



SHAPE JOURNAL

THE TRUTH PAPERS

WHAT IS TRUTH?
APPROACHES TO REALITY / QUANTITY INTO QUALITY / UNFULFILLED PROMISES
PRECURSORS OF HOLIST SCIENCE / A NECESSARY REVOLUTION / THE DEATH OF IDEALISM

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“Art is a lie that makes us realise truth”

Pablo Picasso 1923

Scientific truth is always paradox, if judged by everyday experience, which catches only the delusive appearance of things.

Karl Marx 1865

The Truth Papers

Issue 46 / October 2016

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Preface
approaches
to reality



complexity & plurality /
the experimental method
& eternal natural laws /
idealisation in formal
equations / the limits of
pluralist science /
technology rather than
science / the beginning of
a holist alternative

Welcome to the 46th Issue of the SHAPE Journal, a collection of papers on *Truth* and our failed attempts to find it.

As soon as Mankind conceded that multiple, simultaneous relations are acting-together to produce literally everything present in Reality, we were immediately confronted with a major problem!

How could we extract all these relations accurately, and, thereafter, how could we then discover both their individual and their combined effects?

The problem was perplexing, until someone, a couple of millennia ago, suggested that it was actually very easy: the various relations involved were assumed to be fixed, so they remained the same regardless of context.

It wasn't true, of course, but it was approximately-so in many relatively-stable circumstances we encountered. Later on, this basic assumption was overtly formulated as the *Principle of Plurality*, and, once established, it meant that difficult situations could be adjusted, in order to make the above questions much easier to address.

For, it meant that all the many simultaneously-acting relations were independent of one another - the "Laws" involved were eternal: and, this also meant that the overall effect, of a whole currently-acting set, could, by



Marcel Duchamp "Nude Descending a Staircase, No. 2" (1912)



Antonio Sant'Elia - "Power Station" (1914)

simple addition, give a kind of complexity, in which the component "Laws" were totally unaffected by their context.

Hence, no amount of changes to such a context could possibly change the nature of any still remaining "Law": so, a situation could be adjusted to ever-more-clearly display a single targeted "Law"! Also, apart from the direct elimination of other contributing factors, they might also have the size of their contributions reduced by various means, as these adjustment would also never change the fixed "laws" involved.

This made the usual Experimental Method of extracting each single targeted "Law" totally valid. And, of course, this Method was to significantly simplify a situation, by removing, or reducing, as many other factors as possible - leaving a greatly simplified single, targeted factor to be varied, over a given range, in order to extract these as a valid data set!

You can see how important the Principle of Plurality was, and still is, for it alone insists that all factors are independent of one another, and hence the targeted factor in the extensively-farmed Experiment must be unchanged, from its effect in the original, completely-unadjusted, natural phenomenon!"

Thus, a "valid" data set was considered to have been extracted, that not only was entirely appropriate in the farmed-situation of the experiment, but also in the totally unfettered-situation of the original, natural phenomenon!

And, as such, the acquired data set could be fitted-up to a Standard Pure Form acquired from Mathematics! And, it was this, which was then considered to be established as the aimed-for, "eternal Natural Law" - applying in both of these very different situations!

Consequently, wherever that factor was recognised as being present, in any complex situation, that very same "Law" could be assumed to be involved - exactly-as-is!

But, of course, if such a "Law" was attempted to be applied in any other situation within Reality-as-is, it would always fail miserably! In fact, the only way it could be made to work, was to re-establish the exact-same circumstances, from which it had been initially extracted: only then would the "Law" deliver what it was

supposed to. So, if that "Law" was to be used in some Productive Process, it would require the exactly right context to deliver what was required. And, every other such "Law" would also require its own exclusive context! Production clearly has-to-be sequences of environments, each adapted to deliver its required "Law"!

Do you doubt it?

Also, returning to the original phenomenon, in which this "Law" was supposed to be acting, any such single "Law" alone could never replicate the combined action of all the then present factors in that situation.

The question arises, "Having extracted each and every factor, via the same sort of farming to the original situation, how would these idealised versions be combined formally to deliver the actual real-world result, purely by using the full set of "Laws" supposedly involved?"

Now, this is messy enough to be required to be restated!

First, the extracted laws, by the usual methods, would have to be applied in Production, completely-separately, each in its own ideal context. Second, How do we apply the extracted set of equations, purely formally, to predict outcomes: can they be combined, and if so, how? Presumably, the answer to this latter question must be "NO"!

The originally investigated situation is, by this stage, now long gone!

To replicate that natural situation is impossible, so to emulate it, along with the necessary addition of using predictions from equations, would require the following:- Each Law will be applied as part of a sequence of separate steps, each one IN its necessary farmed context.

But, though the individual equations could be used in each appropriate step, that is still a frig to represent how they all actually-acted, simultaneously, in the natural original. Could such a sequence deliver the same final outcome?

Clearly, current Pluralist Science has no choice: scientists do only what is available to them, with their current premises, and the above is the best that they can achieve!

So, the simultaneous set of active factors was turned instead into a sequence of the idealised versions of those factors, each in its own ideal context! Now, although predictable results could be obtained by such means (including the eternal Natural Laws involved), none-of-them would be the same as those in the natural unfettered situation of the original phenomenon!

Clearly, Reality does not conform to the imposed Principle of Plurality. It was merely a clever simplification, devised by Mankind, to both reveal, and then use, evidently existing factors - though both simplified and idealised, to deliver predicted outcomes.

Now, of course, this System is the very basis of Technology, and very effective too, but, it has also severely distorted the purposes of the parent Science. For, this was to deliver a Theory - an Explanation, via Causes, of why things behaved as they did, and instead, by both changing the situation studied, and then delivering ONLY a purely formal description of that.

Clearly, the most important objective has been abandoned, for a more pragmatic use-imperative, and hence this severely damages its prime purpose of increasing Understanding of Reality, with all the many advantages which that allows!

You may say, "So, what? As long as we can get what we want, who cares if we don't really *understand* why it actually happens that way? We have bent things to our needs, and that is sufficient!"

I'm afraid not.

How do we actually know what we want? Without an increasing understanding of Reality, Human kind - exactly like us, spent over 90% of its existence merely perfecting the knapping of Flint slivers as their most sophisticated tools. So, without understanding, Mankind couldn't even conceive, in real terms, what it wanted, or even what it needed. Understanding sets the whole process of potentialities in motion, and crucially, also delivers the means to begin to address such possibilities!

Technology cannot exist without Science, and its primary product - Explanatory Theory. For, it is the increase in Understanding that enables the imagining of ever new uses, and the wherewithal to attempt solutions.

In addition, the same gains significantly direct our addressing of ever-new areas of study too, and Technology cannot do that!

For, it is a collection of techniques based upon what Science explains. Explanatory Theory is absolutely vital!

So, having established all of this, what other approach can be devised to not only advance our studies into the causes of ever-new phenomena, but also empower the technologists to use that new understanding to deliver many previously unimagined products.

The advance of our Understanding is clearly imperative!

Now, the alternative principle to that of Plurality, is that of Holism. And, in its original form - "Everything affects everything else!", it seemed to defeat any means of isolating each and every factor involved in any complex phenomenon, as such, for they, in principle, always change one another, when acting simultaneously, in the various possible mixes.

As Stanley Miller's early holist experiment showed - allowing ALL the relevant factors to act together, in an entirely natural way, will deliver something that will, at least partially, approach what happened in Reality as part of the ultimate Origin of Life!"

But, crucially, we would still not be able to understand what had been going on. And, it was because of this total lack of Understanding, That such a method, though, definitely-reflecting real, past processes, only actually delivers a final snap-shot of what had occurred, delivering only a single moment, from a remarkable-but-unrevealed trajectory, and, without any real idea of how it was produced, and even less of what must certainly have followed that revealed instant!

Clearly, if the current necessary breakthrough is to be via Holistic Methods, we are, as yet, only standing upon the threshold.

Jim Schofield
October 2016





Giacomo Balla - "Swifts: Paths of Movement + Dynamic Sequences." (1913)

Quantity into Quality

There is a way of talking about Holism and indeed Dialectics, which misses (or dismisses?) their real vital content, by turning them into a series of glib and generalising clichés. The most famous one is, of course:

Thesis - Antithesis - Synthesis

while another is
Quantity into Quality

Now, any real content, in these cryptic abbreviations, is, most certainly, not evident, within the given, supposedly-all-encapsulating phrase: anyone can interpret them as they please (and, indeed, do so, according to their own agendas).

But, Hegel, the father of Modern Holism, was very specific in his explanation of the first of these, when he noticed the regular impasses in reasoning, always caused by what he termed Dichotomous Pairs of diametrically-opposed concepts (such as the famous pair from Zeno's Paradoxes, of Continuity and Discreteness).

Indeed, Hegel's crucial contribution was in causally-linking such impasses to flaws or omissions in the assumed premises of a particular line of reasoning. And, he even delivered a method of both addressing and even transcending these impasses.

But, this line of argument is well-addressed, elsewhere, in this series of papers, so I won't replicate it here.

But, the second phrase, about Quantity and Quality, will be addressed here, as it has been advanced even further since Hegel, by others including the writer of this paper.

Let us begin by seeing why the usual phrase does nothing to deepen a true understanding of the profound set of ideas represented by this phrase

