

SHAPE JOURNAL

CHANGING TRACKS:

IS FORM ESSENCE / PLAN OR PROCESS / REDUCTIONISM
WHAT IS OBJECTIVE CONTENT? / HOLIST SCIENCE: THE PATH FORWARD



Shape Journal
Issue 30

Changing Tracks

1. Principles for a new Holist Science Introduction
2. Is Form Essence?
3. Plan or Process?
4. Reductionism
5. What is Objective Content?
6. The Objective Content Animation
7. Holist Science: The Path Forward?

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Introduction

Changing Tracks:

Principles for a new Holist Science

Welcome to issue 30 of the **SHAPE Journal**.

This collection of short papers links Philosophy and Science under the banner originally erected in the 19th century by Hegel, and then, even more radically, by Marx and his followers

But it is not a eulogy to Marxism. Indeed, it is highly critical of the stance of most modern professed Marxists, particularly in their failure to develop Philosophy, and significantly in their covering attitude in the face of the most idealistic retreats by Modern Physics.

This series has been produced by a professional scientist, philosopher and Marxist, who is totally convinced that the crucial path forward into all these areas has been lost, and progress no longer occurs in any of them.

Such a small collection as this cannot possibly deliver chapter and verse to the standpoint taken, for this is merely a brief introduction. But such a comprehensive treatment does exist and is regularly being added to within the Issues of SHAPE Journal (now rapidly approaching its 50th Issue (including Specials)).

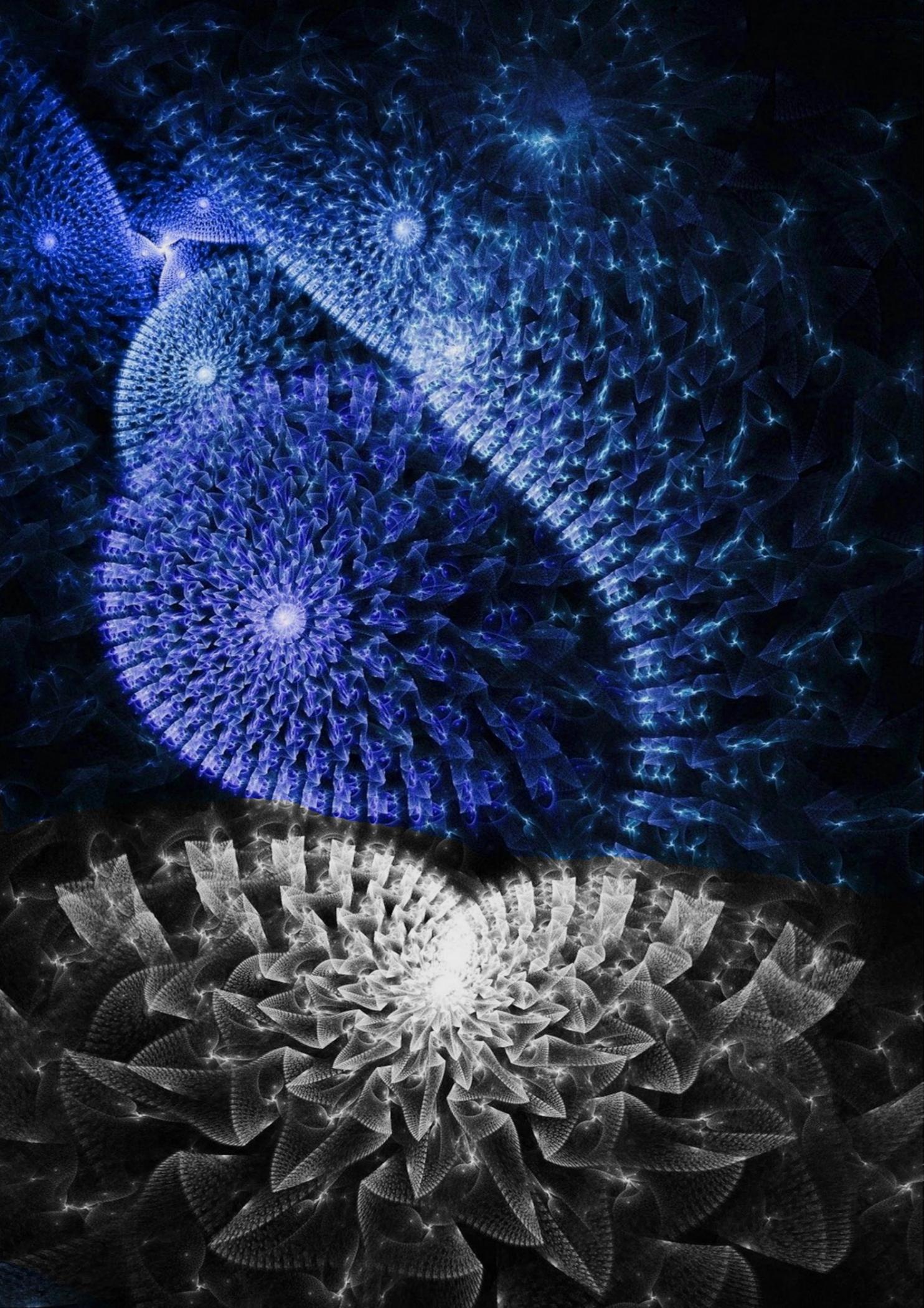


This set of papers address what are considered to be the crucial questions fundamental to this standpoint. They are:-

1. Is Form Essence?
2. Plan or Process?
3. Reductionism
4. What is Objective Content?
5. An Animation to Illustrate Objective Content
6. Holist Science: The Path Forward?

Jim Schofield April 2013





Is Form Essence? Do Basic Natural Laws Deliver Everything?

Can you build a Universe out of Form alone?

The answer is simple. It is “NO!”

For Form isn't substance: it is merely shape or pattern: it is the ultimate, uncontaminated, indeed purified *Appearance* only!

And, of course, that explains why it is so universal: for the very same Forms can recur all over the place, in many different and unrelated contexts, involving many quite different components. Yet, it is neither arbitrary nor random!

Form is, in fact, determined by features of the content, which are relatively independent of its components intrinsic natures, and mostly about how they simply come together that causes them to take on those particular shapes.

So, these shapes and patterns do have reasons for being the way that they are. There is indeed a kind of causality in each and every one of them resulting in that Form. But, it is intrinsically different from that deep causality, that makes the components what they are, as are revealed in their properties, behaviours and trajectories of development.

For those are the subject of a significant Science, while the content of the collection of all possible Pure Forms is the very different and entirely abstract domain we call Mathematics, which is certainly not a science, even if it is generally lauded as the supreme Handmaiden of Science. Form is often determined directly by the inactive physical arrangements of the sub units involved, and NOT their intrinsic interacting natures.

For example, piles of approximately equal-sized and rounded things will take on certain “pile characteristics”, independent of the actual nature of what is in those balls. In other words, the forms of the piles are NOT intrinsic to the nature of what constitutes them, but merely their current unit arrangement. The determination of Form is a more superficial result, and at no point can reveal the full nature of the substances involved. It delivers immediate appearance only!

Yet, not all Forms are as universal and simple as piles. And also the usual use of Form is to enable reliable predictions to be made and used. Given a particular Form, it is possible to see what it will deliver in a given set of circumstances, as long as the given Form continues to persist.

