ISSUE 49 MAY 17 JIM SCHOFIELD

SHAPEJOURNAL

THE TREE METAPHOR:
MODELLING HUMAN KNOWLEDGE

HOW SCIENCE HIDES TRUTH / FARMED AND NATURAL STABILITIES / A METAPHOR FOR TRUTH
THE PALACE OF CORRIDORS / THE TREE OF KNOWLEDGE / NEW ROUTES TO TRUTH

Words **Jim Schofield**
Design **Mick Schofield**
Cover **Nils-Udo**

www.e-journal.org.uk/shape

Robert Smithson, Dead Tree, 1969

The Tree Metaphor: Modelling Human Knowledge

Issue 49 / May 2017

Introduction

How Science Hides the Truth

Welcome to the 49th Issue of the SHAPE Journal.

As a lifetime physicist and mathematician, I took a long time to get around to criticising my chosen and well-beloved disciplines, but, quite early-on, I made the mistake of believing that my involvement and understanding could only be vastly improved by going to University to study these subjects to the highest possible level.

Though I got my degree and went on to a career in Education, I was badly let down by what I was taught, particularly in Physics. I was an early beneficiary of the changes in Education instituted after the Second World War, and in spite of a deprived background, I got to Grammar School, where my enchantment with these subjects was greatly amplified, and I succeeded very well, and proceeded to University expecting "the-same-only-better", but with the famous E. C. Stoner (of Stoner's Sub Groups fame in Modern Copenhagen Physics) as my professor, the content of my whole course was dominated by the then-and-now consensus stance of the Copenhagen Interpretation of Quantum Theory, and understanding was relegated to Myth, to be replaced by Wave Mechanics via Mathematics.

Of course, though I was unaware of it at the time, the seeds of that mammoth Retreat had been planted long before - indeed, at the very outset of my disciplines in Ancient Greece, but even before that in the Pragmatism of Man's long Hunter/Gatherer Phase, and never actually terminated then, but, certainly, radically transformed by the gains of the so-called Neolithic Revolution.

Indeed, it took a long time before I was even in a position to mount an informed criticism of the "Scientific Approach", as well as of the dominating basis provided by Formal Logic, and the soaring idealism of Mathematics.

The wherewithal to commence this process came from a long and very diverse career in Education - switching both disciplines and institutions until I again entered a University in a professorial level post in Information Technology. I had become an expert in Systems Software design!

This circuitous route had finally saw me in a post where I found my ideal job - helping researchers across the whole range of disciplines, with tailor-made software to facilitate their research's objectives.

I worked on everything from Business Systems to Nursing, and Engineering to Dance, Chaos Mathematics to Computer Controlled complex apparatus, and rapidly became an expert in Computers-in-Control, and won a British Interactive Video Award for the Dance Disc - a Multimedia Aid for the Teaching of Dance Performance and Choreography, along with the brilliant

Dance educator, Jacqueline Smith-Autard (who got her doctorate for a whole body of such work).

It was seemingly intractable problems in the appropriate-and-necessary Access, Control and Use of exemplar Dance Performance Clips that finally led to some fundamental criticisms of current Physics, and a thorough-going investigation of what was wrong and when-and-why it had all happened.

Being also a socialist, I was also able to study the philosophical developments from Zeno, via Hegel to Marx, and was able, finally, to crack not only the problems I was having with Dance movements, but with development in general.

And, I switched my emphasis to much more general concerns in Philosophy in general, and Mathematics and Science in particular.

The following essays are a conscious attempt to introduce others to the trajectory I have now been involved in for almost 40 years.

More developed contributions are already available in this journal, but as you can imagine jumping directly into those may be more confusing than helpful.

The stance is NOT that of the consensus!

Jim Schofield
May 2017

Natural and Farmed Stability
How Mankind Tackles Complex Reality

We must start with a key question, as Mankind naturally involves Form and Pattern extensively in addressing the Real World!

How does Mathematics (Pure Form) relate to Reality?

It is, undoubtedly, by far the most important question, seeing as its role in our methods of attempting to both understand and use selected parts of Reality, depend so much upon that aspect or feature more than any other.
Yet, that posed question is rarely answered directly. Indeed, Mathematics has proved to be so elegant and flexible, that the tendency has always been to promote Form from mere description, to being an actual driver of change and stability in material Reality. Extracted Formal Relationships involving quantitative changes are termed *Laws.* Clearly, Form can, all too easily, be seen as the sought-for *Cause* of investigated phenomena. But it certainly isn't!

Let us, therefore, try to establish what Form really is. We can start with the Equation. No equation ever exactly reflects what we observe in unfettered Reality. For, to extract such an equation takes quite a bit of major re-arrangement and control - to clear out, or hold still, all other significant factors apart from just one, to purposely leave a specially-farmed version of the situation, in which a Single Formal Relation appears clearly evident.

So, what situation would we start with to get to such a point? It would always be a complex mix of many different factors - some large, some small - all acting simultaneously. If we could monitor that situation, constantly, without any changing-intervention, with a variety of devices, we would, momentarily, notice our usually chosen factor (which, if we could, we would chase by changing the situation until we effectively isolated it. But, here, that factor would come and go, and others "in their moments" would also be briefly discernable.
The situation would be in-change constantly.

Now, how should we, and how do we, interpret this natural, varying situation? The simplest (and sometimes most appropriate) conclusion is that the various factors are themselves varying in the magnitudes of their contributions, without, significantly, getting anywhere - that is actually changing! The attitude to such a diagnosis, is to assume that all factors average out to being fairly fixed elements of the overall stable mix, which, as a whole gets nowhere new.

