Resonance and the Implicate Order

Are creativity and ceremony poles apart?

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Abstract

What are the implications for scientific creativity if a universal framework for data storage is on occasions accessible to the mind? Bohm postulated the Implicate Order (IO) as such a non-ordinary location storing the Universal Rules, which are continuously 'outfolded' into the Explicate Order (EO); his name for the physical universe. This concept parallels ancient 'magical' ideas such as the Akashic Order which supposes a universal intelligence, and that resonance occurs between closely similar objects, entities and concepts. That subjective perception may be possible of such a non-ordinary data storage location was Bohm's conclusion, and this paper suggests that when original discoveries are made, resonance links the new concept and its discoverer to this universal information compendium. Another non-ordinary site referred to by Bohm was called the Plenum, and it is postulated that the flawed mental products of intelligent organisms are stored here. Such a separate storage site seems inevitable, since flawed memetic structures formulated by human minds, although they may also be stored, are incompatible with the Universal Rules; hence would interfere with their continuous outfolding from the IO, which is supposed to be the basis for a functioning Universe.

Resonance is seen as the instantaneous linkage between spatially or temporally separated objects or concepts that share common characteristics. A 'ceremonial' form of resonance is supposed to result from exactly repeating past rituals, dogmas or paradigms. Mental attraction to sites in the non-ordinary storage location called the Plenum where ceremonies are stored, is suggested as commonplace, and may often be confused with accessing past memories stored in the brain. Sites for attractive ideas in the Plenum are reinforced by mass access, and this inevitably builds up the potency of popular paradigms or dogmas, but also constrains creativity. New concepts that are compatible with the contents of the IO may result in a stronger resonance in the mind of the discoverer – as supported by accounts by the discoverers of correct new concepts. A mental analogy between the Implicate Order and a Black Hole is made, suggesting that flawed memetic structures remain outside the 'event horizon' of the IO if they are incompatible with the 'Universal Rules' stored there. Examples are given of the author's personal experience of resonance, and suggestions as to how creative resonance may enhance original thinking.

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1. Introduction

The conventional idea in Science is that all information we memorize is stored in the brain. A growing body of information inside and outside Science, suggests this is an over-restrictive frame for exploring new ideas (e.g. Smythies 2009). Laszlo (2009) suggests we have an intuitive sense, and that 'entering altered states of consciousness facilitates the transpersonal transfer of information'. Thus, an important minority of scientists include 'intangible realms' such as the 'Akashic field' of Laszlo (2004) in their cosmological thinking. Evidence suggests that accepting Bohm's conceptual framework provides a useful approach to creative thinking in Science and may promote mental flexibility, whether strictly true or not. The paper discusses how creative and ceremonial modes of thought may interact with a cosmological framework similar to Bohm's, both in science and everyday life, and is intended as a framework for speculative thinking.

Targ (2004) quoted Henry Stapp, a physicist, as saying: '*The new physics presents prima facie evidence that our human thoughts are linked to nature by non-local connections….and can be understood by conceiving the universe to be, not a collection of tiny bits of matter, but rather a growing compendium of 'bits of information''*. A non-local effect of human intention was demonstrated with rigorous controls by Tiller et al. (2001): 'focussed intent' by meditators led to resonance with local electronic or biological systems. These modifications could be instantaneously transmitted to identical systems at distant locations. Numerous similar communications in the Journal of Scientific Exploration and elsewhere, could be cited, describing the same effect.

Bohm's theory of the Implicate Order and Plenum seem consistent with an ancient concept, the Akashic Records, (akasha in Sanskrit means "sky", "space" or "aether"). This 'non-physical plane' is where all knowledge and the history of the cosmos are recorded' (Wikepedia), and is supposed accessible in certain states of consciousness. 'Sensitives' such as Bruce (1999) described visits to this realm during 'out-of-body experiences'. The fact that the IO and Akashic realm are common themes in New Age literature should not exclude them from philosophical speculation if this approach enhances creative thinking.

The Implicate Order (IO) of Bohm (1980) contains the instructions for continuously recreating the Explicate Order (EO) we live in by what he called 'The Holomovement'. He supposed that the IO houses the Universal Blueprint: the informational basis for designs of different objects, concepts or entities; all merged in a form analogous to a hologram. The IO is supposed also to receive a contrary flow of experiences from the EO, such that, as the Universe as a whole evolves in complexity over time, its 'control rules' also change perceptibly. Some of Bohm's conclusions are used here to focus on the issues of resonance and creativity. I add two suggestions as to how resonance may facilitate our contact with non-ordinary storage locations.