And, of course, it is this that delivers its universal character and usefulness.

If we can both identify and then formulate some aspect of Reality into a persisting Form, and assure its continuing maintenance, then we will be able to predict what will happen in our chosen and changed circumstances.

Now, this is by no measure of means a conquering of the given aspect of the World that is being dealt with. It is merely using its Form in a continuing and useful purpose. But notice, that it all depends upon the continuing stability of the situation as demonstrated by the unchanging Form. We ride a known Form to a possible and desired outcome within that stability.

“Yes, but...”, I hear you interject, “To find a particular outcome actually useful seems to infer a great deal more than achieving a pleasing appearance. It definitely implies a real use!”

And, of course, you would be correct. For different Forms can indeed affect how our substance behaves. But such cases are NOT when we can still use an unchanging formula. That proves we have not wandered from the basic set of circumstances, which guarantee an unchanging Form. We are most certainly within the self same stability!

But, other forms can occur, and do indeed alter how the substance in question behaves. Carbon has two very different Forms – graphite – grey, weak and “slippy”, and diamond – transparent, strong and especially hard. So, the shapes things take on do indeed lead to secondary behaviours, and Man has become particularly expert at exploiting these to the utmost. He is the ultimate technologist.

Yet, contrary to popular belief, such things are not yet Science! They are observation and technology aided along by Mathematics. Science does a very different thing with any extractions from Reality. It attempts to both understand and explain phenomena in terms of properties and causes. It goes beyond shape or appearance to the nature of the substances involved. It isn't merely satisfied with accurate prediction, but strives to reveal meaning and causality, and allows a much wider range of scenarios and applications over many different contexts, to be developed as a coherent and comprehensive set. It also, at its best, delivers the elements of a Natural Philosophy – an understanding of the reasons why Reality-in-general is as it is.

There are many who believe that Form alone drives the behaviours of the whole of Nature. They consider extracted equations taken from studies of particular areas of Reality as the concentrated driving essences that make Reality what it is, instead of these being determined by the involved substances and their intrinsic properties. Only these Forms are considered to actually drive Reality.

Now, such beliefs may be quite understandable in untrained non-scientists, but, surprising, as it seems, this standpoint is now rampant in Science, and most particularly in Sub Atomic Physics and Cosmology. Indeed, the scientist Niels Bohr (the architect of the Copenhagen Interpretation of Quantum Theory) actually condemned, out of hand, all who attempted to explain anything within this area of Physics, labelling such efforts as “pure self-kid”, and designated that area as completely unknowable to mere human beings. He, therefore, banned their use in his specialist area of Science, which henceforth was to be ruled entirely and exclusively only by extracted equations – Forms!

Now, odd as it seems, this wasn't mere stupidity or blindness by Bohr. A complete undermining of literally all the basic assumptions and principles of his area had occurred, based around the discovery of the Quantum, and its consequences. So, without a thoroughgoing revolution in these foundations, it was indeed impossible to transcend the many contradictions that proliferated in the new Quantum dominated area.

But here is the problem – “How can this impasse be overcome?” What can overturn and effectively replace the now defunct assumptions and principles, and allow a revolution to sweep away both the inadequate old and the purely formal new to re-establish the necessary, though essentially entirely new ground?”

Perhaps surprisingly, it can only come from one source.

The pragmatism and superficiality of the standard philosophy of most scientists, must first be revealed for what it is, and then consigned to the scrapheap as untenable. The yawning void that would be remaining is exactly what prevents any scientists from contemplating such drastic action. But, without it, no revolution in our understanding will be possible.

The “something better” to replace centuries of old Science will not be immediately evident, and instead of an immediate solution, there will most certainly be a significant deepening of the crisis, which will seem to be falling to bits.

Clearly, shouting from the rooftops for such a catastrophe will not do it!

For the only way to demolish the past and its modern Copenhagen “solution” will be to solve the contradictions

precipitated by the inclusion of the Quantum, and thereby reveal a wholly new way which transcends both. And though this will initially be a philosophical problem, the breakthrough in Physics will only occur when the fruits of those developments point the way to removing those damaging contradictions.

Young Sub Atomic physicists will have to stop doing somersaults in their efforts to agree with the false consensus, and attempt instead to bring that whole edifice crashing to the ground.

Plan or Process? What drives the action and progress of Reality?



You may wonder why it is that Mankind persists in looking for what they assume are the Essences of Reality?

But, the reasons are obvious when you consider their position in the World, not just in the infancy of our species, but even more especially now.

For Man is aware of what he has done, and is still doing, to that World, and he can only make sense of the situation prior to his own major interventions as being similarly directed, if not by a God acting in a similar purposive way to Man, then by a coherent system of principles and laws, which alone could have made the World what it so evidently was.

But, of course, just as Man's own contributions needed both Man-with-plans and Man-as-implementer, it is hard to see how disembodied rules, all by themselves, could exist without any originator, and could be applied without any implementer - especially if you are going to accept that Reality actually evolves.

The active, intervening *God* may now be dispensed with, but the pre-existence of a Plan and Rules, and the consequent development of Reality, to even produce Life, and indeed Man, still demands some sort of necessary overall scheme.

For at the same time as there are developments, there is also always Dissolution too!

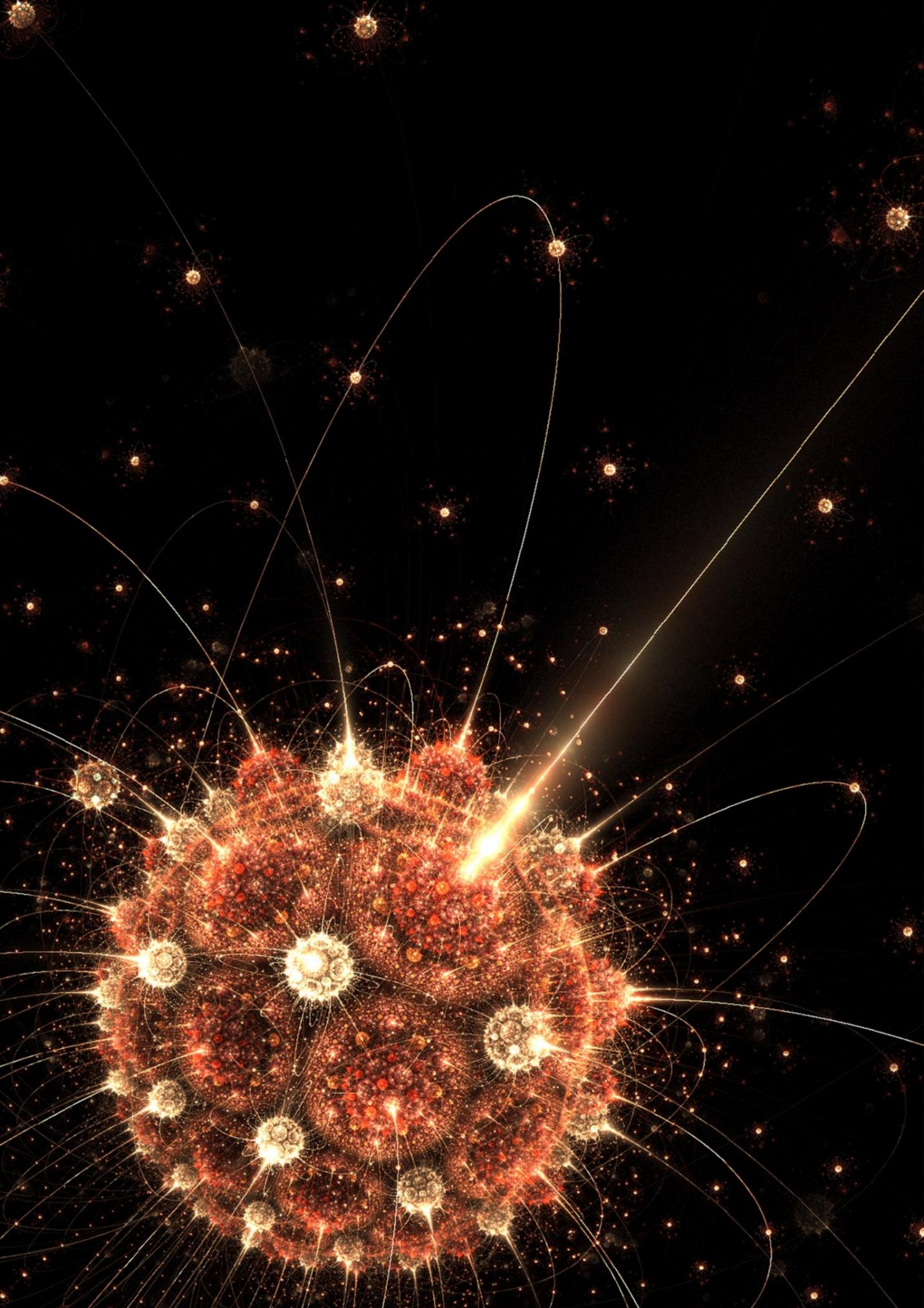
Indeed, almost the most general Law of Reality has to be the famed Second Law of Thermodynamics, which seems to constantly impel Reality from Order into Chaos, yet no one and nowhere has there been found an equally strong *Law of Development*.