So, what we have been considering, is a classic case of a stable situation. Of course, it isn't always like this, for there is another form where one factor seems to dominate all the time, which is commonly the usual cause of a further investigation, to deal with that particular factor.
But, in the prior case, we treat this changing-but-stable case differently.

Indeed, all our statistical methods are considered valid, and "laws" can be found by taking averages. But, that is usually only in the short term. For, if we monitored the situation for very much longer, it will, ultimately, also change *qualitatively*. The relative proportions of the involved factors will drift (not just oscillate, but actually move away from any fixed average contribution). Indeed, some might even cease to exist any longer. And, the overall, natural situation would then present a different behaviour.

Now, all this is, indeed, indisputable, but runs counter to our standard approaches, conceptions and methods.
Let us investigate further. Let us reconsider what we do with our standard farming methods of investigation to extract individual, sought-for "laws". We target a single, previously only glimpsed, factor from our natural, unfarmed situation, and attempt to modify that situation, to bring to maximal exposure that single component! We do this by removing some significant factors, while keeping others constant, and cancelling-out many more, by averaging to leave our targeted factor clearly displayed and extractable.

But, what have we actually done by such actions? We have imposed a totally-unnatural, maximal Stability upon a situation: we have effectively "killed" an interactive situation. It is now "dead", so it wont change, and like the anatomist we can extract a remaining "dead-form" and study it, away from its "living" Reality!"

We "farm" the situation, in an extreme way, so that by taking our measurements only of an artificially-varied situation, we extract our clearly-displayed relation.

The extracted data (purely quantitative, of course) is studied by well-established, mathematical Difference Methods to "reveal" what type of Pure Form may be used to fit to that data - the method always comes up with a Form, but it will be a most-generalised one, composed of key variable parameters (for our data) and many as-yet-unknown constants.

We then use our extracted data, via a series of substitutions, to evaluate these constants, and hence end-up with a particular version of the general Pure Form.
This is the Equation that is supposed to be our chosen factor, which, in this mode, we term a Law.

And then if, and only if, we use it in exactly the same farmed and artificially stable conditions from which we extracted it, we can then use it productively. We can reliably predict with our formula what will happen in a whole range of cases within that artificially maintained Stability. We can even plot that relation upon a Graph, so all feasible possibilities are available simultaeously, for our further study.

But, let us be absolutely clear, this was never a study of natural, totally-unfettered Reality! It was a study of an extensively-farmed, and artificially-stable construction built out of a part of that Reality!

Now, we are clear where it can be used, but how far could it be extended, not only in practical use, but also theoretically?

The assumption of the answer being "forever", or "in any related theoretical context", is clearly never the case. Even, within its own farmed and maintained special situation, it will never deliver an infinitely extendable range. YES, absolutely never!

It will always blow up beyond certain limits.

It will "spiral down to zero", or "fly off to infinity". To use the mathematicians lingo, Singularities will become involved.

So, even our perfect and pure Forms are limited. They are never eternal nor are they endlessly extendable. Yet, we cling to the myth that they are.

The relations we obtain by the above described methods, which we call "eternal Natural Laws", which we insist have existed exactly as such forever, is bunk! We have taken such a relation out of its complex and natural Real World context, and artificially studied it in isolation. But, back in Reality, the non-eternal nature of any component factor is surely further compounded by the mutually-modifying effects of all the rest of the factors present in that natural context in Reality-as-is?

Clearly, the here-described. and well-established clarifying and idealising methods have problems.

The more we think about them the greater these problems become. For example, how does something wholly new ever emerge - for they most certainly do?

Can our banker concept of a mere mix of eternal Natural factors explain the Emergence of something entirely new - Life being by far the most significant. While, even long before that revolutionary event, there were wholly new things occurring - such as the first shining stars, the first Galaxies, and regular rejuvenating collapses and resurgences in stars, while producing wholly new elements with every such stellar catastrophe.

The problem does not just arise with assumed-to-be-eternal Laws, but in the new forms of stability that had also to be created at every one, and maintained to ensure a persisting gain.

I'm afraid our methodology is definitely predicated upon Stability, but never explains how such can sometimes naturally occur, then, somehow, gets maintained, and, finally, can in-time inevitably fail, and be superseded by something else. Our "achieved-relations" only describe certain Stable Situations, and will only work whilever that Stability survives.

Yet, in fact, inherent in every single factor, as we have shown, are the limits beyond which they cease-to-exist - they blow up!

Clearly, when considering any real, complex situation in Reality-as-is, we will always have the possibility of dissociations, then followed by re-associations in different systems.

And, perhaps the most important of all - mixes of factors can give rise to Higher Complex Systems, with their own, and entirely new, relations. Obviously, in spite of its great usefulness, our Mathematics does not, and indeed cannot, address such developments.
It is valuable only in Natural Stabilities, and beyond that only in artificial, man-made, fully-farmed, stable Domains.

A Metaphor for Truth
Attempts to Develop an Approach

Considering the damning indictments of the prior essay in this series concerning Mankind's current and possibly future, methods for attempting to both reveal and, maybe, even understand Reality, it is clear that a more profound and improvable stance, and a consequent set of methods, must now be embarked upon. So here, it is hoped, is the necessary first step. Can we establish a sound metaphor for how we usually establish Human Knowledge - a Model or Pattern for how we do it now, and maybe how we should do it in the future?

The purpose of such an idea is that it delivers an overt Model for how we have done it, heretofore, which, at the same time, gives us a basic framework, to enable us to both criticise and improve upon it, independently of the content that we pack into it? Put in another way, we are attempting to make clear the philosophical bases for this vital process, which are, usually, not only implicit and undeclared, but also rarely even questioned.