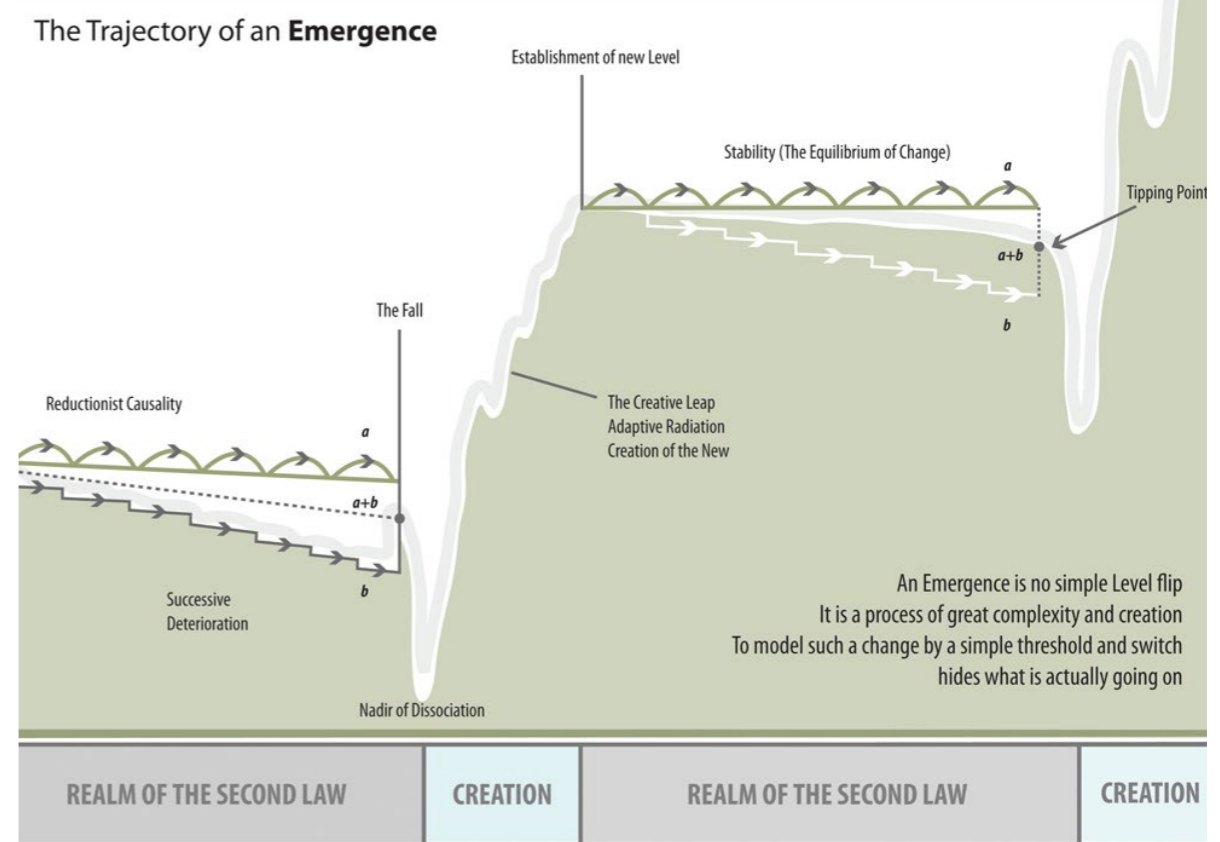
Quantity-type changes, as such, merely lead to changes in the magnitude of some measurable variable, and cannot, in any way, explain why, at some critical point, that seemingly-infinite, purely incremental process actually, somehow, precipitates a whole new situation.

It has become convenient, but incorrect, to identify a threshold-value of the current changing quantity, and use it as the "cause?" of the transition to a wholly new regime.

But, absolutely NO explanation is ever involved: it constitutes a purely pragmatic trick to deliver exactly when to switch to another, previously and separately established situation.

Yet, it is stated as a tenet of the holist, and even of the dialectical stance!

But, when it is, it cannot possibly be the above-described purely-pragmatic frig! Indeed, quantity-into-quality is merely a shorthand cipher, for a complex and dynamic



process of Real-Actively-Caused, Qualitative Changes - wherein a previously persisting Stability, which allowed many different quantitative changes, without ever disturbing an overall, maintained Balance, which IS its Stability. And, which, thereafter, can, in somehow-changed circumstances, reach a juncture, where that balance is totally dissociated, and the situation seems to be heading for total Random Chaos.

Now, such a description may seem to be totally terminal, and indeed, confusing, when we are supposed to be dealing with a clear step-change, but, in fact, the very opposite turns out to be the case!

The very absence of the prior Stability's self-maintenance features, allows wholly new inter-process relationships to become established, so that, ultimately, that Chaos is wholly re-organised, via a tumultuous series of many qualitative changes, into another, quite different, but also self-maintaining Stability, with its own system of a self-maintained-Balance, between all its sub-systems of processes.

The usually-supposed Step-Change, within an instant, actually hides a major transformation, which is, certainly,

not clearly evident. But, as such events happen, and they do, at all levels of Reality, some of which will be slow enough to be traced right-through and in-detail. Here is a diagram from the writer's *Theory of Emergences*, which puts a magnifier upon such a transition.

Such transitions, as these, have been well-established, and make infinitely more sense than the "magic change" on merely passing a particular variable's threshold value!

NOTE: One important aspect of Science, as distinct from Technology, is how understanding, in one context, can throw a revealing light upon an impasse in another! It is very different from a formal equation being used in different contexts, because such equations only ever deal with Stabilities!

So, here, we have a very different description and an detailed explanation of "Quantity-into-Quality", do we not?

And, for the serious, holist investigator, it opens up a rich and complex area of studies, within the crucial final Constructive Phases of such Transformations, which can only be attempted via wholly new holistic means.

Indeed, simultaneous, competing sub-systems (of more primitive processes) are in all such transitions that both form and develop often entirely new Stabilities. And, in such interludes, no single sequence of such changes can possibly explain the overall all-encompassing results, or their final resolution into a final persisting Stability!

Indeed, what occurs in such qualitative transitions is diametrically opposite to what we arrange for in our usual simplified pluralistic experiments. For, instead of a carefully-farmed context, expressly designed to reveal just a **single** component relation, and allow its isolated extraction, we have, instead, not only everything happening simultaneously, but in many different sub-systems, which both compete with, and also even affect, one another.

So, many different-and-even-changing sequences are unavoidably involved. It couldn't be more different to the usual pluralist assumptions and methods!

The question is, "Exactly how can we deal with such an absolutely essential, real-world context, to really be able to follow the trajectory of significantly-developing Qualitative Changes, as well as explaining-fully the maturing balances of the involved overall Stabilities?"

Stanley Miller achieved an excellent, ground-breaking, if inadequate attempt, in which he produced amino acids from an emulated primeval earth weather system, but, of course, he had no way of knowing what was actually happening (or even when each process occurred) within his totally isolated system. It, clearly, wasn't a single process: it had to be many simultaneous processes, occurring in different sequences.

Somehow, for Miller's method to be able to reveal more, wholly new methods would have to be devised, to reveal that content, perhaps by somehow channelling the flow of processes, and hence have them sequenced over-time, while monitoring key components and their frequencies throughout.

NOTE: A design for such an Experiment, or more correctly a series of consequent versions of the experiment, has been documented by this writer, but not yet implemented.



Umberto Boccioni - "Dynamism of a Cyclist" (1913)



Truth I: What is it?

the impossibility of absolute truth /
Hegel's heroic attempt to make a transcending path
to that objective / the only alternative - materialism

Here is a vitally important question!
What is Truth?

This isn't a clever trick by the writer, involving some demolishing of everyone's "gravely-mistaken" assumptions on this issue. It is, on the contrary, a question that I mean to answer in a constructive way.

Admittedly, it will be far from conforming to ideas of collections of Absolute Truths, which are considered to be, thus far, just insufficient in number to cover everything. On the contrary, it makes all "Truths" as both insufficient-yet-developable.

Clearly, we must start by asking, "How do we find "Truth", in whatever we are studying?"

It certainly isn't just lying about waiting to be picked up! Its acquisition is never easy.

Let us consider what is being asked. One part of Reality - a Human Being, is attempting to understand another part, by the medium of a very special organ - the human brain.

The possibility, initially, seems to be wholly impossible, for it appears to require something wondrously remarkable in that organ, and, in that Human. It involves an 'aware' part of Reality attempting to plumb the essences of another part, or itself... Do you think that process will be both direct and easy?

And, if, after much study, and maybe also carefully designed experiments, something appears as being "true", do we not then assess it as such, in terms of what we already know, and the "transparency" of the context, in which we discovered it?

In other words, it *seems* true in terms of our prior knowledge and our assumptions - our premises!

But Evolution, which has to be the mechanism by which the abilities involved here have emerged, and then have developed, is never directed towards some intended purpose and possible outcome. Evolution doesn't, and indeed can't, work like that.

Changes occurring for diverse and totally undirected reasons, are selected for during the life of the organism involved, by its success both in survival and reproduction. And such a process cannot be wholly rational and effective according to some afterwards-perceived consequent ability. Each step simply must be insufficient in that respect, and only gradually, and often haphazardly, actually becoming a new and powerful advantage.

Unavoidably, such an undirected process will often get things wrong, measured against some much later conceived-of "purpose". But, not catastrophically wrong, for that would likely terminate that individual's genetic contribution to a following generation.

So, you cannot judge these things in such a way. The only criterion for success, in such changes, is that the organism survives and passes on what it has. Certainly, NO future agenda-of-useful-features is ever involved.

"Supposed steps in the right direction" are a posteriori judgements, having no place in the actual process involved. So, invariably, our attempts-to-understand will never be the results of a perfect instrument - expressly-designed for that purpose, but, on the contrary, will be those of a gradual and *undirected* process, delivering a means, which can, at best, deliver only part of the full truth!

All our extracted “truths” will always be insufficient! No one can ever know all-there-is-to-know in a given situation.

So, we have developed various means to help us in this task. What we usually do is attempt to stabilise a situation, either conceptually or physically, so that it remains the same, and only when we are satisfied that it is so, will we attempt to extract what is always a single, Targeted-for-Truth. But, as we have shown, what we get will NOT be an absolute! It can only be true for that stabilised context, but outside of that, we will simply have no idea whatsoever!

But, let me make absolutely clear, this is NOT a wholly sceptical stance, ending with the advice, “Give up now you’ll never do it!” On the contrary, it does admit of a subjective view of any “truth” that we find - and a clear rejection of it being the full and ultimate truth. But, crucially, it also involves a willingness to see if we can find exactly why it isn’t “totally true”, and maybe correct things so it is much closer to that objective.

The thought-through position that will be involved, is that of the German Idealist Philosopher, Friedrich Hegel, who developed it, in his Thinking about Thought project, in which he came to realise that any flaw at all in our set of assumptions, indeed The Premises taken-as-basis, when arriving at a “truth”, would inevitably cause, in any supposedly rational consequent sequence of ideas, a Dichotomous Pair of totally contradictory concepts. And, which of these should be chosen, to carry on with the reasoning, would be impossible to determine: for they had both arisen from the very same premises. So, NO reason could be found to deliver a choice: the sequence had terminated in a total rational impasse!

NOTE: the seeming resilience of Formal Reasoning, though certainly NOT actually the case, was, and is, always resilient enough to signal its own failure by the emergence of such a dichotomous cul-de-sac. That termination was the Formal Logic reasoning signalling its failure!

Now, Hegel realised how significant and indeed useful these Dichotomous Pairs were, he knew about Zeno of Elea’s discovery, 2,300 years earlier, of the Dichotomous Pair of Continuity and Discreteness, and his devising of a set of Paradoxes, to prove that these always led to contradictions.

So, Hegel took to seeking out every single Dichotomous Pair that he could find, to see if he could devise a general method of transcending their caused impasses.

Hegel soon found that these Pairs were legion!

Formal Logic was studded with them, and only purely pragmatic “try-each-to-see” methods allowed a following reasoning sequence to resume.

For absolutely all Reasoning is a system based upon certain assumptions, along with the established rules of developing all consequent possibilities from them. But, the method could only reveal the outcomes possible within the limitations of any inadequate premises used as basis. It could never deliver beyond those limitations.

With immaculate researches, Hegel decided that the solution was to turn the problem upon its head, and seek out the full set of premises in each case, and attempt to change them, one-at-a-time, to see if the impasse would, automatically, be transcended.