The consensus position seems to be that Matter, of itself naturally dissociates, and the concentrated energies of Order are broken down into mere random movement and heat. And that therefore a countering set of laws could, and indeed have, also delivered real advances.

This is the compromise position, but it is surely merely a homocentric placeholder, with God now resident in our material World as The Plan – the disembodied set of laws, which acting in appropriate circumstances can move things forwards.

It is, of course, an impossible frigate, if only because Mankind is now considering the actual Origin of Everything – The Big Bang (or its equivalent) and its now agreed source is said to be Pure disembodied Energy alone!

Clearly, why did anything happen at all?



For something to occur, there must have been something to direct it. The fabled disembodied, pre-ordained and eternal Laws applied to that disembodied Energy must have constructed our Universe - this is the usually accepted position. Are you really convinced?

It seems that we are so used to fighting the dissolutions of the Second Law that we can only see purposive plans as countering such a universal dissociative process.

But we cannot imagine that Matter itself could be self-moving, and necessarily be “creative” too – in that it develops new groupings, arrangements, and processes of its own, driven not by insubstantial, abstract laws, but by integral properties of Matter itself.

Indeed, instead of Laws producing Matter – as the current consensus insists (as with the famed Higgs’ Boson), we have Matter producing Laws!

In other words, Reality is not conforming to any Plan, nor either building or dissociating as its essence. It actually intrinsically does both, and moves in both directions. But remarkably, it does it in different amounts, in different localities, and at different times!

But, as studies of stars have shown, these two can be balanced into what we term Stability – a state (or Phase) which involves sets of processes going in both directions but which are self-maintaining – at least for a time.

And this long lasting Phase, will have its absolutely certain demise in a cataclysm of rampant dissociation. Such Emergences are the Key to all the dilemmas and contradictions of which we are aware. For, though the Phases of Stability can last for vast periods of time, they are never permanent and will always end. The temporary “found” balance between opposing tendencies in which maintaining and destructive forces are held in a balance, will ultimately crumble as the forces of dissociation gain the upper hand: the Stability is undermined until it tips over the precipice and a general and headlong avalanche towards Total Chaos takes hold.

There is no problem with this. For though Stability is maintained, it does not stop internal changes. They continue and gradually change the nature of the System as a whole. The increases in the forces of dissolution are caused by the productions within the Stability: it generates its own demise! It is at this point that the many, many factors that make up the Second Law of thermodynamics become totally dominant, and they have a wealth of Order to work upon. There is a glut of resources for these processes, but they are not inexhaustible, and the process cannot continue without its necessary resources.

Clearly only a nadir of dissociation will be reached, at which the whole situation turns around.

The end of Stability was NOT an end to the majority of processes taking place, but only to those, which maintained that stability.

The new situation will be one of totally unrestrained basic processes and these will begin to construct new proto-systems, which will rise, compete and fall, until the epitome of a system in those precise conditions will arise and include self-defensive processes, until it totally dominates and produces a wholly new Level. A new and higher Stability has been forged.

It is only within this crucial sub-phase of the Emergence that creates the wholly new, and the Level also produces its own entirely new Laws that did not exist before.

Do you want an example?

It is Life!

Reductionism

What is it, and what is its basis?

The concept of Reductionism plays such a central role in apparently seeming to unify the multitude of different formulaic extractions from Reality, via series of causal stages into some coherent and consistent Whole. But does it? Is this superficial conclusion a valid one? Does it actually stand up with a continuous sequence of linked situations all the way down to some final fundamental bases of everything? On inspection of the evidence the answers to all of these seem to be, “NO!”

Once you realise that what Mankind extracts from Reality is never “The Absolute Truth”, but, at best, only various forms of *Objective Content*, the turning of those extracted equations into Eternal Laws is surely torpedoed completely.

If none of our equations is absolutely true, how can we make them eternal, and blithely “apply” them not only throughout the evident development of Reality over its entire History, but, even more amazingly, expect to use them to explain the actual Origin of Everything?

Clearly, that has to be a major mistake.

But, why do we insist on doing it? Surely, we don’t just hope that it is the case? We must feel that we have ample evidence for taking that as a basic assumption. And though some will need a little adjustment as we get closer to that fabled Truth, they will be entirely legitimate versions for now, and their modifications in the future will not change the overall relations that make the World what it is.

Now, if this evidence is the accumulation of results from several centuries of scientific experiments is valid. Then it certainly seems to deliver to us the general Principle of Reductionism, as seen in abundance of relatively short experienced sequences.