It has become ever more clear that Man "makes sense" of Reality only via the regularities delivered by Stabilities, either natural to Reality itself, or when such is purposely produced by his own transforming efforts. It is, indeed, Man's only means of doing this! For, Reality-as-is, in its commonest state, is largely incomprehensible.

It is a constantly varying mix of many, quite different, factors, seemingly incapable of being seen in easily-recognised deterministic Forms. Yet, there is a kind of help within Reality! Sets of different factors can come together to form relatively Stable Systems, which stay can the same for long periods, and hence can be profitably studied (and used).

So, Mankind started by seeking out just such Stabilities, and carefully both observing, and even measuring, them. His study of the seemingly unchanging heavens was his first area of study. Also, certain processes promised even more, as they occasionally gave glimpses, of what seemed to be rules of what should happen next.

And, in addition, if parts could be held still, or even completely removed, qualitative-change-relations could be made much more clearly evident.

What had happened was that Man had found simple ways of inflicting a kind of Stability upon such phenomena, and hence of revealing something of what was going on.

Perhaps, unsurprisingly, some of the most complex, naturally-occurring phenomena were the most amenable to this kind of study, because they naturally had a self-maintaining stability. There were living things, whether plants or animals, which were naturally self-maintained, stable systems. So, in such things, Man found certain stabilities that enabled study, and even the possibility of some predictions, as to what would happen next.

Man had begun the long process of trying to know more about, and even perhaps begin to understand, aspects of Reality, by studying those that were the easiest to deal with - namely naturally Stable Systems. But, there was a major problem! Though living things were stable, and certain sequences could be recognised, and even occasionally predicted, they were, nevertheless, impossible to *explain*. The systems of living things are the most complex in Reality, and extracting the causes of what occurred were too complex for Man's early investigations to even begin to tackle. So, he turned to more basic things - non-living things, which he might be able to study by artificially controlling them, into simpler Stable States. And this he began to achieve. But, clearly, his discoveries in this kind of investigation were a very long way from helping with his studies of living things.

It limited his studies not only to non-living objects, but also to once-living materials such a wood, horn, fur and even hides. He gradually began to build knowledge of such clearly stable things, and this allowed him to USE them to many useful ends.

Man was still a very long way from understanding why things behaved as they did , but in certain situations he

could predict how things would change in particular circumstances. Now, even taking into account the many developments since those early achievements, the main objective was to learn enough to USE what was being studied. That was the Knowledge that was essential.

The Understanding of why things behaved as they did was still impregnable. And, this limited what we began to collect, to knowledge of stabilities only. And, the achievement gained were often piecemeal, and only rarely related to one another. Yet, it was precisely the latter that had the most promise, and sets of discoveries that related to one another could deliver a kind of "Path of Facts" that seemed to promise ever further extension. But, notice that there was still NO understanding, and only stable situations were getting investigated.

NOTE: It becomes clear why Stability became assumed to be the true state of all of Reality - "just mostly hidden by complexity".

Clearly, with such beliefs, many different and separate paths were arising, and the wiser of those involved in these studies sought some connections between them, and the most obvious were Pattern and Form. Mankind began to find relations of the same basic Forms upon many different paths that were purely formal. The clear universality of such Forms made Man think that they were also the same causal factors in all relations displaying the same Form. Hence, the first really intellectual discipline invented and developed by Mankind was therefore Mathematics. The Ancient Greeks took it from actually disparate relations into an integrated system of Pure Forms alone, involving numerous formal developments and even Proofs.

Mankind's intellectual activities had begun, but still seemingly indissolubly wedded to Stability and Prediction. Of course, you cannot criticise this trajectory! It was simultaneously a miracle, and yet a profound mistake in hindsight.

And, yet, an internally developed part of Nature - an animal, Man, was beginning to transcend his inherited characteristics, and invent some of his own, based upon that same Reality that had produced him.

Homo sapiens was living up to its name!

The Palace of Corridors
A Joined-Up Metaphor

What kind of overall metaphor can we assume for Human Knowledge? What receptacle or structure must it conform to?

We can have implicit ideas of “Fragments of Truth”, which we simply add together, piece-by-piece, to gradually build our Store of Knowledge. But, without a revealing structure, it would soon become an incoherent Collection of them, and would not help any overall conception or picture. So, while, any serious seeker will certainly soon be noticing similarities in diverse areas of such a collection, he would also be becoming increasingly aware of the evident shortcomings of what has so far been achieved. It is likely to soon become a confusing mess! Confronted with such, the theorist will soon desire consistency in what he already has, as well as some general comprehensiveness in his general method of approach.

He will, all too soon, become aware of recurring patterns happening literally everywhere in that acquired Knowledge. And, finally, he will want to begin understand why Reality behaves as it does. These imperatives will, to some extent, direct his studies, and any unavoidable mistakes will definitely take him upon major diversions, and having to cope with these inevitable detours.

At the same time, somehow, he will have to be finding sound ways to get back on-course, which will require an overt basis that he knows will also never be all-embracing, so he must “never let the tail wag the dog”, and, always be prepared for regular impasses - signalling some underlying error in his premises. In other words, our gains are never “finished bricks”, with which we can merely build up the extended “Fabric of Truth”!

Now, these are no easy sets of rules to guide his studies. Indeed, many simplifying or seemingly unifying concepts, which he will eagerly grasp, will turn out to have been, at least to some extent, misconceived. The above-described objectives will not always be pulling in the same direction.