And, he succeeded it many times!

Yet, even with adjusted premises, and hence an actual rational transcendence of the former impasse, any consequent reasoning would always, nevertheless, generate another different impasse, with its own Dichotomous Pair, further along the way.

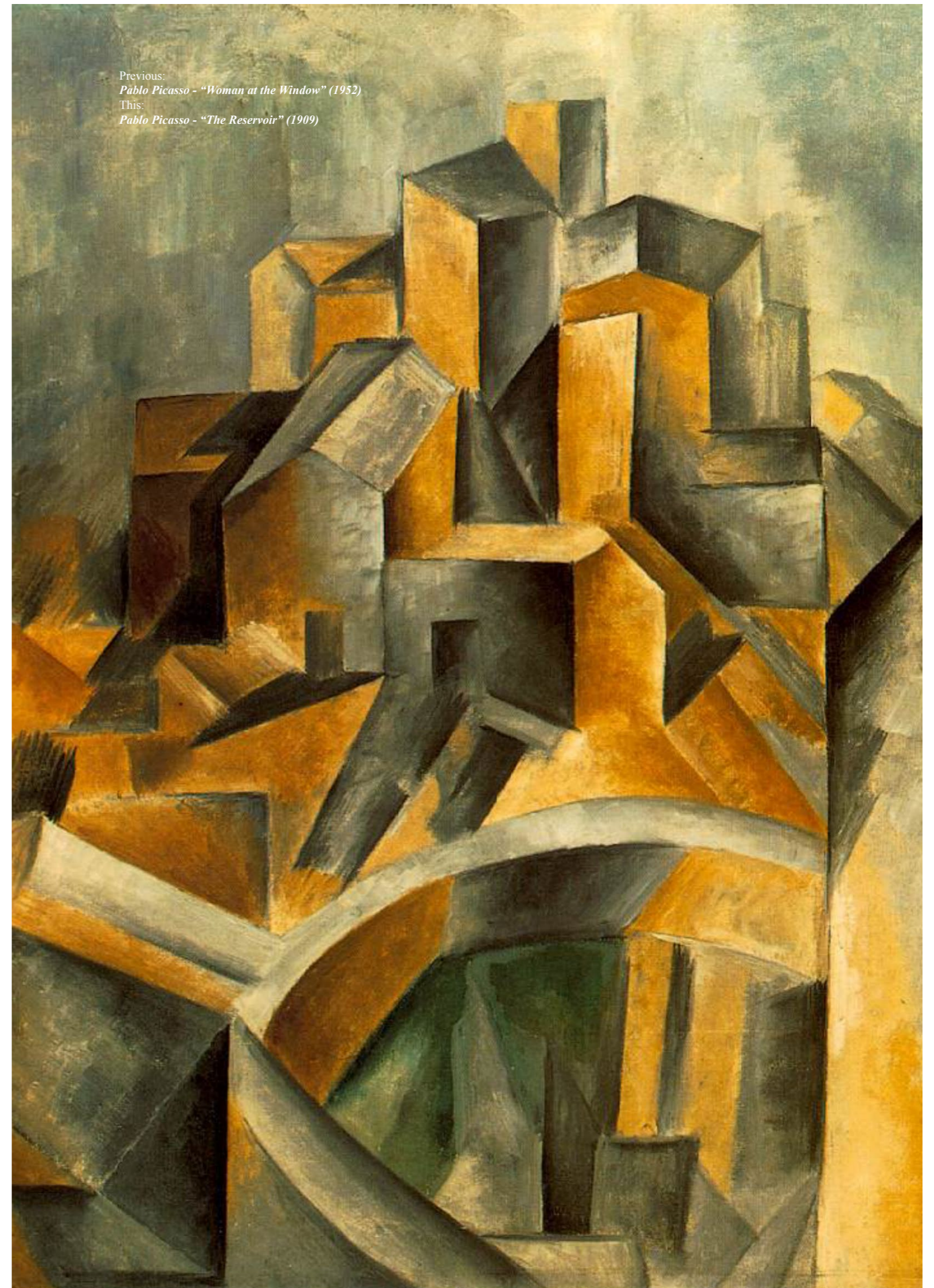
Clearly, all our premises would be inadequate: it wasn’t a mistake - it was inevitable, and to transcend each and every impasse would be the way we would move towards “The Truth”. It was an iterative process!

Now, Hegel (the idealist) was, himself, absolutely sure that this wasn’t an infinite task, and that Absolute Truth was obtainable - but remember, as an idealist, he believed in the Truth being achievable by Thinking alone.

But, in fact, the process involved would be infinite, for in the end it has to explain everything including all Life and even Human Consciousness. Without Science, Thinking will be unable to proceed beyond a certain very limited level.

Clearly, the move of his best disciple, Karl Marx, to transfer the whole of Hegel’s brilliant contributions into a Materialist Stance, was essential.

Previous:
Pablo Picasso - “Woman at the Window” (1952)
This:
Pablo Picasso - “The Reservoir” (1909)



Pablo Picasso - "Head" (1913)



Truth II: Unfulfilled Promise

dialectical materialism's crucial failure to conquer science / a double tragedy, both for science, as its crisis mounted, and for Marxism, as its cutting-edge philosophy faded...

Though Hegel's Dialectics was an absolutely crucial development in Human Thinking, it couldn't possibly be sufficient. For, it was merely a correction to the assumptions and methods of Formal Logic - the universally accepted system of Reasoning: and, therefore, it didn't, and, indeed, couldn't, directly at least, ever possibly "consult Reality" - as a confirmation of both its means and its results.

It is, therefore, clearly evident why Karl Marx took the necessary next step, and transferred Hegel's Dialectics, wholesale, into the diametrically-opposite, Materialist stance.

Marx knew that all Philosophical Systems had, in the end, to suffer the rigorous testing of Reality!

Therefore, the obvious route, surely, had to be to unify the new Dialectical Materialism with Science - but sadly this was never achieved.

Marx himself began to apply it to History and Social Developments, and then spent decades applying it, comprehensively, to Capitalist Economics, but even these more limited tasks were onerous and took him vast amounts of time.

It isn't often that a single individual attempts to redirect the whole Human Race, from its tried and tested achievements, no matter how flawed they were. And, those who have tried invariably fail!

Marx's arguments were too abstract and philosophic, to be in the language of the uninitiated. Though what he did still had to be done, and was correct, it would only gain more general credence if the methods were

applied, successfully and understandably, in much more mundane areas. And, the major target had to be Science and Technology!

Now, whatever was flawed about Science, its concrete achievements were, nevertheless, prodigious, and its current momentum was enormous. No philosopher, alone, would ever divert it from its careering path. It needed a qualified and able scientist to be both won over to Dialectical Materialism, and who, thereafter dedicated, himself to its detailed and profound study (as Marx had done with Economics), so that he could address the contradictions evident everywhere in Science (just as Hegel had done for Thinking).

But, it didn't happen! And, in retrospect, it is clear why it didn't.

The most important reasons were to do with the Class composition of almost every single researching scientist, on the one hand, colliding head-on with Marx's militant opposition to that very same Class, politically, on the other. For, Marx very quickly began to derive political conclusions from his own Stance and his study of Social Revolutions, such as the recent gigantic upheavals of The French Revolution.

So scientists, uniformly, originating from the privileged Classes, simply didn't want to know anything he had to say, and most emphatically any criticisms of the way they did Science!

So this, absolutely necessary, but not yet happening union, was to become disastrous both for Science and for Marxism. The obvious philosophical home for Dialectical Materialism, had to be a grounding in Science

and Technology, for without the universality that such a wide grounding would give, it would not develop as it should.

It wasn't a mistake, of course. Marx knew full well what was necessary, but as a lone developer, he was hard-pressed in applying it, comprehensively, to Economics: so, the much bigger task of re-directing the whole of Science - already steaming vigorously along its own very esoteric and difficult lines of development, would be much more difficult, and even more time-consuming than Economics.

For, Science had become a remarkable, yet perplexing, amalgam of different, indeed, actually contradictory stances.

Pragmatism was its well-established historical basis (during Man's Hunter/Gatherer period, there was literally absolutely nothing else apart from "If it works, it is right!"). But, early Science slowly wrested itself away from magical causes, to set a great deal more store in revealed formal patterns, especially quantitative ones. This revealed Form was often endowed with Cause, and with it an Idealist strand was also added in.

About the same time, (the Greeks were heavily involved throughout), trust in Nature as the only real source, brought in a Materialist strand as well.

All these were used, pragmatically, but the study of Form in Mathematics led to strong belief in it as the determinant of all phenomena: a position solidified by its application to ideas and judgement with a related system we now call Formal Logic!" Idealised Ideas and Forms were taken as the basis of such extractions!

Clearly, such a mix could still make a substantial amount of progress - delivering actual predictions and even products from its investigations, so the major assault, upon this pragmatic amalgam, would have to be philosophical.

Lenin, very early in the 20th century, made just such an effort in opposing the position of the then leading scientists, Poincaré and Mach, but his book Materialism and Empirio Criticism revealed his lack of knowledge of the truly vast reaches of Science, for it to be able to change any scientists' minds, within such an increasingly dominant tendency (or any other specialists for that

matter). So, Philosophy, informed by an extensive grasp of Science, would clearly be imperative to make any serious inroads, for, without sufficient scientific content, the arguments would appear to be altogether too academic, to be at all undermining to such scientists' entrenched and "proven" positions.

It managed to pull back several of Lenin's comrades from their toying with the Positivism displayed within that standpoint, but left the those supporting that position totally unconvinced.

Nevertheless, a major crisis in Physics was, even then, already well underway, with the so-called Ultra-violet Catastrophe, and the perplexing discovery of the Quantum, but, the most powerful reaction to that Crisis, had been that of Poincaré and Mach, in their strong move away from explanations and towards Form and mathematical equations, as a much safer bet!