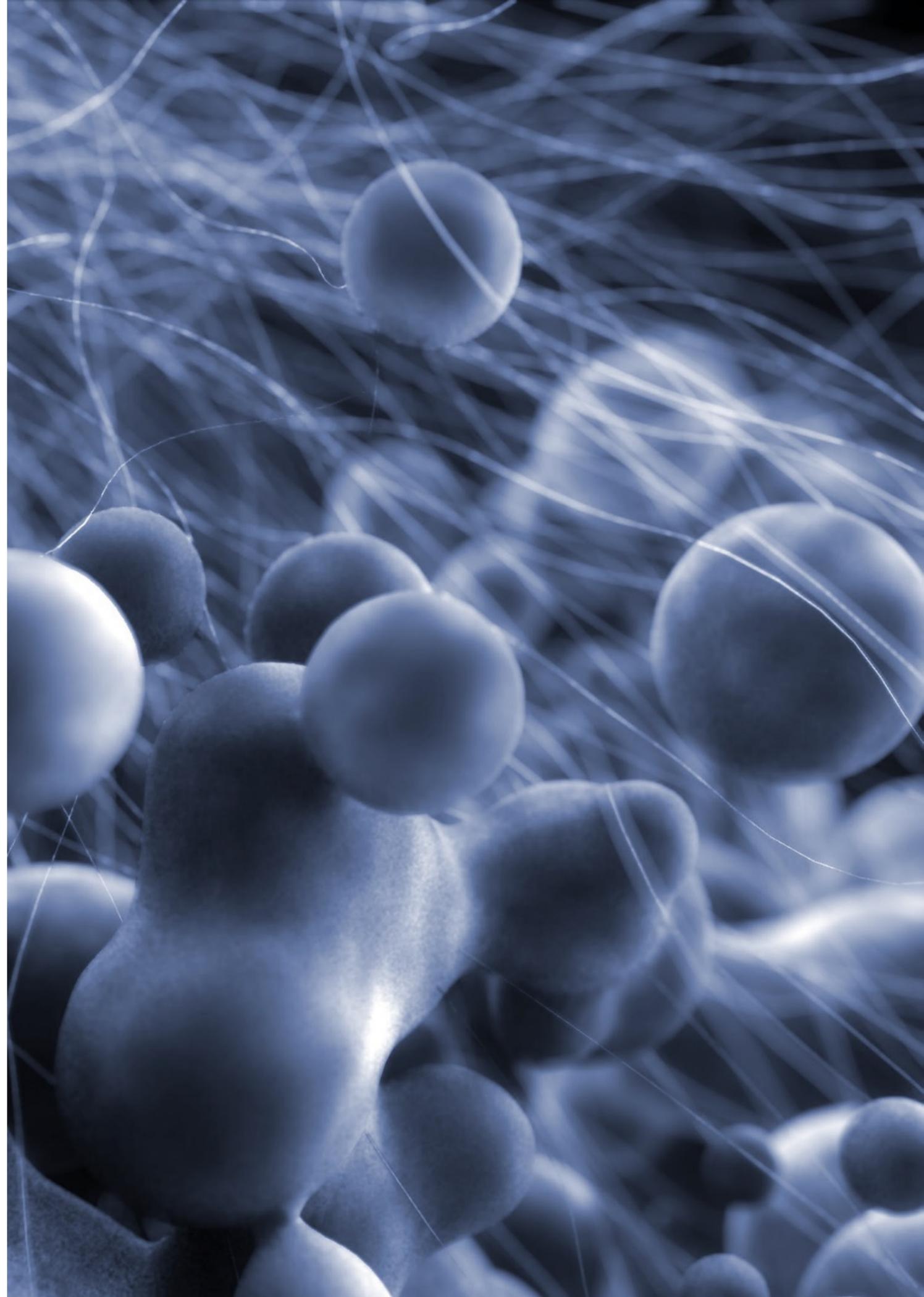
For this is the conclusion we draw from doing a succession of experiments, each delving ever deeper into a section of Reality, chasing first one Part, and then its components, and so on ad infinitum!

Of course, we never chase this process all the way down to fundamental particles, but we are absolutely sure that it is true.

But, in turn, it is based upon another rarely admitted principle termed Plurality. And this turns out to be the basis of all the above Analyses, in that it asserts that what we are able to extract via our carefully set up and carried through experiments, are real and separable Parts, which act exactly the same whatever context they occur within. So, this Plurality is the real basis for our assumption of Reductionism.

But it just isn’t true!

And there is an opposite of Plurality, which affirms the exact opposite of separate-ability – indeed a World where everything affects everything else, so that context is vital in any active relation. That alternative is certainly Holism. So what we extract by careful and restrictive “farming” in experimental situations is never the same as what we were attempting to find – that which occurs in unfettered Reality-as-is.



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Thus our extractions are not eternal, but in fact always context-dependant.

Indeed, to actually use them, we are forced to replicate exactly the same conditions, in which we extracted them, to have any chance of successfully using them.

Now, of course, our pluralist extracted parts and relations are not wrong, they are simply not what we endow them with – they are not eternal, but they do have some truth within them.

They are never the Absolute Truth, but instead things having various measures of Objective Content, and used in appropriate conditions can be extremely useful.

And what is more, the conditions that we use them in do seem to confirm Reductionism, at least to a limited extent. Reductionist sequences do indeed occur, but they don't last and are by no means universal.

But, if we really address productive use of our extractions, as in a factory, for example, we have to admit that each individual process involved requires its own ideal context, and to get a final intended product many completely different successive scenarios will have to be constructed to finally produce our objective. The Oil Refinery is a particularly apt metaphor for such systems.

So, turning to the processes on a Cosmological scale we can see that our assumptions simply do not hold. Our laws are not eternal: and they are most certainly never independent of context.

Indeed, what is the context for the Beginning of Everything?

Can our laws be assumed to exist prior to that Beginning? The answers are predictable. They are all "NO!" or "We don't know!"

Now, for the cosmologists this is a major problem, but they have a remarkable solution.

If there is NO CONTEXT then relations will occur in their mathematically pure Forms – probably exactly as we deal with them in Mathematics, for it is only in Science that context must be considered.

In Mathematics we have abstracted relations from Reality it is true, and from carefully arranged contexts, it is also true.

But, we then, as mathematicians, recognise a close relative in one of our already-known, and purely formal relations, and use these instead of the dirtied products extracted from Reality.

We deal in Pure Form alone and thereafter use the formal rules of that parallel World, Ideality, to then carry out our pre-use. Processes.

"Thus", declare the new breed of mathematical scientists, "only we can deliver the Forms that must have applied when there wasn't any context!"

What is Objective Content?

And How Does it Differ From Absolute Truth?

There is a recurring problem in the perception of exactly how Mankind attempts to understand its World.

It is a fact that Absolute Truth is never actually directly available, no matter what you do, and how you process data taken from the Real World. Indeed, whatever we manage to extract is always compromised to some extent by what we have to do to get anything at all.

We impose limits on what we extract, and though these are always helpful, they are also determined and do not deliver the morsels of Absolute Truth that we imagine that they do.

It sounds like an irresolvable conundrum, and one possible conclusion is that all we extract are actually man-made simplifications and abstractions, and cannot be totally relied upon. Indeed, "Give up now, you'll never do it!", is the frequently heard refrain.

But, of course, such a pessimistic conclusion is ridiculous, and ignores the extensive and effective uses that are daily carried through to deliver their projected targets. But, it must also be admitted that it isn't the reliable road to Truth that most scientists insist that it is.

What is evident in both sides of the argument is an ignorance of exactly how the human brain can successfully deal with incomplete evidence. For it is not certainly equipped to manage to deduce Absolute Truth from the only sorts of data we can extract from Reality using our current methods. Indeed, even the basic assumption that led to the conception that such a form of Truth actually exists is false anyway.

The idea of Absolute Truth is in fact the perfect example of just how many concepts are indeed man-made (not, it must be emphasised, as pure invention, but certainly by very extensive and strong farming of contexts to make extractions possible).

But, to make determinations we certainly have to be clear what it is that our brain does with valuable evidence. What does our brain deal with, and how can it possibly deliver correct predictions in appropriate circumstances.

