law, but never when this cannot be done.

To make these vital transitions, you must really understand what is happening in moving from one situation to the other. Otherwise it merely constitutes pure speculation. And this type of work can indeed be done!

Darwin, of course, did it with his Natural Selection, and his theories around the Origin of Species. His work did not involve quantitative laws, and switching from one to another in changed circumstances. Instead, his objective was to study Reality long and hard to begin to understand what was happening, and when he finally came up with his explanation it was NOT a universal and abstract equation, but a generalist explanation: it applied to all such changes without exception. That is Science!

And he wasn't the only one who took such a path. Many other great scientists also considered the extraction of equations only as the first step. To really crack the problem, such an achievement would demand an explanation. But, it is not the usual trajectory, for it requires a very different standpoint and purpose.

Indeed, whereas the usual approach is based upon Plurality, the seeking of explanations must address Reality as a holistic situation, usually NOT analysable into formulae, but requiring a meaningful narrative through a whole series of qualitative changes. Think of the explanation of the development of an organism from conception, through its embryonic stages to birth, growth and maturation. We can indeed explain such a trajectory, but would never think of dealing with it solely in terms of a set of equations. Yet it isn't incomprehensible. It can make clear sense. In spite of the simultaneous acting of many, many processes, the organism as a whole is comprehensible.

Now, scientists, with their speculative, explanatory hats temporarily donned, will indeed think holistically, otherwise they would not be able to supply any sort of explanatory narrative to provide an essential context for their pluralist laws. The latter would be disembodied currants, without the integrating cake! But usually that is all it is used for. There is no intrinsic integration of these into combined and coherent explanations, and certainly no associated methodology.

This is proved by the regular failure to crack the crucial examples of major Qualitative Change, such as the Origin of Life on Earth. Many, many efforts have been attempted to crack this problem, but all of them have totally failed.

Why?

It is because the only methodology they have is totally pluralist! Let me give an important example:

The stupendous event that we term The Origin of Life on Earth was without doubt an Emergence. And centuries of research have demonstrated, in case after case, that pluralist laws can never transcend such an Event.

Now before everyone jumps up to protest, let me explain exactly what this statement means.

It means that causal reductionist links can never cross such a boundary to directly produce what is new there. Now, with such a continuing existence of the non-living Level below that of Life, all the prior laws will, of course, continue as before, but within Life that is NOT the case. Even though they still seem to continue, and indeed play vital roles within living things, this claim will seem incorrect, but only if the basic premise is that the laws make Reality what it is, is true.

If, in contrast, you hold that it is Reality that makes the laws what they are, the differences are very clear. These non-living laws are now “playing a role” within Life, and are therefore determined by that new context. They are NOT the same as they were in the prior Level.

Now the critical flaw in Plurality is revealed! If these particular laws were isolated in the usual way, removing their new context, they would look exactly like they were when isolated from their prior context, and will look like, and deliver, identical laws. But, both the actual role in the non-living nexus and that within Life, have been lost by the pluralist assumptions and consequent methodology. Not only is that law different within Life, it is also different in the non-living Level. The pluralist method of extraction delivers a law, which is absolutely true in neither of these contexts.

Clearly then, if all that researchers can use to attempt to explain the Origin of Life is entirely in terms of their pluralist derived laws, they will never explain Life: it simply isn't caused by that particular Stability. It comes out of a determining crisis and consequent collapse. To understand creation in development you have to turn to a very different way. You have to understand Stability and Chaos!

So, desperately they try everything they can think of within their Sciences of Stability. They attempt to approach the problem from above, as well as from below, and Natural Selection is conceived of in reverse in order to work downwards to arrive at the actual boundary, while others continue to search for precursor relations in the non-living Level to hopefully “sum” them into a natural and explicable transition to Life. But, of course, both are bound to fail!

Such an Event resounds with the very opposite of Stability. Indeed, it was a revolution! And, therefore, equilibrium-based relations will deliver nothing crucial to the transition involved.

Indeed, it has been finally demonstrated (by this author) that such an Event could only occur when initiated by a catastrophic collapse and virtual destruction of the prior Stability, to produce thereafter an almost formless Chaos, followed by the absolute opposite of the famed Second Law of Thermodynamics, where a totally new and unique Level of stability finally emerged to complete the overall Event.

The old tale of “The Phoenix arising from the Flames” is almost exactly correct, but clearly how such a thing occurs must be both studied and understood, subsequently and revealed in scientific detail

Now, perhaps, at this point we should return to Reality concerning the Great Red Spot on Jupiter.