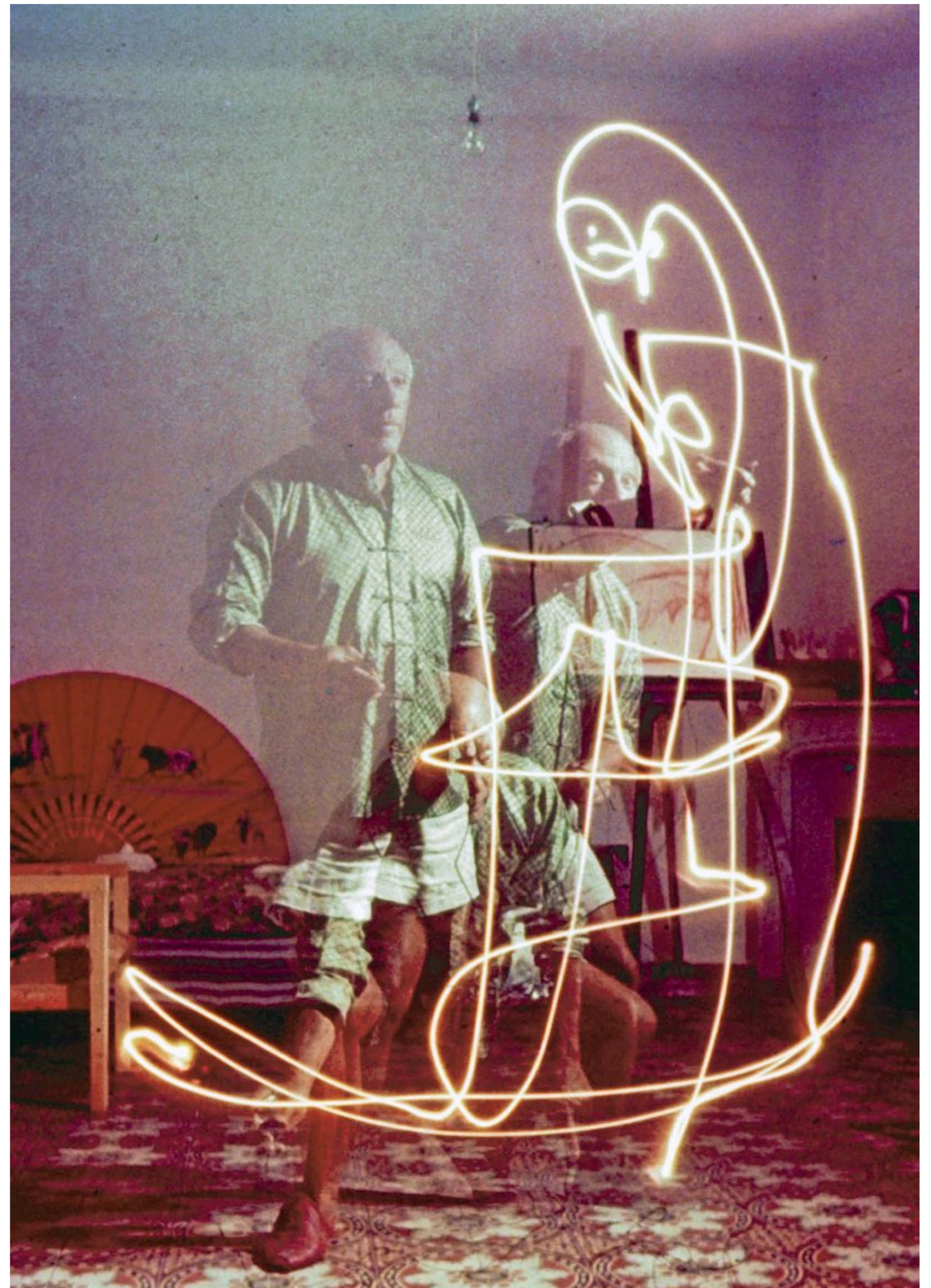
Once difficult explanations with their regular contradictions were dispensed with, equations were increasingly adopted as the only "true expressions" of whatever was causing phenomena. The big retreat was already well underway!

The new dawn offered by Idealism was much more attractive than a better, but more difficult, stance for explanation, all-be-it a means to transcend contradictions.

And, the seemingly unstoppable engine for this, was the continuing rip-roaring success of equation based Technology, which though phenomena could not be explained, they could be accurately predicted!

The main purpose of Science, namely the understanding of why things behaved as they did, was increasingly ignored, as the production of equations which could predict outcomes, was considered much more important.

Even though the new dominant purpose could only deliver in specially farmed and tightly maintained conditions, they could be replicated for Production, ensuring the success of the extracted formulae. Technology had become the over-riding purpose of Science. And, the difficulties of the proposed new approach, didn't stand a chance whenever "If it works, it is right" continued to be sufficient.





Precursors of Holist Science I

Darwin's natural selection / Miller's experiment and suggested developments

As the purpose of this set of papers is to extol the virtues of the superior Holist Stance in Science, in preference to the current, and almost universally-adopted Pluralist alternative, it is clearly incumbent upon me to, at least, detail some of the brilliant precursors to the approach, which I now champion.

Though, these excellent innovators did, indeed, deliver the initial forays in an essential revolution, they didn't manage to establish it, in a way that could replace the then-consensus position.

For, their contributions were in individual and isolated achievements, without ever attempting the more general establishment of a clearly defined stance and methodology.

As is always the case with significant, revolutionary changes, the establishment of individual contrary examples, to the current, consensus position, is, and never can be, enough. Indeed, the examples that I will give were precipitated by local crises in the particular areas of study of those investigators, and such isolated, seeming-anomalies, no matter how appropriate, NEVER change a consensus stance.

It always takes multiple such crises, and a more general realisation that the old premises are becoming inadequate, for the possibility of a general overthrow to be even contemplated. Nevertheless, without these precursor seeds, evidence for an alternative wouldn't be available when the ultimate, more-general crisis finally arrived.

NOTE: the ancient historical examples, that were, effectively, sunk without trace, are the Paradoxes of Zeno, 2,500 years ago, and the Dialectics of Hegel some 2,300 years later. But, here, I am bound to focus upon scientific contributions, which only began to emerge, and then only very rarely, in the 19th century.

By far the most significant scientific contribution, which questioned many of the usual assumptions and premises of consensus Science, was the work of Charles Darwin - encapsulated in his Theory of Natural Selection within his major work - *The Origin of Species*.

To understand just how revolutionary this was, we have to be clear upon the universally-accepted alternative - literally dominant in all the Sciences.

That accepted stance required the revelation and representation of what were seen as eternal Natural Laws, in purely formal equations, as being the main purpose of all Science. And, though the best scientists also required the explanation of phenomena in causal terms, it had become, more-and-more, merely a helpful, accompanying narrative, to the clearly useful Formal Equations, which were, clearly, "conquering the World via Technology".

The flexible (pragmatic?) ability to switch between contradictory stances ("when it helped!"), had allowed Science to develop, at an increasing pace, but, all-the-time generating more and more anomalies, and hence consequent divisions into ever more incompatible "specialisms", each involving its own necessary-and-crucial premises and "defining purposes".

Darwin's ideas did not fit in at all! It was absolutely crucial that he was a biologist, and also that he had gained unique and remarkable experiences via his participation in the world-wide Voyage of the Beagle.

For, these had presented him with such a width of totally incompatible evidence, that if the then current ideas were used, to attempt any sort of explanation, failure was guaranteed, and he was forced, instead, to adopt an entirely Holist Approach.

The Reality, which he had to cope with, could never be "made-to-fit" the old means. It was too complex, inter-dependant and, indeed, mutually-modifying for that.

The same species under slightly different isolated-circumstances actually differentiated into distinct and incompatible species.

The key question had to be, "Why?"

Now, one possibility that became popular some time after Darwin was Lysenko's The Passing on of Acquired Characteristics, which had the actions of individuals, during their lives, modifying certain features of the organism, which were capable of being passed on to their offspring.

Such purposive causes were thus made the reason for Evolution.

Clearly, Darwin's Natural Selection was fundamentally different to that thesis. He only assumed a natural-yet-unpredictable Variation in the passed-on properties of individuals, which had nothing-at-all to do with acquired characteristics.

It was differences in congenital features that selected-out certain individuals for more success in living in a competitive world, with both predators and prey, in struggles to first survive, and then successfully reproduce, which, at the overall population level, and over-time, changed the composition of the species in favour of the better endowed.

The reasons for Variation was NOT known, but it was NOT caused by incremental changes in the actual natures-of-individuals, within their lifetimes.

The factors involved were multifarious and population-wide, and required many generations, to significantly-change the inherited composition of that grouping, to permanently separate the it from others without those changes.

Darwin's Finches, Giant Tortoises and even the Marine Iguanas of the Galapagos Islands were classic cases to be, somehow, explained.

Natural Selection clearly answered many questions, and was definitely NOT a pluralist, but a holist theory!

NOTE: Now Darwin's Theory is so profound that the author of this paper has generalised it to also apply to totally non-living, chemical processes, involved together in complex mixes, which can also compete for the same resources (mutually-contending), or alternatively cooperate in providing the resources for another process (mutually-conductive). The new theory has been called Truly Natural Selection, and also instituted in to a necessary pre-life scenario to deliver essential systems-of-processes long before Life actually emerged, but essential to what was to become Metabolic Pathways within the earliest, and all subsequent, Life!

Perhaps a simpler and clearer example of a holist approach is given by the famous Experiment devised and carried out by Stanley Miller.

Miller was concerned with the Origin of Life from non-living matter, in the earlier history of the Earth.

Clearly, Miller did not look to Religion for an answer, he was convinced that just the conditions that occurred at a certain point in the totally non-living Past, had, somehow, without any purpose whatsoever, managed to produce something that happened to fundamentally "change the game" - something that, because of its nature, both persisted, and even "replicated", in such a way to redirect the prior getting-nowhere" changes, to change its own causes significantly, and to set things upon an entirely new path of possibilities.

He considered that he might be able to set up an "isolated emulation" of a past, non-living environment, which within the normal weather cycles of even a non-living Earth, could produce key elements to initiate a consequent process of development towards and indeed culminating in Life itself.



Pablo Picasso - "Goat's Skull, Bottle and Candle" (1952)

Indeed, after only a single week, the water at the bottom of his sealed apparatus had turned brown-red, and was subsequently analysed to reveal the presence of amino acids - crucial subsequent building blocks in the proteins that were subsequently vital in Living things.

This entirely holist experiment had, indeed, emulated something of that past set of processes, but, of course, the very means he used to prove his point, also made any detailed revelation of what had been going on, completely impossible to discover!

Absolutely no real evidence of the various sequences of processes were available!

Miller had proved a point holistically, but had not produced a developable and applicable holist methodology - for actually revealing the crucial details.

Elsewhere, using the well-established pluralist assumptions and methodology, biologists were making numerous individual gains in the biological processes involving substances occurring within current Living Things - that is as part of stable-living-entities, so no-one took up the challenge of Miller's Experiment.

It was not only considered a dead-end, but also the very questions it posed, would, in the end, everyone believed, be achieved pluralistically, by working both forwards in Chemistry via non-living reactions, and backwards in Biochemistry, until the two "met", and explained The Origin of Life!

Precursors of Holist Science II

Couder's constructivism

eliminating inadequate premises - experimentally /
another holist method

But, the very nature of that Revolutionary Event could never be addressed by Pluralist Science, which apart from its incorrect basic premises, could also only deal with situations within a Maintained Stability.

No pluralist theories could ever explain the appearance of the wholly *New*; none ever dealt with significant-qualitative-change, so none could never address the actual Origin of Life.

It had to be a Holist Approach!

NOTE: Yet, as with considerations of Darwin's Theory, Miller's Experiment did suggest a further development, once certain required technical means were available, and a coherent and applicable Holist Methodology was sufficiently developed.