Let us start with why the assumption of Absolute Truth is mistaken.

It is the result of the Principle of Plurality, which assumes that Reality is composed of a hierarchy of sets of contributions of entirely separable components. And these are extractable under specially arranged ideal conditions. We remove the majority of confusing complications, and expose these relations as the Essences of Reality.

The confirmation of the validity of such methods, as far as the supporters of this standpoint are concerned, is the successful application of these extracted essences in producing some desired end-product. And, of course, this does indeed happen, and whatever it is that allows it must be described if it isn't what we think it is.

So what is it? The measures that ensure such successes are founded upon this belief in Plurality, so that it has become the unquestioned basis of all Science. But, though it does indeed deliver, it isn't actually absolute truth that has been separated out! In that last statement is encapsulated the real essence of this discussion: how can it possibly be so?

For everything quite definitely affects everything else, so the basic assumption of the necessary separables is indeed incorrect. And, therefore, if the ultimate aim of revealing Absolute Truths are myths, how can they ever be obtained: they don't exist! We must be dealing in something else: the question is, what is it?

Whatever it is we manage to extract will always be modified by the extraction – or more accurately, will be modified by the imposed conditions, under which we were able to extract it. But, what we get isn't just always wrong: it will definitely contain some valuable aspect of Reality as so-called *Objective Content*.

In essence it is Objective Content, which is the Lingua Franca of Science, and not Absolute Truth.

But, of course, just saying that is not sufficient. We need to know what essentially Objective Content actually is, and that is indeed very difficult to describe. But perhaps the best way is to consider what might be being handled by our brains.

Let us attempt to plumb the nature of Objective Content. If we manage to extract very similar, but different, relations in clearly different contexts, yet obviously containing many common features, the full set of such extracted forms, though different, will certainly reflect something common to all of these various contexts.





It will NOT be as the pluralists suppose a given single and separable component.

On the contrary, it will be a given aspect always modifiable by interacting parallel contributions. They will be different, but they will clearly be objectively related.

“Something” will be common to all these cases: something that cannot stand alone. It isn’t a separable component. It can only exist within various contexts.

Put simply, the components don’t make the context: it is the contexts that deliver the “component”. They are inseparable from their forming context!

What we do get, however, by these methods is what is common to such contexts We call it Objective Content, and it can indeed be used!

So all our extractions, whatever their evident weaknesses and even occasional failures, will indeed be worth having. And if the context for application is rigidly maintained at a known optimum, then our extracted relation can be reliably used to some projected and predicted purpose.

If you talk to a real expert in some specialised field, he or she will never talk in absolutes, but will be aware of a multiplicity of embodiments of something clearly common, but NOT constant at all. It will be a holist view of Reality, and it does not have followers of that standpoint, who will agree with the imperative, “Give up now, you’ll never do it!” On the contrary, they will keep on searching and learning over considerable periods of time, and what they end up with is usually termed Wisdom. The 22 year old with a brand new equation cannot yet be wise: it is most likely that he is merely clever!

Now, to prove how this is possible with the Human Mind (and Brain), I want to relate in some detail just how we humans manage to actually SEE!

I spent almost 20 years working with an expert academic colleague, whose subject was the Teaching of Dance, and our remit was to produce innovative and easy to use teaching aids in the form of computer controlled visual resources of exemplar performances. There was a whole series of objectives, and the straight forward passive watching of uninterrupted visual footage simply didn’t allow what was imperative, and now certainly technologically possible, to aid all aspects of Dance from Performance, to Analysis and even to Choreographic Composition.

The usual “entertainment” films and videos were simply not good enough, and specially staged and recorded footage with educational purposes in mind, using multiple simultaneously-active cameras, and allowing total and subtle control had to be the objective.

The footage could be handled in many different ways to facilitate the Dance defined objectives, and slow motion, frame-by-frame stepping through, loops and many other facilities were implemented from the outset.

It wasn’t easy, and took a considerable amount of time, with specialist recording setups, and, in particular, requiring complex computer programming to make the manipulation easy to learn and to use.

The reaction of the majority of experts in the field was initially outright opposition. Just the thought of computer-controlled footage was enough to condemn the project. But they were guessing wrong. The reaction from young dancers and teachers was very enthusiastic, and the results applied to a GCSE performance study were exceptional. Those who used our resources produced the very best performances.

But we were also very lucky when we by chance hit upon the ideal technology from the very beginning of our research. Indeed, we didn’t even know how perfect it was even when we won a British Interactive Video Award for our first product. And it wasn’t until quite a bit later that we began to realise just how totally unsuitable most technologies were for what we were attempting to do.

Our chosen technology was Laser Disc, which was an analogue device for delivering high quality footage of moving, visual resources. It was a large disc, which required a special Player, but could be very easily computer controlled, with the then standard computer available in all British Schools - the BBC B Educational Computer.

The recording occupied a series of concentric, circular tracks, with each containing a single 1/25th of a second frame. The rings would be accessed in turn to give the moving images, and they were extremely effective.

The structure of such a disc meant that we could play at a whole variety of speeds, and even play it backwards. We could even stop at a given frame, but it was NOT a still! Each ring delivered a “mini movie” lasting the full 1/25th of a second. And this feature turned out to be absolutely crucial. There were small elements from every moment within that time slot delivered in real time, and this meant that the Dynamics of the movement was accurately delivered.

Now, let us be clear! Considering just how little there was from each tiny fraction of a second and how it was delivered, you would never have guessed that the movement could be correctly interpreted by the human eye/brain system, but it most certainly was. I think you may be able to guess where this diversion is leading, for it is about Objective Content.

Only when we had this technology removed, did we find what we had lost, and it took us seven long years and three

different alternative (and inferior) technologies to regain the functionality we had taken for granted with Laser Disc.

Now, when we had to use what was available (remember, it had to be obtainable worldwide and at reasonable cost), and still attempt to deliver what we knew was necessary. So, this member of the team, myself, had to thoroughly investigate the advantages and disadvantages of what we had once been able to use, and what was later available. And it was in this research that it was found out that the human eye/brain system could actually reconstruct movement in Reality from not only a tiny fraction of the full real world movement, but also could even take maximally sliced up, and drastically rearranged slivers of captured images, and actually make very good sense of them.