In a previous paper by this author entitled *Truly Natural Selection*, it was demonstrated that Emergence Events have occurred throughout the History of the Cosmos, both in non-living matter before the Origin of Life, and indeed after it with both biological Evolution, and ultimately the Emergence of Consciousness.

So, we may well be able to discern the major features of such happenings in our current view of Jupiter with its remarkably persistent features such as the Great Red Spot.

Indeed, in *The Theory of Emergence* (again by this author) it was demonstrated that History is composed of long periods of Stability interposed with short episodes of truly Revolutionary Emergences, and indeed, for the first time suggested a detailed structure for the trajectory of transformations within such an Event.

The crucial features were

1. What made the situation finally stable and able to persist (via mechanisms of self-maintenance for long periods)
2. What brought about the demise of all such Levels of Stability

Look again at our image of Jupiter.

The most difficult thing for a scientist to explain has been the seeming permanence of the Great Red Spot. Let us consider that within the Spot there is a situation of Stability. And, with clear cyclic processes, (both within and without), but with the major difference that the external area is the opposite of stable. The surrounding area is one of turmoil and perturbation. Yet the spot seems entirely capable of maintaining its continuing existence.



Surely, this Spot can only be interpreted as an area of self-maintaining Stability?

It is interesting that other spots do appear at various other points on the visible surface of the planet, persist for a while, and then vanish without a trace, but surround them all is a chaotic flux of forms that come and go much more quickly.

The situation compared with our designation of Stability and Emergence, generally seem similar, but almost reversed!

The Areas of Stability do not dominate, and usually do not persist for long either. The most general condition seems to be one of constant turbulent change covering most of the planet's surface. Only the Red Spot persists as a "stable" entity!

But this different tempo and reversal of modes could be because the Earth is typified by constant Evolution, while Jupiter (with NO Life) might not be evolving so much as cycling, for that could also be another solution to the general conditions of which the Earth's pattern was a very special case (after the Emergence of Life).

Indeed, it could be that areas of Stability on Jupiter arise out of Emergences due to conditions within a prior Stability, while outwith such areas all remains turbulent and almost random change.

But no real evolution is occurring, and in the longer term what ensues is a kind of oscillation. This being the case the Great Red Spot may turn out NOT to be eternal, but just the most stable entity that has emerged.

There is a final crucial question.

Why is it that every single prediction of the nature of planets and moons in the Solar System is always wrong? Why do our extrapolations from current, known situations, always fail in as yet wholly unobserved situations, even if they seem to be highly similar to what is being used to help predict?