The clue was in the Pluralist Method!

For there, simultaneously occurring multiple factors were isolated and extracted to be applied sequentially-in-time in Production. Something similar might be possible without isolating by merely "channelling" flows via inactive barriers, all containing appropriate, time-activated, non-intrusive monitors, within all the varying conditions.

Of course, even such changes would be insufficient: but if the objective were to merely suggest differing channelling and conditions, whole series of versions could be marshalled to make reasonable conclusions as to what was going on, at what times, and in what orders. This would be a major undertaking, but in my opinion far more important than the lauded LHC!

Both of these significant, historical studies were, from their initial conceptions - right-through to their final conclusions, NOT about Quantifications or Formal Equations, but about Concepts, and whether the correct ones could be extracted from evidence, to establish better-and-more-informative explanations.

They were, indeed, quite definitely Holist-in-purpose rather than Pluralist.

We cannot adequately describe the precursors of a possible and developable Holist Scientific Methodology, without mention of the contributions of a present-day genius in Experimental Science. He is the French physicist Yves Couder!

For, it is immediately evident from a first glance at his revolutionary "Walker Experiments", that he clearly rejects the assumed "Empty Space Stage" for all sub atomic interactions, due to the many anomalies of the current Copenhagen Interpretation of Quantum Theory! He just cannot conceive of their occurrence, without the presence of some, all-pervading and explanation-providing, Universal Substrate. Yet, in spite of many, determined efforts to detect such a medium, none have ever been successful.

So, Couder's decision was to investigate substrates at the macro level - to reveal their, as yet, unknown properties, and crucially, do it at a level in which they could be adequately observed, studied and explained.

It is also clear that he is a committed, Holist scientist: as his primary objective is, and will always be, adequate, causal Explanations of all observed phenomena. Nevertheless, such a remit was guaranteed to be exceedingly difficult to deliver. Where, and with what, can you possibly start?

He cut down the elements he investigated radically, without success, until he was left with the exact opposite of the usual holist assumption - that always involves multiple interacting and mutually-affecting factors: he ended up with just his substrate, and absolutely nothing else.

Yet, with the usual macro level media, like water, for example, its purity could never be guaranteed, and its properties were not conducive to its detailed study.

So, he settled upon a Silicone Oil to facilitate his studies. He was determined to involve not a single other material entity in his experiments. He would only insert Energy!

He already knew a great deal about media and energy from literally centuries of prior experiments by physicists: in particular, those that involved in the propagation of energy via waves.

He wanted a limited, observable situation, which would be easy to study. and he settled upon a shallow tray of his chosen substrate, and vibrated it vertically.

Not a great deal was initially evident, so, sticking to his rigid remit, his second intervention could only be the release of a single drop of the exact same substance onto his vibrating tray.

Clearly, this caused visible surface waves that were somewhat affected by the constant vibration of the whole tray. But, as yet nothing significant was revealed.

What else could he alter in his minimalist experiment? He decided to alter the only features available to him:-

1. The size of the drop!
2. Its height above the tray!
3. The frequency of the vibrating tray!

And, a remarkable thing happened!

With the right values of these variables, the drop bounced! And, careful adjustment to his parameters, made this a continuously-repeating phenomenon: the drop continued to bounce, persistently, without any further intervention. And, that wasn't all...

Gradually a standing wave surrounding the bouncing drop built up, and settled into a constant persisting feature itself. An entity, consisting only of a single substance - the silicone oil substrate, not only remained, but slight adjustments could set it moving about the tray. It even appeared to bounce off retaining edges of the tray. Couder dubbed it a "Walker"! And, he had his investigate-able situation!

He soon found that his Walker, on coming across its prior path after bouncing off the edges of the tray, would then proceed to "follow its previous path precisely"! Somehow, something had remained, within the substrate, where the Walker had previously been, which became suitable for the Walker to then follow. Energy flows within the substrate were conducive to this phenomenon.

Couder's intuition that this kind of investigation would be fruitful was bearing fruit. And, when he added a rotation to the whole tray of substrate, a remarkable further discovery was made. Any Walkers moving about on that substrate, began to display orbits around the centre of rotations. But, remarkably ONLY at certain radii. No others could happen! The possible orbits had been quantized - just like electrons in an atom, but at the macro level, far away from quanta of energy, considered to be so crucial at the sub atomic level.

Quantization was happening, which couldn't be explained by the Copenhagen Stance: Something more general would probably explain both.

Now, this admittedly inadequate description of Couder's work, can be easily supplemented by going to Couder's own publications. But, beware the Copenhagenists, who are feverishly trying to subordinate this revolutionary evidence, to their "Holy Copenhagenist Theories".

Now, this contribution on Couder's Holistic Methods is complementary to Darwin, Miller, and even my own suggestions, for it significantly begins to establish the basis for a developable methodology.

Indeed, I am inclined to label it as "Constructivist"!

When confronted with the problems of a holist stance - the exact opposite of the pluralist assumption of fixed Natural Laws, one strategy is to simplify "the most-susceptible" of involved components (such as substrates), and investigate them in a Couder-like, minimalist way.

Then, instead of using inadequate and misleading assumptions of how they affect ALL situations, in which they are involved, you can reveal hidden possibilities, and perhaps manage a better synthesis, than have occurred previously.

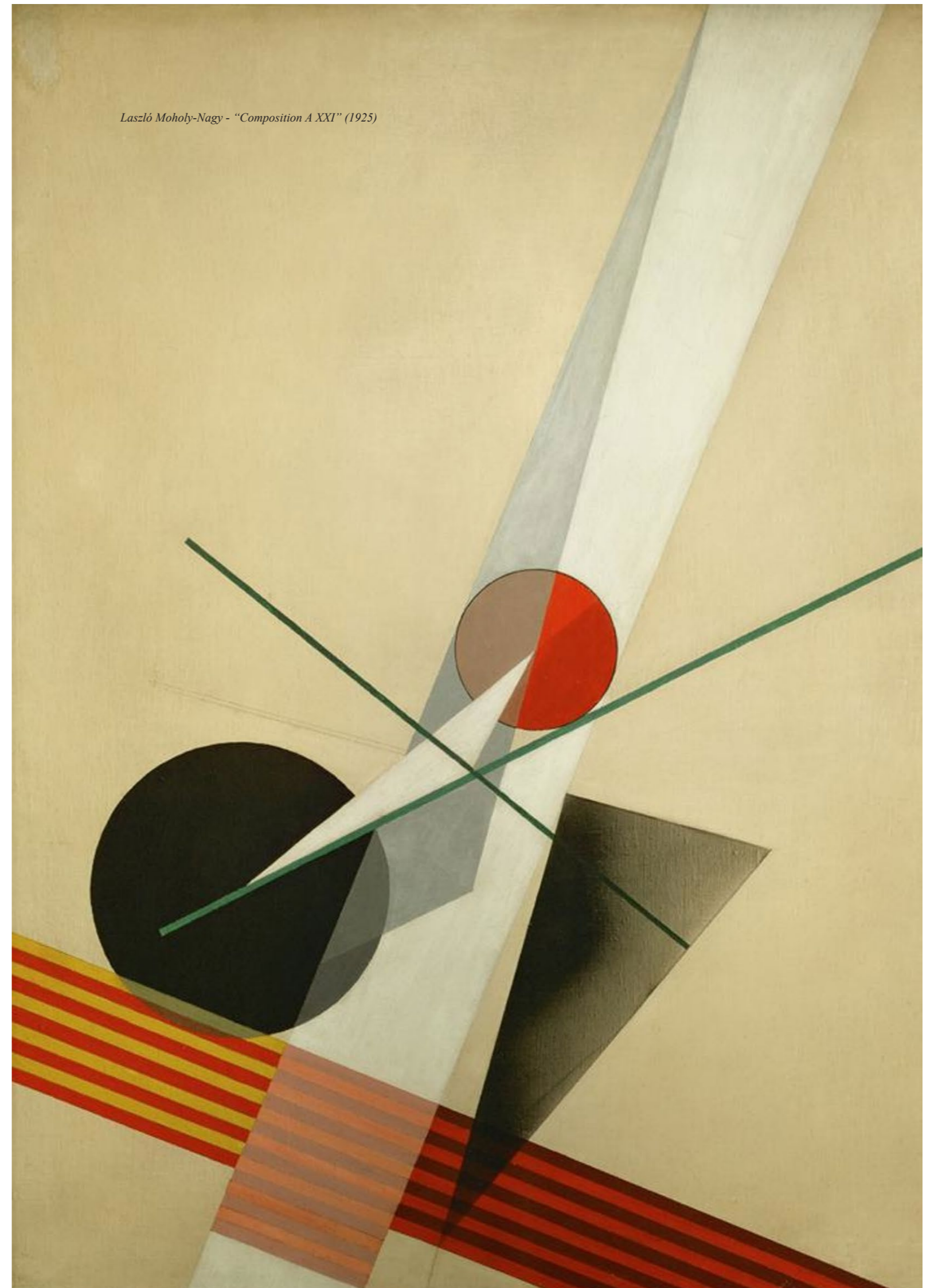
After all, Hegel's discovery of the causes of the frequent emergence of Dichotomous Pairs of clearly totally-contradictory concepts, and their resulting seemingly-terminal impasses, showed that our mental concepts, no matter how much valuable Objective Content we have been able to include within them, will always be less than the full Truth.