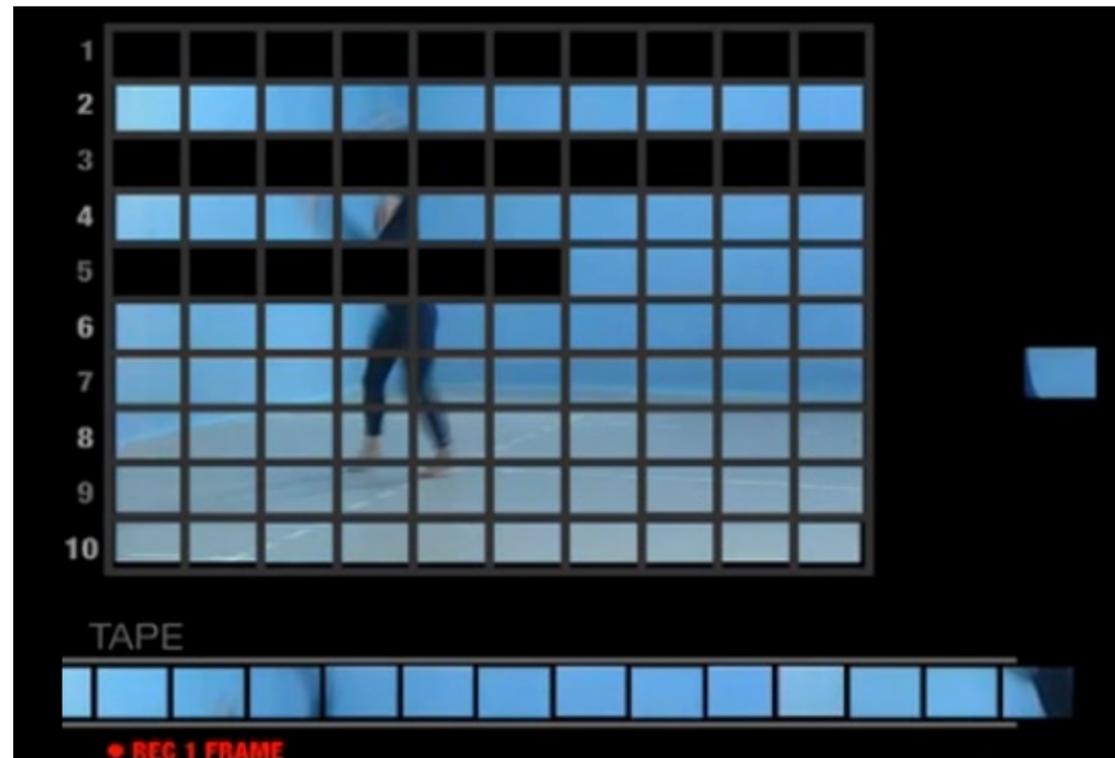
The human brain is quite evidently supremely equipped to effectively use data amounting to Objective Content. In movement it amazingly brings together the various tiny slivers, to somehow make an entirely adequate reconstruction in both time and position from this Objective Content alone.

This excellent case really demonstrates better than any formal description what Objective Content really is. It contains sufficient slivers of data, with sufficient content for only a single, completed jigsaw, as the only possible outcome. Clearly the reconstruction of something from minimum resources is almost always possible.

NOTE: This finding also makes the favoured examples of some psychologists look pretty useless. For they purposely choose totally artificial, and stationary situations, to “prove” how “unreliable” our senses are supposed to be. They are wrong! The eye/brain system shown here proves this decisively.

The particular form that surprised us with its remarkable efficiency was the standard type of Video, with interleaved fields. Because there were moments from every part of a single frame, and from every part of its length of 1/25th of a second, the brain using two quite distinct routes to process its seen and captured data, could along with its previously acquired repository of real, directly-seen movements, make amazingly accurate sense of maximally mangled data.

Now, if the brain could do this for that kind of Objective Content, it clearly could do it for similar content extracted by other means.



Objective Content Animation
http://youtu.be/5_dyed4Mh14

The Objective Content Animation

As the concept of Objective Content is only rarely understood, when merely described as “incomplete truths”, it was decided to demonstrate the difference between what we conceive of as Truth, and what we are in a position to extract from Reality, whatever stage we have reached in our abilities and methods, and what we think we have obtained – some small addition to Absolute Truth!

It was a difficult task to undertake, and for this particular researcher, he could only return to a crucial area that he had spent some considerable time upon, almost ten years ago. The work was on Seeing and Studying Movement via video recordings.

Though this was the work of a scientist, it was revealed in efforts made to produce Exemplar Video Resources for the Teaching of Ballet and Contemporary Dance.

For such recordings had to be good enough and both flexibly and effectively usable by skilled teachers of Dance, who wanted a total adequate, yet easily handled facility. To deliver what these experts required proved to be a major undertaking, but it was finally achieved, and these resources are now used all over the World.

The purpose of the animation is to show how the capturing of real movement by an analogue video camera into a given sequence of stills (each one built up over the duration of exposure of a frame), and they could be correctly interpreted when viewed on playback as a movie, by the human eye-brain system.

The valid interpretation by that means turned out to be an almost unbelievable achievement, when the nature of the recording process, of the produced images, and what was delivered on playback were considered.

It is also quite difficult to describe, so this animation is an attempt to do it, and is consequently somewhat simplified to get over the most important features.

A fragment of actual movement in Reality during the frame-time of a single frame of the analogue camera actually records very tiny moments, one after the other, from a series of points in that moving scene, as they actually change, and puts them all into a single Still image.

Now, this seems doomed to failure, for how can a totally stationary image possibly convey the true dynamism of movement that it was captured from?

But let us see exactly what was happening, and how it would be subsequently delivered on replay.

Clearly, as what has been captured was indeed from a movement, its capture into a still is certain to deliver something very different.

Bits from all points will indeed be there, but every single one will be from a different place, and a different time, of the movement captured.

Seen, on completion and in isolation, as a still, it will certainly be confusing for not a single dot of it will be from the same time as any other. And, to make matters worse, it was usually split into two interleaved fields, and each delivering only half the movement occurring. So, when this surprising arrangement is also present in the recording, our individual still will seem wholly misleading.

Yet, that turns out not to be the case, when finally viewed by a human being with ongoing playback. Initially, that seems incredible, but we must remember two important things.

FIRST: the presentation of each still is not delivered instantaneously (as it is in Film) with the whole of each image all at once! On the contrary, it is delivered in the same way as it was captured; taking the whole frame-time to complete it assembled one dot at-a-time.

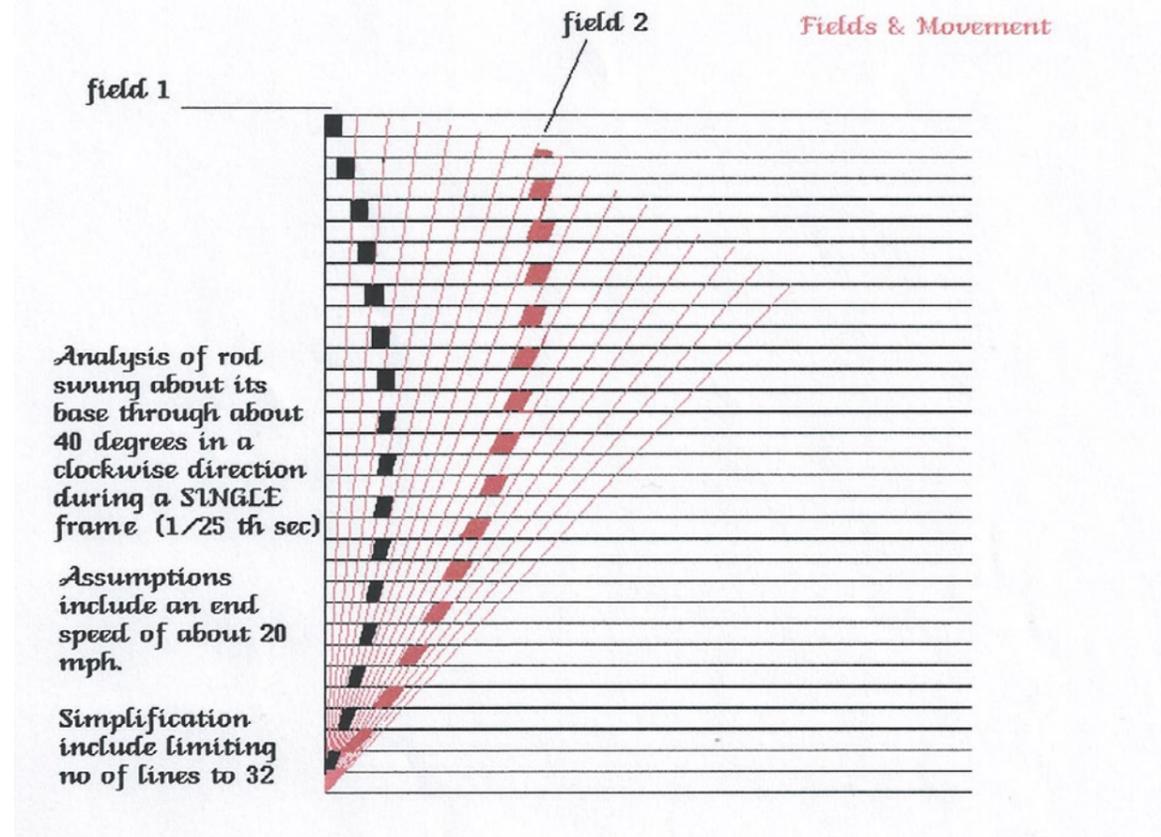
SECOND: We see the frames not one at a time, but as a sequence at the correct as-captured timing, showing a great deal more of the movement involved.