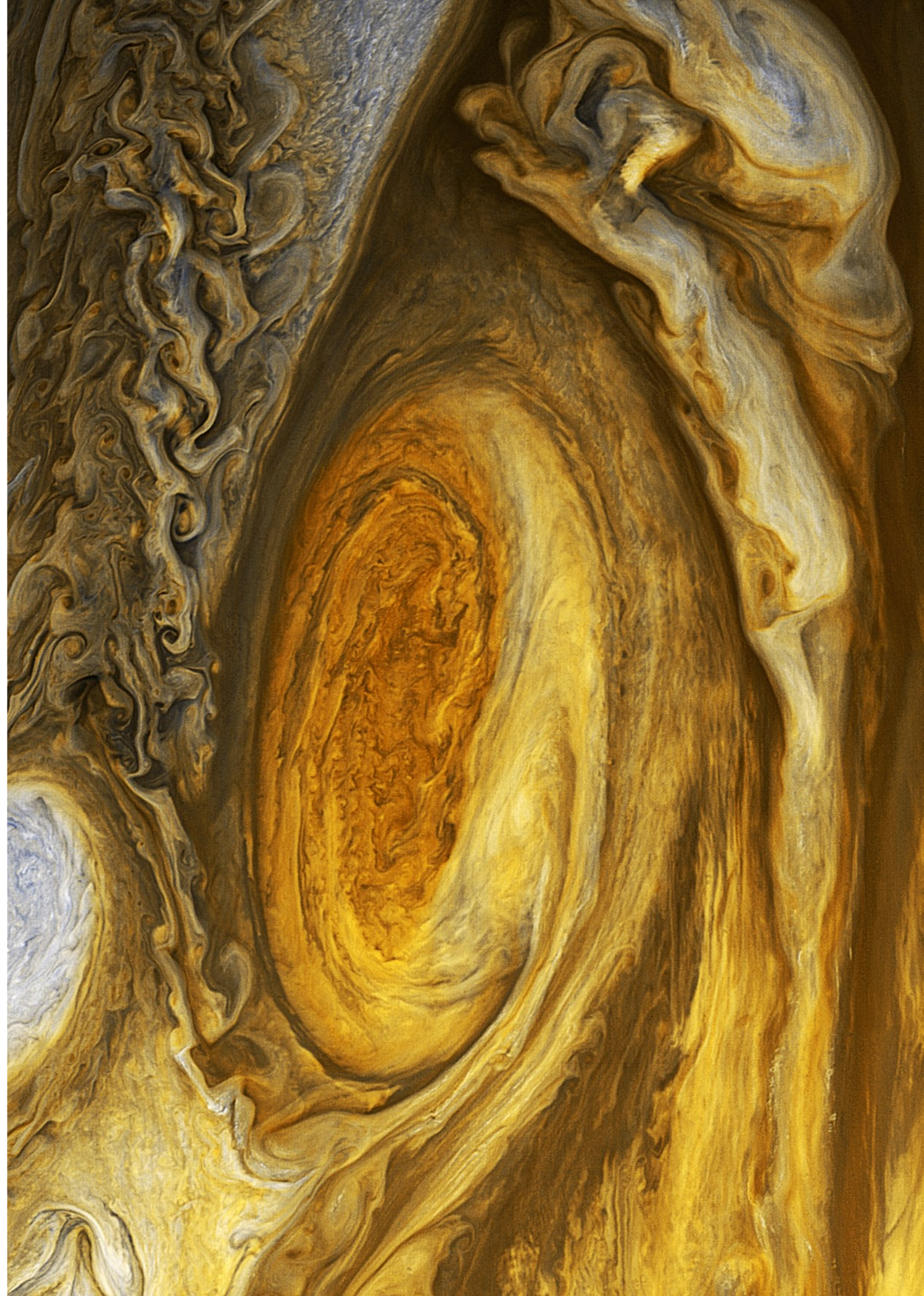
Could it not be that each of our extracted "theories" (though probably they are more like mere descriptions), are not generalities, but merely aspects of those situations, which we turn into "laws", but which are in fact closely bound up with particular conjunctions of factors, which we do not really understand, and have merely "covered" by "fitted" known forms, which may be useable approximations in the original context, but NOT in many others.

Each and every theoretical narrative for each case studied in detail does not equip us to tackle different conjunctions in new places.

The myth of a given stability hides the full determinations, in what appear to be the determining factors. But, this is a consequence of our assumption of plurality: we are certain that what we extract in our devised and constructed (or sometimes merely found) Domains are independent of those Domains and can be used as universal templates. They can't!

In literally every case, we have to start again to explain quite new areas, even if our current information tells us it is identical to another area we know in detail (and by our usual methods of investigation).

I can think of no clearer criticism of our pluralist assumptions than this series of theoretical failures.



## Stability & Plurality: Analysis

“To study things, you must first hold them still!”

There are many kinds of Stability within Reality in general, and the problem with the usual reductionist view is that we are so blinkered by it as to miss the actual creation of all that is involved in the generating (or emergence) of all such stabilities.

For, the usual standpoint will inevitably seek the “reasons” for everything from the “most basic” factors discernable within the given situation, as solely contributing to them, and in so doing, will miss the Wood for the Trees!

Stability is a general term for the self-sustainability of certain systems, and will be different in each diverse set of circumstances that arrives at each and every new Level achieved in an evolving Universe.

The stability of the Hydrogen atom, for example, is clearly very different from the stability of Common Salt, while both of these are vastly different to the stability of a single-celled living organism.

Indeed, no struggling-to-establish-itself proto-system of any kind can be considered such, unless it can persist! And each such system will be defined not only internally, but also by its particular external and confining context. Yet surprisingly, it, almost certainly, will also progressively contribute to transforming its own external context overtime.

The contradictions inherent in any such nascent transforming activity are such that they will always lead to the most stable, possible persisting states consistent with the current context. And, even more surprising, is the fact that all such achieved stabilities, while apparently permanent, are, on the contrary, always only temporary.

Indeed, the processes that seem inevitable in a given context will also ultimately transform their own producing ground: they will finally remove their own causes, and finally dissociate, the system, just as certainly as they previously created it. Though it is also significant that the duration of the stability will be vastly longer than both the preceding interlude of creation, and the following one of final overthrow.

Clearly, Mankind has first to address the universally present and long persisting stabilities evident everywhere in his attempt to understand Reality, and he also could not do that as a mere observer. Perhaps the greatest achievement of Man was when he learned to make and maintain his own local stabilities within sections of Reality, in order to simplify, and indeed actually make possible, his analyses.