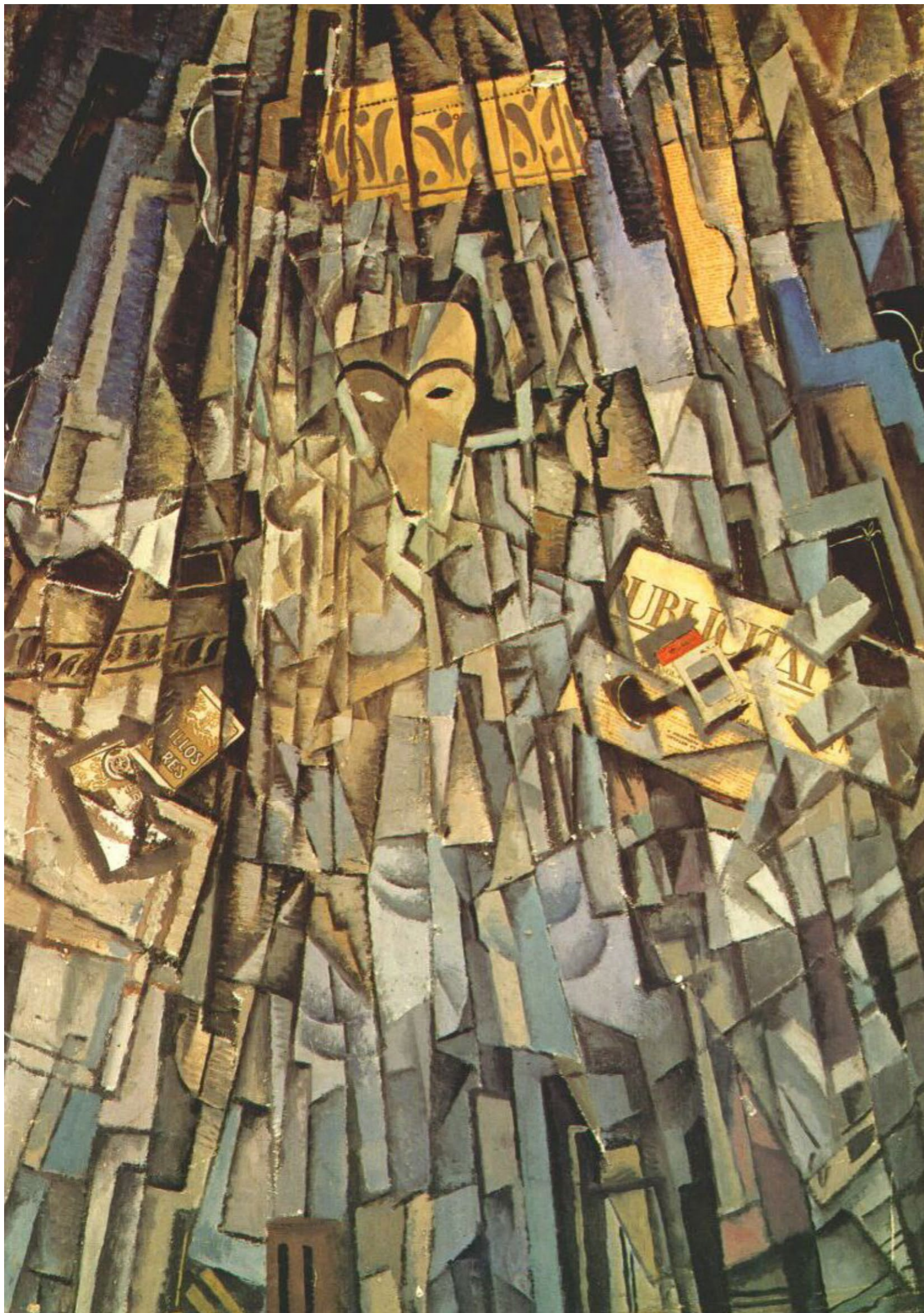
This being the case, no set of basic assumptions is ever either perfect or sufficient: indeed, the most damaging flaws in such premises are often important omissions.

Couder's contributions are clearly revelatory, and if such means are well-designed, they can reveal aspects that we have hitherto been totally unaware of.

The dangers of simplification must never be underestimated.

Laszlo Moholy-Nagy - "Composition A XXI" (1925)





Truth III: A Necessary Revolution

overcoming the plurality-holism impasse /
transcending but maintaining plurality /
addressing change outwith stability

Now, in spite of the entirely valid criticisms of the current purely pluralist approach in Science, and an insistence on the necessary switch to a holist approach - due, of course, to sound philosophical reasons, a total rejection of the former methods would, of course, be foolhardy at this stage. For, at present, NO comparably-effective holist alternative has yet been generally established.

And, as Hegel so brilliantly showed, any transcending of such an impasse generated by the Dichotomous Pair of Plurality and Holism, would only ever be achieved by finding and correcting the errors, flaws or omissions present in the very premises that led to BOTH of these concepts arising.

But, we must start with a correct assessment of what these concepts currently deliver.

For, in Technology, though the pluralist methods are both long-winded, and also only purely descriptive, that approach has been highly successful in the delivery of both reliable predictions and useful products, so, in many ways, it has produced our modern World.

Valid criticisms upon the important ground of inadequate Understanding, should not mean that the technological-route be abandoned. For, in addition, it can have some crucial contributions to be made to any possible holist alternative.

The classical Hegelian “transcending yet maintaining” tenet will be essential!

But, long before tackling that difficult area, we must roundly condemn the accelerating direction of present-day Science, in its reaction to a fast mounting crisis in the usual methods of Explanation (that is in Theory) in the last period.

The general consequent transformation has been to abandon Explanations as man-devised myths, and to, instead, rely solely upon the major fruits of the pluralist approach - Quantitative Equations, as the “reliable and sole drivers of Reality” (clearly, an idealist stance)!

For, such a enormous turn marks a general Retreat, and is definitely the wrong reaction to the flaws in prior explanatory methods. The criticisms of those methods are definitely correct, but the solutions proffered instead are dire. The Devil is being abandoned for the Deep Blue Sea!

Clearly, what is required is a thoroughgoing and revealing critique of current theoretical methods, rather than their total abandonment.

For Theory, unlike Practice, is about increasing *Understanding*, while Technology is only about Description and Use.

Elsewhere, the case for the necessary change to a Holism-inspired approach has been spelled out in detail (see other papers in this and related series), so we will not replicate them all here. This paper is an attempt to explain the possible role of the current pluralist approach, *within* the necessary establishment of a truly holist-inspired

alternative. So, returning to the main theme of this paper concerning the virtues of the pluralist methods, currently used, in experimental Science, for, alternatively, delivering important contributions to the New Holist Approach. Let us begin.

The current pluralist methods do, indeed, identify, one-at-a-time, versions of the contributing factors in the given, studied phenomenon. And, though these are crucially-modified, and, thereafter, idealised by their extensive isolation from their natural unfettered contexts, which clearly included all their original and essential partner-factors.

But, this re-applying of the pluralist method for each-and-every individual factor, will, as a by-product, significantly deliver a List of all the major factors involved, even though they will have all been modified from their original contributions and roles in the original, natural, unfettered phenomenon.

Indeed, the descriptive term, idealised, for all the elements in such a List, is, indeed, apt! As, each one is a definitely not-naturally-occurring version, so it merely stands-in-for, or represents, the actual factor approximately, and also does this in ALL its possible appearances, wherever that Form occurs. It is certainly NOT what that factor does in any of its actual occurrences, but the-single-idealised-form that is used as an approximation in every single one of them!

Yet, because of it always being successfully used in Production, with the exact same conditions from which it was originally extracted, it is mistakenly taken as *essence*.

But, such methods NEVER replicate exactly how that factor works in the original real-world phenomenon, which is the supposedly investigated situation!

Yet, these idealised extractions can, and must, play a role in the theoretical Explanation of the original phenomenon, but certainly NOT in the usual pluralist way.

So, we now have a List of (idealised) factors involved, but, how they are involved, needs a very different approach!

The pluralist approach does two incorrect things when used in an explanation: -

ONE: It uses the idealised factors as contributions.

TWO: It assumes they are eternal, and so merely adds them together.

Both of these techniques are incorrect!

They can often give approximate explanations, but can NEVER cope with natural qualitative changes, occurring when the phenomenon transforms into something else. They can ONLY approximate within maintained Stabilities!

They can only ever, and even then, only approximately, deliver a limited Science of Stability!

So, when we correctly criticise it, from the vitally important aspect of actually understanding why-and-how given phenomena occur, we always, crucially, extend our view to include the breakdown of such relations, as conditions change, and even more importantly, begin to tackle Qualitative Change causally, as it occurs in all Development and the Evolution of such situations, which do indeed happen. For, these are surely the most significant things that occur in our World, and at every possible Level.

Without some means of understanding these important changes, most of this World will never be understood in its actual Development - how it became what it is, and how it will become something else in the future.

Now, as explained above, the pluralist method at least gives us that List of the significant factors involved, and, for centuries, scientists went on from that phase of investigation, into a second "Explanatory Phase", in which the contributions of all the factors "together" were seriously considered.

Very early on, the contributions (or weightings) of the various factors were considered, and, often, a single-dominant-factor was identified. It was also clear to the best theorists, that both the natural phenomena addressed, AND the artificially-farmed experimental set-ups, were always cases occurring within some form of Stability!

When it was in the actually-observed Reality-as-is, it was often a natural Stability, whereas, in the well-designed experiment, it was always a man-devised, established and maintained Stability.

And, even when the loss or breakdown of such Stabilities was noticed, it was merely put down to the Second Law of Thermodynamics, rather than being explained causally!

But, though, some very good theories were arrived at, the actual dramatic transformations out of one Stability were never addressed. Initially, they seemed to be descending into total Chaos. But, it was a very special kind of Chaos! For, what had met its demise was merely the System that maintained the previous Stability: the primitive processes were relatively unaffected as such, but now, without the control of that prior stable state, were able to form wholly new sub-systems with other processes, to ultimately create a new Stability, with a different character to the one that had so recently met its end. But, how such interludes occurred, and what happened within them, were only very sketchily grasped.

[see this theorist's *Theory of Emergences* on SHAPE Journal (2010) for a comprehensive account]

And, when such an Event actually happened, in an investigative culture, based solely upon a pluralist approach, it was much too limited a system of scientific study to deliver much. Without any concepts of the content and trajectories of true Qualitative Change, the transitions were turned into unexplained "Step-Changes" - "signalled" only by certain variable transcending of a "Key Threshold" value.

Nothing else was possible with a pluralist approach - a set of eternal Laws merely changed in weightings until an overall changeover occurred.

Clearly, such a trick was the best a pluralist methodology could deliver: it would always be only a placeholder for what was actually occurring. Clever thinkers patched up ever-better approximations, but they could NEVER get into what was really happening.

Yet, at the same moment in History, as Plurality was being established by the Greeks, at approximately 500 B.C., its direct opposite was being defined by thinkers in the Orient, with the most profound definitions delivered by The Buddha (such as in his Loka Sutta), which not only inferred "Everything affects everything else", but also recognised Recursion, and even Cycles in Development. It became both a very Humanity and Nature based approach, that concentrated upon the perfection of the individual human being in its environment - in terms of

being "at one" with Reality in all its evident qualitative changes, and so "increasing wisdom" in all things.

It was, of course, the Holist approach, but, it never, as Plurality did, addressed Production.

It nevertheless made significant contributions to our understanding in a way that Plurality could never do. Clearly, from an initially spiritually-dominant culture, this extremely important approach now has to be developed to replace Plurality in Science.

And that will be initially addressed in the next paper in this series.

Truth IV: The Birth of a Holistic Science

early successes - Darwin and Miller /
modern breakthroughs - Couder /
current developments - Schofield

Clearly, there were two dichotomous tendencies represented within current Science: Pluralist Materialism on the one hand, and Holist Idealism, on the other, which clearly had to be, somehow, transcended to actually deliver an approach without the evident limitations of both of these stances, and, therefore, be capable of delivering a great deal more, particularly in the areas of Qualitative Change and Creative Development (in other words also including when the addressed phenomenon actually dissociated due to internal and/or external causes, as all such phenomena always do).

The Dialectical Materialism stance, based both upon the Holism of The Buddha and Hegel (along with its wholesale transfer to an alternative Materialist stance, delivered by Karl Marx), appeared to be the obvious route to take.