Nevertheless, what our eye-brain system achieves is both brilliant and seemingly miraculous.

It delivers an appreciable amount of the dynamism of the movement, Indeed, much more than either its film predecessor, or its digital successor, could possibly manage.

Fields and the Recording of Movement

To Clarify the description in the main paper, I (very long ago) drew the following simplified image of a single analogue interleaved frame, taking from the recording of a simple movement. A straight stick was quickly moved from the vertical to the horizontal, and a single frame from that sequence extracted and studied. Here it is:



But, the shown result is not only confusing, but seems to indicate a very odd method of capture, and surely not a valid one. But we must remember that though this is stored as a single frame, it was captured, and is replayed, as a moving dot, taking the whole, shutter-open time of the frame to complete the picture from the top-left to the bottom-right. The two images are produced as the sequence is divided into two fields – the first addressing only half of the lines across the full image, and the second delivering the rest of those interleaved between the first field. No points represent the same moment: they are all different moments. All points are at different moments and give a positional dot at its precise time.

The straight lines become curves, and the two lines are distorted versions of the two fields taken, then delivered, in sequence. Yet, this is somehow sufficient!

You never see this confusing image unless you pause the video at a given frame. For in normal viewing these frames, built up sequentially over each frame-time, are shown one after the other, and every single moment of time is represented, though only by a single dot on a single frame. Nevertheless, the eye-brain system of Man is equipped for such incoming information streams, and correctly interprets the input. Interestingly, digital still streams (progressive) are woefully inferior. The eye-brain system just does not get enough dynamic information.

“Windows” into The Eye-Brain System

One interesting area of research, into how the Eye-Brain System works, occurs in studies into the effects of serious brain damage. And these are particularly relevant when it comes to Sight!

Ramachandran has written profoundly on the two phenomena of Blind Seeing and Visual Neglect, which were both the results of non-correctable loss of certain functions within the Eye-Brain system, caused by severe brain damage in different, but crucial visual processing centres.

Now, of course, this is not a treatise upon such work, but the things that can be deduced by such losses, and the phenomena they directly produce are, without any doubt, the most revealing evidence that we can get at the present time as to the role of the brain in processing data from the eyes.

The reason for this preamble is that, as well as this author’s research into recording movement for teaching purposes, he is also going blind, due to Macular Degeneration, and the developing losses associated with this have been similarly instructive as to brain function of eye delivered data. This is concerned with the detail-seeing part of the retina, and it is a continuing loss of function cell-by-cell successively in this vital area. When everything is working perfectly the recipient of the picture of the world needs to question none of it. He just accepts its perfect functioning as the norm, and hence doesn’t get very far in understanding what is actually going on to deliver such things.

But, as these are successively lost, the recipient, expecting what he is used to, cannot avoid being aware of what is missing, and having to work out what he has to do to attempt to remedy the losses, by new invented uses of his eyes.

For example, scanning across an area of the image can allow what details have been picked up in passing to be stored in the brain representing the correct place, at least for a while.

The recipient then has the illusion that he is getting simultaneous inputs from all parts of the scanned area: his disability seems to have been corrected. But of course, the scanning of the past and the instantaneous parts are of now, so the image is an amalgam of memory and immanent data.

Such tricks can allow reorientation, and increase safety, but as the deterioration proceeds, another usually taken-for-granted facility bites the dust.

It is Binocular Vision. Instead of a combined 3D conception, as is normal, and essential in making distance judgements, this is lost, and confusing double images are delivered instead.

But apart from the increasing disabilities, the losses do, as with Ramachandran’s revelations, demonstrate how things work at least to some extent, and must be processed in the brain centres of the Eye-Brain System.

For, both of these only deliver totally stationary stills, and at best contain only a part of the action. Interestingly, the more precision demanded for each individual still, the less of the actual movement would be included. For, if the shutter were left open for long, the image would be significantly blurred.

Indeed, the defining feature of these media is that MOST of what was actually happening will NOT have been recorded. And the eye-brain system has to “tween” (as happens in animations), on the basis of past seeing, so it will never reflect the unique content of any particular movement, but only an average of past-experienced movements. Definitely not good enough in this important context!

The area I was researching was in supplying recorded exemplar quality dance recordings for teaching purposes, and most digital facilities were simply wholly inadequate for what needed to be done with such footage. So, I had to find out why, and also why analogue video seemed so much better.

Now, the time is certainly overdue for a return to the major purpose of this paper!

As mentioned right at the very beginning, the difficulty of explaining what was meant by Objective Content certainly required a concrete and clearly revealed example, of what it was that we achieved.

If it wasn’t, as I insist, Absolute Truth, it had to be something, which, with each new effort, actually took us closer to that unachievable objective. And I hope that this brief example has shown what I mean.

Objective Content is NOT The Truth, but it always contains something of the truth, some aspect or formulation that is an advance upon what was believed immediately prior to the new formulation. But, you can never absolutely rely upon Objective Content, for if you do, you will be heading for a major fall. Objective Content is an achievable stepping stone towards where you are needing to go, but it will always be to some extent a rig: an invention that will always be superseded.



Holist Science: The Path Forwards? Who Will Bring About the Necessary Revolution?

The holist standpoint is neither new, nor old and dispensed with, though its direct alternative, Plurality, dominates everywhere.

Yet Holism survives quite vigorously in the Arts, and in persisting oriental philosophical positions such as Buddhism. And though its primitive forms have been left behind, it has significantly gained increasing status and a developing content from the rich, new paths forged in key areas of Biology – particularly in those concerning the Origin and subsequent Evolution of Living Things, but also in the totally separate concentration on Social Revolution by the Marxists.

For both of these broke with the long established holistic belief in static-cycling as the true nature of all Change, and, for the first time, showed real, innovatory development occurring and transforming all things.