Now, I must, of course, explain these assertions in much more detail.

The problem for Mankind was always the holistic nature of Reality. In most areas, too many contending factors were present, while also varying moment-to-moment in displayed dominances, and attempts to reveal what-those-were proved, initially at least, impossible to achieve. Certain clearly important relations in a moving Reality could be momentarily glimpsed, but they proved impossible to pin down or extract on-the-fly.

To get anywhere Man had to learn to control and maintain limited localities to help in his analysis of what was happening. He had to reduce the set of occurring contributions radically, and to fix others at set unchanging values. Slowly, by such means, he successively managed to proceed in doing that in particular areas, and when he did, the glimpses became permanently displayed, and could be observed, purposely varied and even measured in ways that revealed the relations involved.

In other words, to address such quantitative relationships Man had to first extend constancy! He had to produce more imposed stability.

It worked like a dream, but it was, as with “Grommet on his railway”, a limited, self-built road! He gradually managed to transform a moving Reality into revealing “stilled shots” (like Muybridge with his studies of movement).

Now, when seen this way, it becomes clear why Zeno’s Paradoxes were so important. For he was revealing how we filter Reality through our assumptions. And these, though effective at delivering a measure of Objective Content, were always unavoidably distorting too.

He showed how both Continuity and Discreteness were man-made constructs, and were, though useful, always inadequate in the long run – movement was NOT totally analysable in terms of either of these two simplifications. But such a method, nevertheless, took us forward compared with the prior incomprehension when using NO such simplifications at all.

Indeed, millennia after Zeno, it was taken further by philosophers, who found the Principle of Plurality beneath and delivering both of these dichotomous alternatives. Wholes were considered entirely in terms of their component Parts, and these latter were always taken as entirely “separable” – that is independent of their particular occurring contexts.



It was a powerful principle, and it underlay the way that Mankind internalised Reality both in observation, and, crucially, in intervention too. And the reason that it was so effective was the universal presence of a tendency towards Stability everywhere in Reality, and its survival for long periods – Plurality was close to the truth for long interludes in Reality.

Now, as usual with Mankind, there could be no jumping over the inevitable consequences of these “progressive moves” between stabilities. Man was the first *thinking* animal, and had no built-in, totally reliable mechanisms of thought (like a “Perfect Logic”), which were available to ensure a correct interpretation of the consequences of his methodology. He could do no other than “follow through” the potentials of his methods to the limit, in order, at some future point, to be able to begin to see the weaknesses inherent within it.

Let us be clear, Man is unavoidably a part and product of developing Reality, and was permanently in the position of having to “pull himself up by his own bootlaces”. What is truly remarkable is that he was, given time and experience, able to do just that.

So, after inventing and perfecting his “farming” of Reality into controllable and maintainable Domains, he could only go forward by following his discoveries, as far as he could, along every such “prepared road”. And, when each such road encountered a final insuperable barrier, he had to turn to other possible roads and investigate them – but most importantly he generally did it in the exact same way.

What is remarkable was that this was indeed possible – even when the areas under study were at quite different Levels and might well be considered as “historical offshoots” of his more basic studies.

Biology is surely the prime example.

Clearly, he could indeed start with his usual methodology in many situations within this new area, but he could NEVER, by those methods, actually plot, explain and indeed traverse the trajectory from Physics to Biology.

That had to be left aside, and the more straightforward “roads” identical in method to the prior Science followed up immediately without obvious difficulty. Clearly, he was an expert traveller of roads-on-land, but poor at negotiating the sea-crossings in between.

Thus, each Science, though conceptually assumed to be derivable from Physics, was never explained as such.

Like a “branching tree”, the exploration of Reality was limited to the “branches” alone, without any explanations of the actual Process of Branching being tackled.

At every single bifurcation, there was always an unexplained “gap”. Man could not yet explain Qualitative Changes: his banker methodology prevented it! He was building a “tree” of Knowledge that was unconnected at all the crucial branchings.

But clearly, such a situation could not continue forever.

It was a precarious structure, and applicable only within its many defined and maintained Domains and as parts of isolated branches. Local causality and continuing reductionism was possible, but only within the consequent paths available in each defined and separate area.

To link all these separate systems into a coherent and comprehensive overall system meant that the explanation of the innumerable “gaps” had to be addressed, and it certainly hasn’t.

Indeed, it became the rule to deal with areas of study along two supposedly parallel paths. One pluralist and highly limited in area, while accompanying it would be a holistic explanatory narrative.

And for a time, this was appropriate, but it could never be entirely sufficient.

**S H A P E**

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