Now, as this particular scientist and philosopher (Jim Schofield) has come to realise, there will have to be some means of organising Knowledge, which will allow its study, to enable the development of real Understanding, but will mostly be a kind of revealing receptacle, rather than a organising imperative. We must devise such a receptacle, for both retaining what we find, and for reflecting inter-relationships, but NOT imposing any supposedly naturally- organising principle. It will not fully reflect such things, but it will deliver what is known in a comprehensible form.

We need an appropriate metaphor for all Knowledge!

Instead of a totally undifferentiated “Bag of Truths”, we must put what we have, and what we find, into a structure, which will retain basic relationships, and allow us to consider something better and deeper as it grows.

Let us attempt to elaborate!

The usual method of accessing, and then imbibing, knowledge of Reality, is, by now, well known, and widely established. Apart from the clearly obvious starting point of observing naturally stable phenomena in Reality-as-is, we also have learned to establish our own-constructed, artificially-stable Domains, by purposely eliminating some complicating factors, and keeping others rigidly constant, and even averaging, over repeated runs, to cancel out many small contending components too.

And, having finally arrived at such a tailor-made, artificial Domain, which was purposely adjusted to bring a single, pre-chosen, important factor to both clear display, and seemingly to causal dominance, in a dependably stable situation, until it was clear what it was, and how that dominant factor could be extracted.

But, let us, briefly, recap. We, originally, had totally unfettered Reality, in a given situation, which was not at all amenable to any extractions. Many different factors were acting simultaneously and, moment-by-

moment, things were quite evidently varying. Yet, the factor we would later choose to extract would certainly be glimpsed, as it moved in and out of dominance. We would, thereafter, "farm" that Domain to bring our chosen factor to sole-and-stable dominance in that now tailor-made, artificial Domain.

So, having constructed a convenient Stability with just a single factor displayed very clearly, the investigators could then extract that factor by varying certain parameter(s), to deliver its performance over a given range, via changes in another dependant parameter. The data so acquired, by these means, would then be fitted-up to an appropriate Form, taken from Mathematics. And, the result is usually conceived of as an eternal Natural Law. And, the validity of its role, in many circumstances(?), is considered to be achieved, by using each one to predict changes, caused ONLY in the precise situation from which that particular Law was extracted.

But, that certainly isn't what we believe we have found. For, we think that there is no difference between this isolated extraction, and exactly what that factor actually does in natural, totally unfettered Reality. This assumption is incorrect!

They are indeed different, and in several very significant ways!

Now, to take this study further, it becomes vitally important to see what we do, in some sort of overall picture, to get the best ideas of where such achievements both fit in, and also lead, and, in addition, where they can sometimes catastrophically fail. For, fail they certainly can, and indeed do. My first attempt, at such a revealing analogue, was restricted to each acquired "Law", by connecting it directly to another to deliver a more complex overall process. And, such things are indeed possible, but definitely NOT in all circumstances.

The tailored Domain necessary for the extraction of a given relation, must also be the exact appropriate, and maintained, for any following relation too. Indeed, short sequences of this kind, can actually be constructed, BUT all will be such, as happen in a single tailored Domain: we cannot usually just mix-and-match any chosen relations in this way.

So, though we can, indeed, have causal sequences, as long as each and every one is predicated upon the exact same conditions. But, even then, such sequences will always terminate after only a small number of validly used laws.

NO fixed, tailored Domain can be appropriate for many such laws; the numbers will always be small, and the sequence of following laws will then terminate, and no more steps will be possible while confined to that situation.

NOTE: No single Production Line, in a factory, can be set up to take in iron ore at one end, and produce motor cars at the other. Not only hundreds of such lines will be necessary, but also tens of very different factories, or production units, to house appropriate lines will be necessary too.

And, it is clear that all this is down to the mismatch between any tailored Domain (and its valid laws), and its "equivalent" in totally-unfettered Reality, or even in any other differently-tailored Domain.

Now, I originally used the metaphor of the corridor in a veritable palace of many corridors to encompass such sequences of found relations.

Clearly, each individual corridor would be a particular tailored Domain, so each law would have its own corridor, along with a small complement of other laws valid within those exact same conditions. Each corridor was the specially constructed and maintained environment for a small number of laws.

Absolutely none of the parts of the Palace represent totally unfettered Reality: that would be entirely outside of the building. Everything inside consisted of these tailored corridors, and the only way out of a corridor, would be via one of a series of doors leading to other similarly yet differently restricted corridors.

Yet, you could never merely pass through such doors absolutely unhindered, to a completely different environment. Each door would have to be something like an Air Lock, allowing things in from one door, and giving access to the required environment via another door (somewhat like process-to-process, or even factory-to-factory transfers).

This *Palace of Corridors* works quite well as an initial, simplified metaphor, allowing extensions to completed sequences, by transfers to others, where further sequences

of laws can be validly applied, to move the production process along to yet another stage. But, such a model was not extensively extendable, and never really solved what was happening at the Connecting Doors. It soon became too complex to really be of help. It became like a Space Station, all corridors and no rooms - and certainly not infinitely extendable!

And, a final door simply led out into seemingly untenable Space - the Real World. No real and necessary developments could be bolted-on to this model.

To use, for example, Hegel's valid criticisms of the standard means, of both investigating and dealing with Reality, was not helped in any way, and, indeed, made the profound changes suggested by him impossible.

For, Hegel had determined, after a great amount of time "Thinking about Thought", that whatever basic assumptions were made with regard to Reality, they would always come to grief, in a seemingly insurmountable Impasse.