But, as that was primarily a philosophical achievement, it lacked an absolutely necessary, rich and capable “technological methodology” - a progressive interaction with concrete Reality, to enable a very different means of confirmation or refutation of any conclusions, than the previous purely “thinking-only” methods were ever capable of.

This had, already, presented difficulties in the Political Practice of its socialist supporters, and the “monolithic-mountain-chain” that had already been erected by Current Science, would also require a colossal revolution in both its premises and its means, to remedy its increasing number of debilitating anomalies, which were dividing Science into a vertibale proliferation of sub disciplines, as

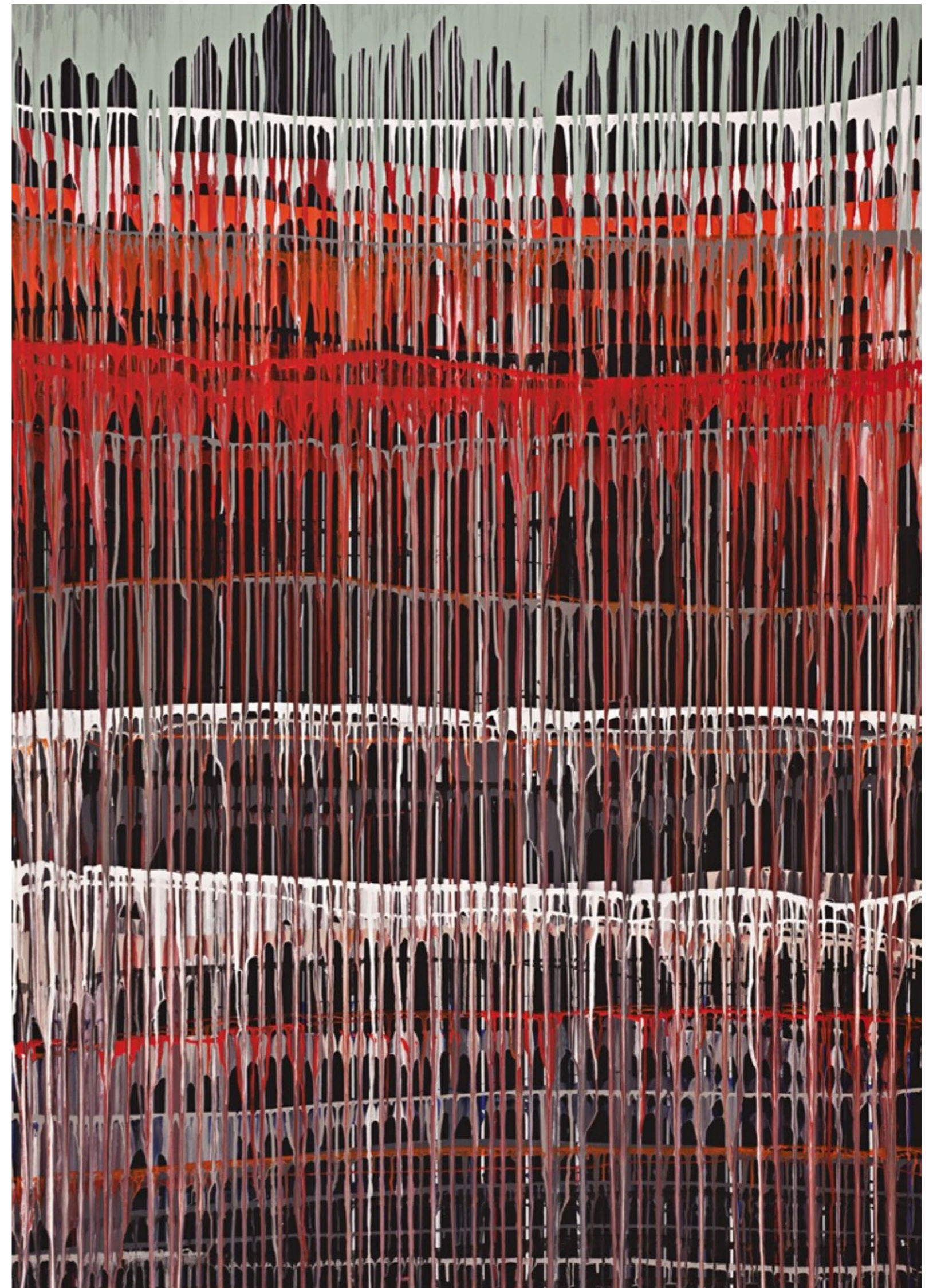
a “solution” to every major impasse. But, this task did not only involve a gigantic weight of ideas, conclusions and methods to be addressed: it also presented an enormous momentum of ever more effective outcomes too, with its ever-growing “Network of Pragmatic Motorways”, while the alternative-and-rich source of Holism had become embedded deeply in a sincerely-held Humanist-and-Nature based “Leafy countryside”... Any union seemed impossible!

It wasn't impossible, of course, as Marx had shown, but his crucial methods were never explicitly spelled out, and, hence, delivered only “by their use”, so were often “too abstract” to appeal to most holists, and “too vague, particular and contradictory” to appeal to most scientists.

And, most difficult of all was the persisting dominance of Pragmatism, as the ever-present and reliable “back-stop” in Science. “If it works, it is right!”, could, indeed, effectively terminate most contradictory situations.

Its purpose had gradually, but inexorably, changed all areas of study, into the delivery of ever more everyday uses of scientific discoveries. And, increasing numbers of impasses due to often unconsciously-adopted and erroneous premises, similarly undermined what holist methods they had used, theoretically and profitably, in the past.

So, in response to a seemingly irresolvable Crisis, a grand retrenchment - The Copenhagen Interpretation of Quantum Theory had “apparently-solved” the problems, by abandoning Explanatory Science completely, for





purely “prediction and production” purposes, in which Useful Equations “worked”, and delivered far fewer problems than the then-proliferating, confusing and contradictory “Explanatory Theories”!

Now, any counter-offensive, to stem this headlong-retreat, was certainly not immediately evident.

As, Delivering-Technology powered on as usual, regularly providing ever more useful applications, while the holistic stance was stuck firmly in more spiritual purposes, a union via Dialectical Materialism was certainly not automatic.

Some methodology for Science, at least as usefully-effective as the current pluralist, equation-based and pragmatist methods, had to be found, and, literally, no-one at all was even working upon this objective.

The honourable exceptions of the past, such as Charles Darwin, on the Origin of Species, and Stanley Miller with his primeval atmosphere emulation, which actually produced amino acids from scratch, were not enough to establish a generally-applicable Holistic Methodology. Nothing general enough was available to rival the currently entrenched, but clearly flawed, current amalgam of methods - always underpinned by Pragmatism!

And, somehow, that old method would have to be retained, but significantly re-evaluated for what it actually delivered, and how it definitely misled Theory!

As mentioned earlier, the usual methods, when regularly applied upon the same phenomenon, yet targeted each time upon a different contributing factor, could, and indeed did, deliver an important List of the Main Involved Factors, which were certainly both present and active, in the totally-unfettered, and natural occurrences of the investigated phenomenon.

BUT, very significantly, the individual factors extracted in the specially-arranged-for, or farmed and targeted, experiments were definitely NOT the same as those acting in the purely natural conditions of the phenomenon, that were supposedly being analysed.

Instead, they had been acting in greatly simplified situations, and had then been idealised into a Form, which never occurred as such in concrete Reality, but was the most general and ideal abstraction of it, initially

addressed-and-formulated solely within the realm of Pure Mathematics!

So, when it came to going beyond that generalisation, and dealing with an extracted data set from a specially and dramatically farmed context, the fitting-up, by the evaluation of its constants, was NOT to the naturally occurring case, but ONLY to the specially modified case.

The resultant Theory, in Equation Form, was SO compromised, that it would only work, if used exclusively within precisely the same conditions, from which the data set had been extracted. The theory as a formulation of the naturally occurring phenomenon was, quite clearly, flawed! The actual causes that produced the originally observed phenomenon were still not yet revealed, and hence the important theoretical generalities that would be available if that were the case, would not be available. They had been abandoned for the much easier-to-deal-with pluralistic case.

Though, we could, perhaps, use the List of Factors involved, but dispense with the intensive and targeted “farming”. But, Mankind still had to devise experimental methods that did not significantly modify what was going on, and then using New Tools, attempt an Holistic Analysis.

A significant pointer or two were available not only in Darwin’s methods and Stanley Miller’s techniques, but also in the methods of the current French physicist, Yves Couder’s brilliant Walker Experiments, where he had developed a very different way of addressing complex holistic effects and getting clearly interpretable results.

Conclusions will be drawn, not only from these cases, but also from a wholly new kind of developable series of experiments by Jim Schofield (the author of this paper), based upon Miller’s Experiment, in which normally multiple simultaneous factors are distributed in both space and time and monitored throughout.

With such experiments inactive channels are used, along with unavoidable flows, to achieve such distributions, along with repeating, time-based monitors to then give meaningful sequences of data, which not only give some significant results, but also valuable information as to how to re-design the inactive channels to allow other reactive strands to be revealed.

NOTE: Other contributions to this project, also by the writer of this paper, include Truly Natural Selection an extension of Darwin's theory to non-living development, a new Theory of the Double Slit Experiments, and also *The Theory of Emergences*. Further theoretical developments based upon Yves Couder's work are currently underway in tackling a non-Copenhagen approach to Quantized Electron Orbits in Atoms.

Such methods do not, immediately, give what is required, but over a whole sequence of such modifications, can indeed deliver far more than any current pluralistic method ever could.

Illustrations:

Page 32: Salvador Dali - "Cubist Self Portrait" (1926)

Page 37: Gökhan Balkan - "Upwards" (2012)

Page 38: Edward Burtynsky - "Glacial Runoff #1, Skeidararsandur, Iceland" (2012) [photograph]

Idealism

what is its basis / what is its alternative?

When considering the usual diametrically-opposite stances in Philosophy, delivered by Idealism and Materialism, a choice is usually made as to which of these two is the correct stance, using what appear to be fairly simple grounds.

Clearly, what Reality actually is, doesn't fall so directly into our hands. It, in being "perceived" by the senses, must then be, somehow, "interpreted" by the brain into purely mental versions.

And, whether accurate or distorted by that interpretation, absolutely everything in the brain had its original source in Reality.

But, of course, what ends up, in the brain, can only be a mental construct, but, related together in some sort of integrated and consistent System, which effectively reflects something of the physical qualities and coherence of that real source. And, whatever physical form it takes within the brain, that form is never evident to the brain owner, who perceives all its content and processes only entirely mentally!

Now, idealists are adamant that Reality-as-such is totally unobtainable, yet effective and concretely useable conceptions of it are, most certainly, possible, BUT they cannot have all, or even any, of the actual properties of the things they represent in Reality: they are always partial, and definitely consist of only purely mental forms, which, nevertheless, somehow, have related forms to their physical origins.