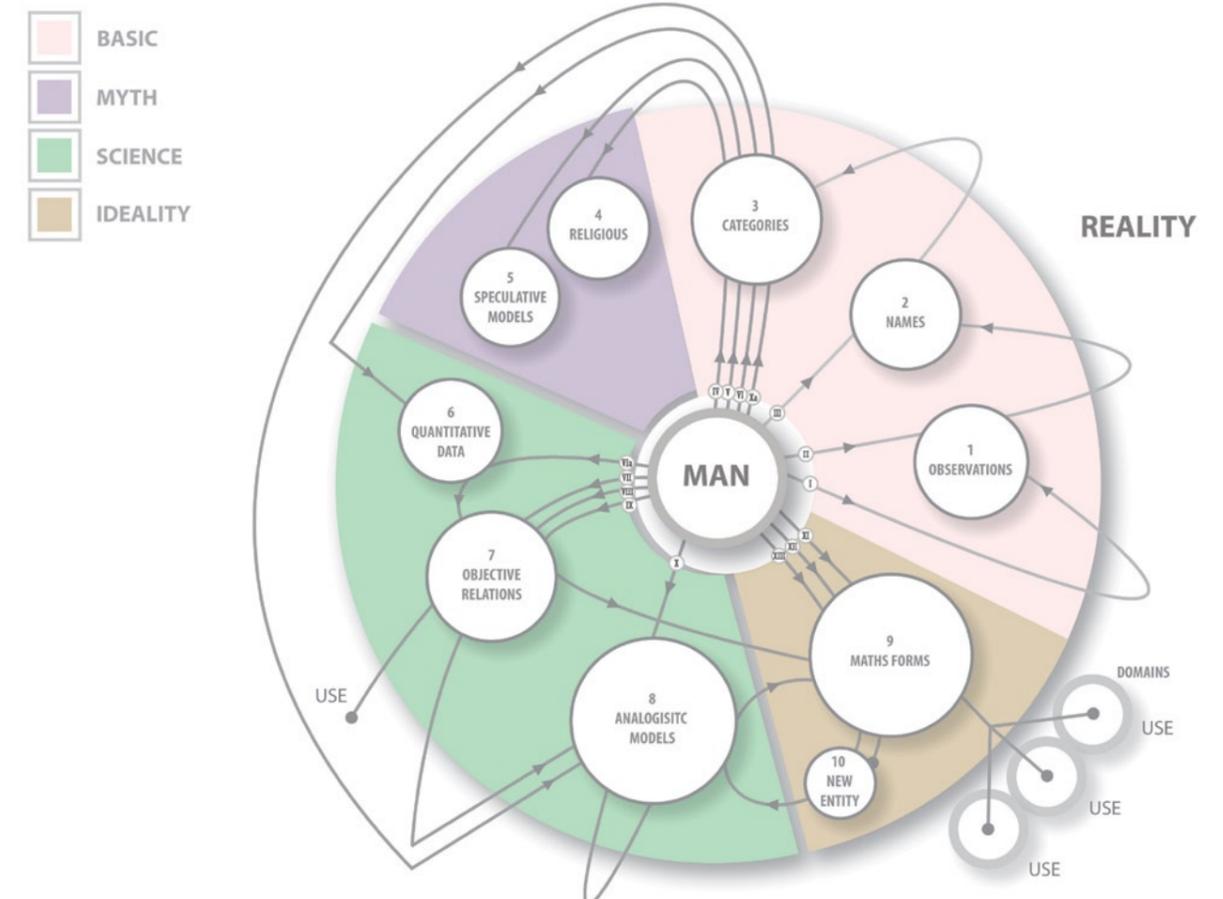
So Holism has also been radically altered by all these different areas of study into something very close to what the philosopher Hegel sought to establish all those years ago - what he called a *Logic of Change*.

For the fabled “ultimate” Logic of the Greeks dealt only with immutables!

Whether their basic elements were objects or statements, they certainly did not undergo developmental change.

Formal Logic dealt with illogicality between fixed things, and as such exposed false reasoning via contradiction. But such tools were (to Hegel) hopelessly inadequate to the demands of dealing with universally present Qualitative Changes and Development – the appearance of the entirely New.

Formal Logic was useless in such areas, indeed it, in such developments, became a significant barrier to understanding. And in its close relative Mathematics, (from the same Greek culture) was also similarly hogtied in that it too was a System limited to a defined and limited World of its own – the World of Pure Form alone, which we term Ideality.



It was in the realm of Human Thinking, that Hegel realised that these old systems, though tremendous achievements in their time, and in their appropriate areas, were in this important area hopelessly compromised. They could only solve the jigsaw puzzles of Thinking and never its innovatory leaps.

But, to realise exactly what was needed, and to define such rigorously was a very different thing, and Hegel, in spite of his highly significant contributions, was unable to carry out his defined agenda to completion.

Yet, his disciples did indeed make the attempt. Yet, in doing so it soon became clear that it could not be achieved even using Hegel's brilliant insights alone. As with all such epoch-changing transitions, it could only be achieved by a thoroughgoing revolution – to demolish the barrier of past assumptions, in order to open up a New Path to a better system.

Indeed, the Young Hegelians, led by Karl Marx and Frederick Engels inverted Hegel's position, and transformed his idealist standpoint into one based solely upon materialism. Yet even this was still insufficient.

Revolutions are complicated things, and much more had to be done to finally break through to a wholly new Level. The problem resided precisely in that discipline, which you would imagine to be one of the closest of allies of the new thinking – in Science! For though a partial revolution had also taken place in that discipline, and had liberated practising scientists from old and inadequate bases, there were still other fundamental premises that had not been addressed.

In spite of a switch from pure verbal argument and Logic to establish Truth, and instead rely upon Observation and then Experimentation, and which had both certainly made a significant difference, they were still based upon assumptions that were increasingly compromised. Though Zeno with his profound Paradoxes, had via these proved the total inadequacy of the mutually exclusive pair of premises that were the only considered bases for all these studies, the lack of a thorough-going alternative basis meant that no changes occurred, and the new scientific activities still depended wholly upon these. It hadn't yet completed its revolution.

The scientific community was still riven through and through by the same incorrect bases as had been the Greeks before them. Science, as it stood in its heyday was NOT the way forward: it was not the progressive replacement for the old systems. It too was guaranteed to encounter its own major crisis, and it more and more frequently came across things, which its principles were inadequate to cope with.

Primarily, due to the belief in the immutability of things and the eternal nature of all laws, along with their consequent principles, such as Plurality and Reductionism, Science was still mostly limited to the revelation and use of reliable equations. And to deal with a World that was actually holist, they had to both parcel it up into compartments, and define and control these small areas to become zones that approximated to their dearly held basic assumptions.

Though many gains were made and used, any real understanding of Reality was made impossible by their untouchable foundation principles and assumptions. A revolution was necessary to wed its materialist methods and ideas to the philosophical gains of Hegel and Marx

Yet, it was not only the scientists who steadfastly stuck to their positions, even to the extent of outlawing Explanation with the Copenhagen Interpretation of Quantum Theory, but also the Marxists who failed to carry through those vital components of the necessary revolution.

Since the Time of the Russian Revolution, the content of Marxism has only been downhill. They never tackled, as was the necessary next step, the mistakes of the scientists, and that was their major retreat. For, without dealing with Science in the modern World, and thereafter marching together as allies, their objectives would never be achieved.

The task now is to establish a truly Holist Science, defeat Copenhagen and rejuvenate the Hegel/Marx effort in Philosophy.

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