Man, would, at such a point, be presented with totally contradictory concepts, arising from the very same premises. They directly contradicted one another, and couldn't both be true. Yet, one could be effectively assumed, but not forever. And when it did finally fail, the opposite concept could be assumed instead, and, once more progress could be made for a time.

Hegel realised that some crucial flaw, in the generally assumed premises, actually caused the impasse. And, if those premises were investigated, and correct modifications made, the point would cease to be an impasse, and, instead, become a simple bifurcation, each with slightly different bases. Perhaps, some key factor took different values on each arm of the bifurcation?

Now, it soon became clear to Hegel that even any corrections to the assumed premises didn't terminate the problem. All premises would necessarily be so flawed and the impasses caused would be legion!

Each door, in the Corridor Metaphor, was such an impasse, and coping with two-ways-out from every single door, soon became horrendous.

According to Hegel, all the doors, in every corridor in our suggested model, only led to more corridors and more doors. There was no way out to the Real World outside!

So, though the Corridor Model could deliver limited value, it would be inadequate for a Hegelian re-building of an overall model: the impasses would have to be effectively dealt with in some very different entity.

Now, theoretically, I was able to take Hegel's means of transcending impasses into account, but how this could be incorporated into something like the Corridor Model was seemingly impossible to achieve in a clear, revealing manner, and, as that is the whole purpose of such an invented representation, it seemed to scupper it. For, Hegel's means was to seek and then reveal the set of assumptions (or premises) behind certain relations, to then criticise their inadequacies, and replace them with better ones, that effectively transcended the impasse.

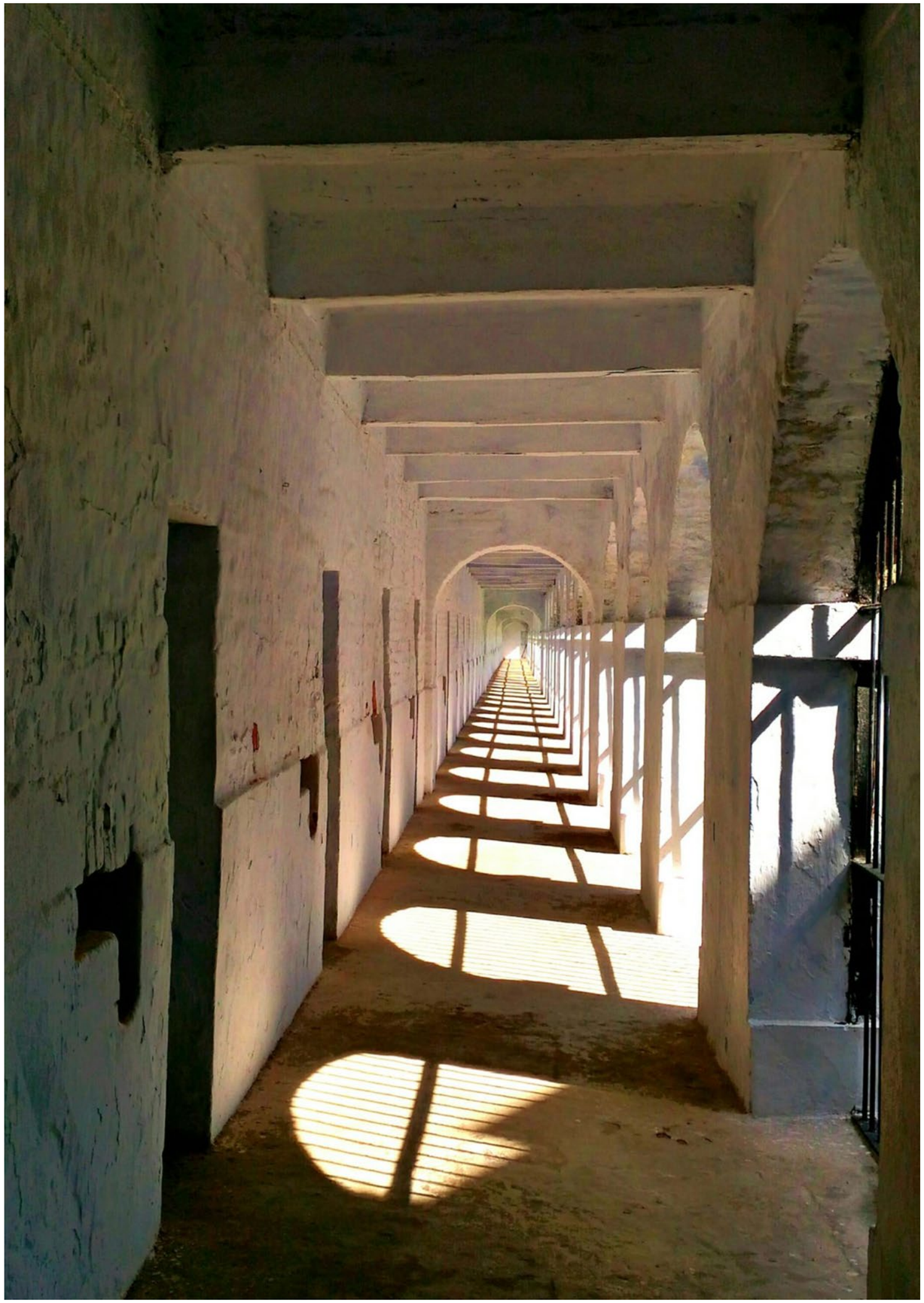
Effectively, in the corridor model, such a solution would allow a smooth transition through the door to one or the other of the two incompatible concepts. Passing through the door to the correct one of the two new corridors.