But, they are certainly NOT the same!

We call these internal-mental-analogues or reflections - Abstractions! And, it is these, and these alone, that are the "substances" of Reasoning, and indeed, of all Human Thinking.

The scientists' original concrete basis, of a material Reality, is one which can gradually be revealed by a series of physical experiments, and, can also be processed into a consequently ever-improvable, and indeed improving Theory, carefully devised from the results achieved from each and every specially devised experiment.

Now, of course this Theory is a System of Abstractions, in an overall Mental Model, which becomes, of course, the Materialist version of what has been achieved.

It is, without any doubt a mental creation, but it has been rigorously tested, changed and improved, constantly, to better reflect the actual relations within the actual material phenomenon.

NOTE: Do not underestimate the constant carefully-devised and critical referring of the results of such Scientific Investigation, to its Supreme Arbiter - Concrete Reality, carried out via experiments expressly designed to disprove the model, in that concrete Reality.

This Loop is absolutely essential, and it isn't merely juggling Abstractions, totally within Thinking - it relates the two constantly.

And, in addition to that negative testing, there is also the positive test - that is successful USE in that real World too!



But, the Idealists insist that the most sophisticated products of that scientific approach are still purely mental elements - they can never be anything else: so their argument when only seen in such terms appears irresistible!

But, what is it that makes things actually rise above such a seeming impasse? As already stated, it is, of course, USE!

Let us be clear, this imports into thinking things that are borne out concretely in the real World, to be added to those purely mental rules determined by the Nature of the Mind (and the Brain, which supports it).

Think about it! What is learning, and even more important - what is Understanding?

And, how has the sequence of our hominid ancestors developed since homo erectus - with ever increasing manipulative skills, and a brain size, clearly coupled crucially with those wholly new dexterities and physical abilities? Doesn't this mean that such things EVOLVE - become something more, and, indeed, involve the wholly new?

I'm afraid the idealists don't have a leg to stand on in this regard!

And, as was evident for millennia (see Zeno's Paradoxes), Mankind's methods of Thinking have always encountered rational impasses, which are usually never transcended.

Instead of straight reasoning being sufficient, pairs of diametrically opposite concepts arise from the same premises, which can never be dealt with rationally. Instead a pragmatic "get-out" is used where trial-and-error, along with, "If it works, it is right!", in other words pure Pragmatism, is employed.

Reason alone could simply not deliver!

Now, such rationally unsolvable impasses were pragmatically dealt with, and then forgotten. The excuse was that, "There will be a reason, which just didn't come to hand, but we managed to overcome it and carry on. It will be cracked sometime by somebody: it isn't important!"

Wrong!

Zeno of Elea had come across the exact same thing 2,500 years ago, and no amount of reasoning, on his part, could solve it! He considered it such a major, and debilitating, difficulty in Formal Reasoning, that he produced a whole set of Paradoxes demonstrating the impasses and contradictions that inevitably ensued.

We should never omit the fact that for all the successes of Formal Reasoning as developed by the Greeks, the old favourite of Pragmatism was always retained, as a kind of backstop - a try-it-and-see alternative, to patch-over any holes that appeared in Reasoning.

But, such holes clearly revealed that "Formal Reasoning!" was not complete-in-itself. The elements involved depended upon generally agreed assumptions, and these were NOT always right, or even sufficient!

The dependence upon Pragmatism, is made clear by "inventors", who take discoveries by scientists and attempt to find ways of using them in "sellable ways", and their main technique is always suck-it-and-see. They hammer at it for years, trying anything and everything until they get something that works. They don't have to know, "Why?", for that doesn't stop them making their killing.

They will not have advanced General Understanding one iota, and even their own personal grasp has also not-been-advanced: it just isn't what they do! Amazingly, it is these pragmatic appliers of things, which they don't understand, that get the highest status in Society in general.

So, Pragmatism, for all these reasons is important, and perennially stands as a backstop to our more consistent and incisive reasoning too!

Yet, even among the most dedicated and certain idealists, there was always a major problem. Hegel, the idealist philosopher, whose specialist area was Thinking about Thought, knew full-well that all was certainly NOT OK in the idealists' realm!

He was deeply concerned at the regularly occurring Dichotomous Pairs of totally contradictory concepts, which steadfastly resisted any rational resolution!

All attempts to establish one of them as primary always failed. They, whenever they occurred, immediately

halted any sequence of reasoning, in an irresolvable Impasse! And, they definitely arose from a single set of assumptions and principles - the very same premises! They were not some odd and ignorable deviation: he, in his researches not only found many different examples, but traced knowledge of such impasses back to the ancient Greek, Zeno, in his famous Paradoxes. They were certainly NOT ignorable!

He also noticed that everybody, when they arrived at such impasses in their reasoning, could never resolve them logically, and fell back to trying each of the Pair in turn to attempt to get beyond the stoppage, and, when they did, usually found one or the other would suffice, but they didn't know why! Pragmatism became the means of stepping-over the impasses. But, of course, with such means brought in Reasoning was no longer either absolute, or even sufficient.

Hegel, the consummate idealist, was determined to crack this important anomaly in his own believed-in Idealist Stance... So, for each Dichotomous Pair, he unearthed the full set of assumed premises, and questioned each one, in turn, as to its accuracy: any doubtful ones were adjusted, omitted or replaced, until the Dichotomy merely vanished. Then, instead of the irresolvable Pair, and their produced Impasse, he found that he was alternatively presented with a logical Fork in the reasoning, with good and applicable reasons for taking each option.

Hegel had discovered that the usually unstated assumptions on which every sequence of reasoning was founded, could be, and often was, critically flawed. And this always emerged in these Dichotomous Pairs and their consequent impasses. He termed his method of addressing these anomalies Dialectics, and it transformed Formal Reasoning completely. But, it still wasn't nearly enough!

For, though he had already been revolutionary, Hegel wasn't finished yet. He knew that an even more important flaw in Formal Reasoning, was its basis in Fixed Truths: the foundation of the whole edifice was that truths did not change. It was a system of the summation of fixed elements to deal with ever more complicated situations, and Hegel knew that this was also crucially mistaken.

His basic Holist (rather than Pluralist) stance, meant that "everything affected everything else", and any

comprehensive system would have to deal with the cases when they were changed-by-these -interactions. Both Qualitative Changes and consequent Development had to be included too!

His objective was to construct a Logic of Change - what he liked to call The Science of Logic.

But, he was ever an idealist, and among his best followers, the Young Hegelians, their arose a remarkable leader, Karl Marx, who not only took on Hegel's achievements with commitment and enthusiasm, but also considered that these were not only about Human Thinking, but were also accurately descriptive of all the actual Developments in concrete Reality too, such as in the clearly revolutionary changes that had taken place in Human Society, and even those involved in the Conception, Gestation, Birth and Development of all Living things.

He, therefore, carried over all Hegel's brilliant contributions in their entirety into a Materialist Stance. He renamed it Dialectical Materialism, and it is this wholly new philosophical stance which became known as Marxism!

Of course, this, necessarily, in Marx's original conception, included the tremendous width of all the Sciences as a part of the Overall System, and, crucially, brought in elements which were outside of Thought - it just had to deal with Objective Reality too. The move was clearly revolutionary! Marx applied Hegel's ideas to the development of History, and began his life's biggest task in studying Capitalist Economics too.

But, the extent of the new Stance's applicability was now truly enormous, and THE most significant area, Science itself, was never comprehensively addressed!

All the implicit weaknesses, in the stance of scientists of that time, were not tackled, and Mechanical Materialism remained the default basis for all the Sciences, until it began to disintegrate under its own implicit contradictions, - remember Darwin and the Origin of Species, and the difficulties he encountered, until, in the 20th Century, the whole edifice began to disintegrate, particularly in the Sub Atomic Realm, within what was generally considered to be The Most Basic Science - Physics. The means to address these problems was certainly available in Dialectical Materialism, but no one, comprehensively, undertook on this important task - as Marx had done with his Das Kapital in Economics.

But, clearly the old "Monism" of Thinking-only-Idealism, was now replaced with the seemingly "Dualist" problem of Concrete Reality, on the one hand, and the conceptions of it in Human Thinking, on the other. Clearly, Science just had to be addressed in Human Thinking - nothing else was possible.

And, there was indeed a way. Marx, successfully, achieved it with his study of Capitalist Economics. But, that task took him decades, and he never had the chance to explain his methodology in detail: and Das Kapital is a very opaque work, if you go to it armed only with the methodology of the past. Marx's methods were NOT easily extracted, from such works, for they had a more pressing purpose. So, the revolutionary Methods he employed did NOT become what they should have been "The Essential Tools of Marxism"!

The new approach had to transcend the usual priority considerations - for those could never be resolved in the old ways. They too are a Dichotomous Pair (as we have discussed) and as such could deliver only another irresolvable impasse. So, what was clearly required was an inspection, study and correction of the premises involved to break the impasse and transcend it.

Now, those involved proved incapable of finding a resolution! What was needed was an acceptance of an actually-existing concrete Reality, and a more sophisticated and improvable idea of what the elements of Human Thinking actually were in-relation-to that Reality.

Thinking is a function of a part of Reality - the Human Being, which actually transcends the usual impasse "naturally": it somehow reflects the Reality "that it can see". The basis for the new view had to be that the physical Organ of Thinking - the Brain, which was certainly material itself.

The problem was that a part of material Reality had evolved, wholly new qualities, which made it, somehow, aware of Reality, which was literally constantly-changing as Reality itself changed - reflecting its dynamics. So, the study of how this itself developed, became an essential part of cracking the dichotomy. This study involves the disciplines of Evolution and of Epistemology!

To have any chance of success, the new approach HAD to consider the evolved purpose of the Brain. Instead of

making it the centre of Everything as the idealists did, and hence ignoring its physicality totally, it now MUST be studied as a part of Reality - a new kind of Reality, which is both self-aware, and also capable of reflecting other Reality outside of itself, and processing such internal reflections in order to be accurately aware of its own context.

Clearly, neither Mechanist Materialism nor Thought-only Idealism, would have any chance of dealing with such things. Certainly, Formal Logic would have zero chance, as would classical Science.

The necessary changes required to consider these questions involve a major revolution in itself! We are moving into a world where the prior categories are hopelessly inadequate: It will be Dialectical Materialism that will be in a position to address it, but it is neither trivial nor easy!

And, the majority of those who claim to be dedicated to this Philosophical Stance are very badly mistaken. This paper is just a fragment in an overall project to re-establish and extend Marxism into all its potential areas, originally committed to very long ago, but only now 57 years later approaching fruition.

NOTE: See the SHAPE Journal which has now been publishing, with this intent, for the last seven years, and is now currently reaching its 92nd Issue, which along with the SHAPE Blog and the SHAPE YouTube Channel attempt to both reveal and apply Hegel and Marx's contributions as they really are.



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