What Hegel's corrections always amounted to was the integration of some omitted, yet crucial, extra premise, which when addressed would indicate which of the two alternatives was correct. Clearly, the attempt to deliver a vehicle for navigating such key barriers was not achieved.

Another different approach would have to be attempted. And, finally, another better metaphor for the structure of Human Knowledge presented itself after much further deliberation.

It was the Metaphor of The Tree!

The limited contexts could be represented by the Trunk or Branches of the tree. And, every impasse would occur at a bifurcation of a branch into two lesser branches. Clearly, the actual Hegelian structure of incomplete Knowledge would fit the tree very well, and continued necessary branching would be more conceivable. The final outer limits to the Real World would be the final terminating twigs at all extremities. The next task, then, will be to develop this metaphor!



The Tree of Knowledge

A much better metaphor for the development of Human Knowledge, than the Corridor Model, is certainly that of The Tree.

Man, most definitely conceptually, and even physically, adjusts or farms particular sections (or Domains) of the real world, to help in studying them, and, by so doing, releases each such Domain's potentials for him to use. Hegel's conclusions about the flaws in that method, must be reflected, if at all possible, in any suggested overall view of Human Knowledge.

The living plant, though in a very different way, also "selects" a suitable stable environment for its own further development, by at least some seeds falling upon ideal ground. And though, in its initial production - the stem-with-leaves, it begins its living processes, such a form, as it stands, could not develop very far: it, somehow, has to maximise its possibilities, to increase its chances of survival, which will, necessarily, involve a different form.

Its initial stem can, certainly, grow in size and number of leaves, but survival will require something more substantial and extended, to significantly increase its self-production, and hence strengthen its survival possibilities.

But, whereas the plant has only its physical structure available to achieve its "objectives", Mankind has both Thinking and Understanding as his most powerful means. Nevertheless, Man too has to build an appropriate and effective structure of Knowledge about the World, to guide his own survival and development. And, in spite of the evident differences, there are enough resonances for analogies to be helpful.

We tried the Corridor Metaphor, but, though useful to an extent, it was far too static. The Knowledge of Man is a living and growing thing, so analogies in the Living World are always going to be closer and more revealing.

So, let us see if we can build such a metaphor!

In a sense, the initial stem is like the farmed-first-steps by Man - both in how he forms his initial ideas of the World, and, consequently, how he then deals with it. For, that stem contains the program-of-next -steps too. But, for significant development to ensue that stem alone will never be sufficient: it, as such, has a limited range of possibilities. The stem grows, but reaches its own impasse, which cannot be surpassed by carrying on exactly as it has done so far.

Though, as a non-thinking entity, it can only continue to follow its built-in program, whereas Man on reaching such a similar major pause, can transcend his limitations with something wholly new. Nevertheless, the usual result, even with Mankind, is, actually, to fail to do that, and instead, to stay with the same program, but with two alternative mutually exclusive paths. This is the consequent Dichotomous Pair - naturally associated with such an impasse, and they become the options that he can, pragmatically, switch between (see Hegel). This possible pair of options is much closer to what the plant actually does, for it will be presented with two alternative next steps - two branches, each achieved without radical change, but nevertheless allowing an extension and more growth, without any basic changes. [As with Mankind's usual pragmatic get-out, the plant chooses both]

So, in spite of clear inadequacies, our new metaphor, certainly does more than the Corridor Model, for it delivers the branching, to reflect the keeping of both arms of the dichotomy frequently used by Man in Thinking. And, also shows why such a defeat can still lead to developments in size, if not in understanding.

Yet, as before, we already have a problem! We will certainly have to look elsewhere for a better analogue, but, for now let us extract what we can from the Tree Metaphor. For, "there is life in the old dog yet", as they say, and pursuing another feature of the living tree, will also help us in our to be continued quest. For, every plant encounters a major crisis, which has to be transcended in a similar way to Hegel's discoveries in Human Thinking. For example the coming of Snow and Ice, in winter, will stop all photosynthesis, and really drastic changes will

have to be available to overcome what is about to happen. There are two solutions!

The first is a shutting down of all processes - like a temporary death?

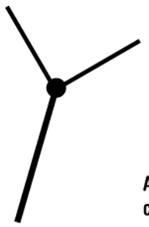
But, the second is more like our required transcending of the current program: it is the diversion of resources from merely building the tree to another way of surviving - the production of seed. This, if released onto fertile ground, could grow another tree, but it is certainly an alternative program, and must have originally been added by genetic mutations eons ago, for otherwise each plant with either live for ever or die without issue.

This version of significant change may, in another different but related model, get closer to what we seek.

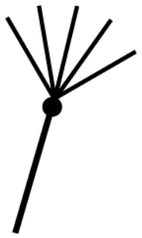
Yet, as with the Corridor Metaphor, our current tree version is presenting useful features. The idea of a Tree of Knowledge is a useful model in many circumstances. It also, correctly, moved us onto living models, to have any chance of getting anything resembling the actual processes and productions of building Knowledge in Human Beings.

Yet, at the same time, the trajectory we are following in this quest, shows that we will never find our perfect objective - just as Man can never alight upon Absolute Truth. It is bad enough attempting to do this for Knowledge about, say, the non-living World, but we are asking, not only to include the Living World, but also its most advanced production known, Mankind, and its most amazing development, Thinking itself.

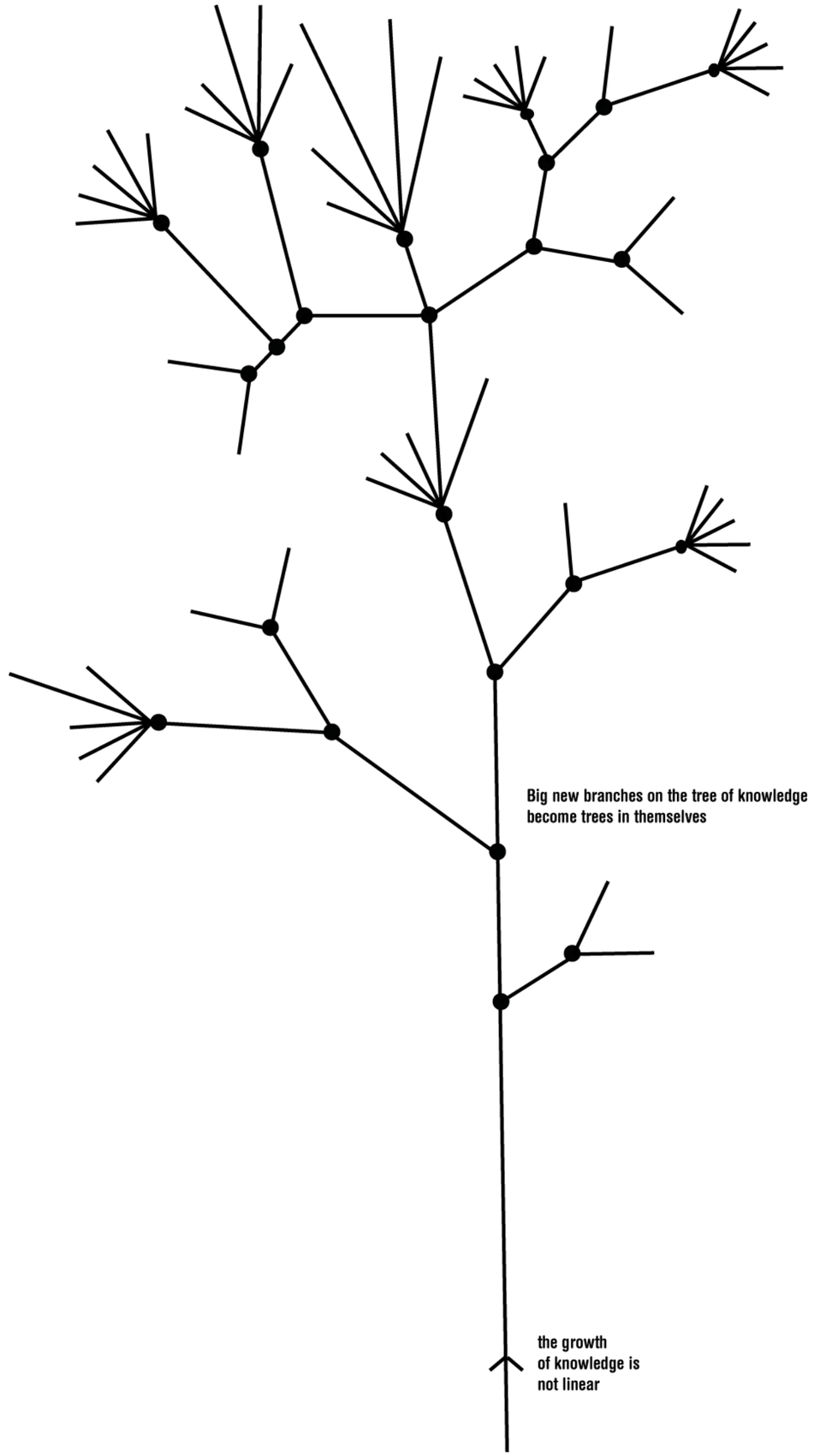
We may have to look elsewhere for our telling metaphor!



An impasse caused by a false assumption leads to a dichotomous pair



Adaptive Radiation Transcending an impasse caused by the collapse of a prior stability



New Routes Towards Truth
The Alternative Holist Approach

The previous short papers in this series will have already hinted strongly that Hegel's contributions, carried over by Marx into a wholly materialist stance, should be able to suggest not only regular means of breaking through, when impasses inevitably occur, but also, as well, pinpointing difficulties in making sense of Reality, will, by reversing the spotlight, the major problems in Human Thinking, and even ways of revealing whole areas, previously walledof by un-transcended impasses, which and will support wholly new concepts, essential to digging ever deeper into Reality.

The new stance, if it is the way forward, will revitalise whole areas.

The domination of The Copenhagen Interpretation of Quantum Theory will be defeated and replaced by a wholly better and radically new approach. And, new and penetrating experimental methods, such as those developed by the French physicist Yves Couder will indeed proliferate.

Clearly, the most difficult case to make is that which will allow passages to the entirely NEW!

How can you plot a path to an unknown land?

Indeed, for years I was looking for conceptually new premises, until significant experiences, in many other disciplines, revealed that what was omitted could be something entirely physical.

And, my consequent assumption of the presence of an invisible by entirely material Universal Substrate, throughout the Universe, and even within the very interstices inside atoms turned out to be the omitted element in our prior assumed premises. It proved to be sufficient to begin a process, which has ended up by demoishing Copenhagen (some 83 years after its "victory" at the Solvay Confernce).

I had mistakenly been looking for problem concepts, when it was actual physical components were the problem. And, I am equally sure that the problems causing impasses and Dichotomous Pairs - wholly contradictory concepts, will be many and varied. But, priority one has to be that Philosophy must hereafter be taken saeriously.

The so-called philosophical ideas of the Copenhageners are nothing of the sort. They are very easily dismissed constructs, which are philosophical-looking tricks, derived totally irresponsibly to cover a mammoth retreat in a majorly failing Sub Atomic Physics.

But, even if scientists can be persuaded to abandon the culprits of Plurality, Idealism and Pragmatism, they sill even then be aghast at the paucity of methods and techniques available to them in the resultant change of standpoint.

It will be like when Mathematics was produced by the Ancient Greeks. Before that there also were no methods and techniques available apart from, "If it works, it is right!", which had been the only idea for the prior 170,000 years in what had been a Hunter/Gatherer only culture, and and had literally only one technology - Flint Knapping (though these did open a few new possibilitoes, with wood, stone and bone).

The Metaphor of Evolution

After the preceding sequence of less-than-adequate attempts to present Human Knowledge in a simple, but illuminating, way, we are again pressed ever-upwards to Life itself, for an adequate metaphor.

The first port of call, just has to be Charles Darwin's marginal sketch of how he saw The Evolution of Life. It was, as our own prior efforts upon Knowledge finally produced, in the form of a Tree.

But, what he wanted to capture was both the origin of new species, and the extinction of the vast majority of evolutionary experiments. He didn't want to explain why, but merely describe how these processes generally occurred. We, I'm afraid, have a much more demanding objective.

We have, somehow, to encapsulate the essence of Hegel's brilliant discoveries upon just how Knowledge-and-Understanding develops - not linearly nor smoothly, but involving long periods of stability - with minor changes, interspersed with transforming events of major qualitative change! But, perhaps, even more difficult, will be to actually indicate the wrong paths and cul de sacs, and the crucial rational impasses, with their associated Dichotomous Pairs of contradictory concepts. And, finally, we must show Hegel's own means of transcending such dead-ends, as well as Mankind's regular, but limiting, get-arounds.

I could go on, but clearly, what is sought here is NOT a simple solution to all of the above, but only the simplest possible means of clearly displaying as much as possible of what has to be tackled. Now, let us re-iterate what we have, from Hegel's discoveries, which we have to display clearly in a sound analogistic form.

Hegel's discoveries were about the long-noticed Dichotomous Pairs of concepts that were clearly direct opposites of one another, yet, somehow, managed to be useable in certain contexts. Even the Greek, Zeno (circa 500 B.C.), had dealt with Continuity and Descreteness in his famous Paradoxes, and ever-since literally innumerable examples kept cropping up.

Indeed, the norm was to take whichever arm of the Pair could fit your current problem, and then carry on as far as you could. But, of course, in doing so, that particular line of reasoning had been terminated, by choosing one or the other of the Dichotomy, without any resolution of the impasse-so-caused, you were definitely limiting your rational possibilities, and with get-out after get-out, at every single successive impasse, the possibility space was being successively and dramatically reduced, and you would be "in a different world" to other such sequences elsewhere.

NOTE: The proof is clearly evident in modern Sub Atomic Physic, where both the experimental and theoretical fields have shrunk dramatically - all due to the unresolved Wave/Particle Duality (their impasse and Dichotomous Pair).

The above points clearly explain Specialisms, Subjects and even complete Disciplines within Human Knowledge, which have resulted from such work-arounds.

It is, quite clearly, crucial!

A metaphor for such a collection of Human Knowledge could never be termed a Tree. Much more accurately, it would be a local and restricted Bush, with its bifurcations getting smaller and smaller, until they finally terminate.

Now, Hegel's solution was wholly new. He decided that he had to concentrate upon all Dichotomous Pairs, and the impasses they seemed to cause, and find what was common to them all. He finally decided that both arms of the dichotomy arose from the very-same erroneous premises. And, his job was to unearth those premises, and, by careful study, see where they might be wrong.

He began to find such "damaged premises", and, by mending them, dissolved the usually-produced dichotomy. He found a mistaken or omitted premise, and corrected it, so it now rationally led to each arm, separately, with straightforward reasons. Now, this, of course, was infinitely preferable to the "pick the one that currently fits" policy, for it now allowed the same

rational arguments to continue-through what had been an unsurpassable halt. And, even more importantly, all subsequent reasoning, beyond that point, would NOT be so disablingly restricted. You would be building a comprehensive system for all such reasoning.

Indeed, rather than an inevitable diminution with every by-pass, the opposite could be the case. As in evolution such a transition would frequently lead to what is termed an Adaptive Radiation: many different possibilities could be enabled and the "branch" could, very soon, dominate the whole "tree".

Instead of Human Knowledge being "advanced" by merely getting smaller and smaller growth, it would, on the contrary, be expanding ever more rapidly.

Not only are the diagrams associated with this series of papers getting closer to a much sounder idea of the development of Human Knowledge and Understanding, but, perhaps surprisingly, can also throw light upon questions like, "Why do plants divide and grow in the way that they do?" - we, earlier, mentioned the built-in program that determined the tree's growth, but we have to ask, "What may be the questions that could be by-passed or transcended there too?"

Using even Evolution as a Metaphor will necessarily be limited by the many as yet unsolved problems in that area. Knowing what just a handful of genes do, with the rest ignored as "junk DNA", is certain to be a mistake. But, as this discussion has I think demonstrated, inter-disciplinary transfers can and do throw light upon seemingly intransigent problems.

My very long experience, as an inter-disciplinary systems designer and computer programmer, (as well as being a professional physicist, and a philosopher) has enabled me to achieve many things, which the discipline experts just couldn't see. I am confident that similar cross-fertilisations will definitely occur in the area of analogistic models, just as they have been in what we have been dealing with here.

After all, analogy between dissimilar areas is the oldest and most cherished approach throughout Mankind's history.

SHAPEJOURNAL

WWW.E-JOURNAL.ORG.UK