2. The role of memetic structures

Dawkins (1989) proposed the meme as the informational equivalent of the gene: an informational pattern in an individual's memory, capable of being copied to another memory or storage device. Since Bohm (1980) asserted the primacy of information as opposed to matter, matter can also be represented as information within the Plenum or IO. Studies on the replication, spread and evolution of memes are now referred to as Memetics (Heylighen 2001) and it seems logical to consider the informational structure of thought processes in these terms. If a memetic structure is duplicated

elsewhere in the space-time continuum, one hypothesis is that resonance may occur between the two locations. I suppose that such resonance can be perceived by a trained mind whose energetic threshold has been raised by a 'Eureka Moment' or 'Peak Experience'. The literature contains many accounts by discoverers of this sensation. In such aroused states, a flow of information into the mind appears to occur via a 'sixth sense', linking the energy body to a non-ordinary source of information. The term 'memetic structure' may be used for extensive conceptual frameworks such as 'systems of belief', dogmas, or paradigms. An example might be: 'God created the Universe and cares for me'; a memetic structure which Dawkins, an atheist, would consider of limited veracity!

Bohm later broke down the Implicate Order into several categories: the Plenum, "*an immense background of energy, filling the Universe, which exists in an unbroken 'holomovement,'*" and a 'Super-Implicate Order', seen as the organizing principle of the Plenum. In the following, I consider this super IO as the repository of the Universal Rules which continuously create the EO, and view the 'Plenum' as a broader non-ordinary realm coextensive with, or enfolding, the IO, which may, among other ideas, contain concepts of uncertain veracity. One proposition is that only elements consistent with the Universal Rules can be absorbed by the IO, since it is hard to see how memetic structures incompatible with the Universal Rules can enter there without leading to chaos. Nonetheless, even if they are flawed in terms of 'The Rules', I assume that memetic structures generated by humans are still stored in the Plenum; there to be accessed and modified by human mental processes. Unsuccessful attempts by theoretical physicists to formulate 'Theories of Everything' (TOE's) aimed at discovering these Universal Rules, are included here.

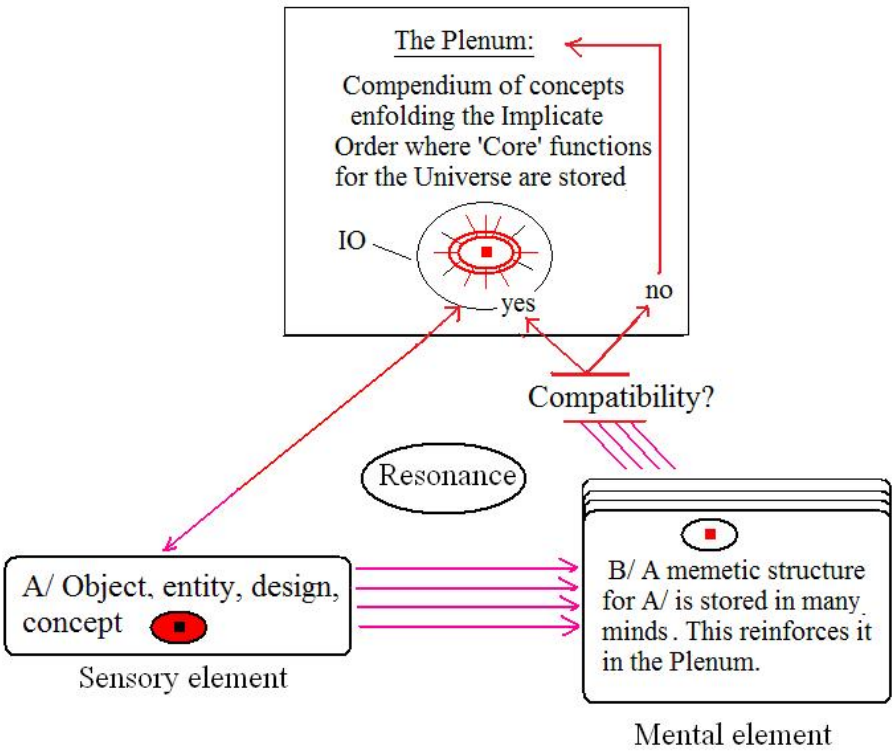

Fig 1. A hypothesized three-way resonance between an object/idea, its mental representation, and the 'master copy', either in the Plenum (or if compatible with Universal Rules, in the IO).

The IO and the Plenum, Bohm supposed, can be contacted through "*an inwardness of consciousness*", although a high degree of energy is required; (I suppose he was referring to psychic

energy or qi, rather than joules!). I.e., communication with non-ordinary locations is facilitated by insight, trance or meditation. Bohm suggested this 'intense heightening' is only possible in individuals who have shaken off world views that propagate ignorance, and he suggests "awe" or "holiness" as characteristics of IO thought. Whether or not he intended any religious overtone, it has been interpreted by some that the IO is identical to the Universal Mind. Bohm was influenced late in life by the Dalai Lama, which may explain why he subscribed to the Buddhist perspective that disorder prevails as long as the elements of a system are chaotic and independent of each other. This suggests that only memetic structures which are compatible with the Universal Rules may be merged with the IO.

Because most human belief systems, credos, legal codes etc. are typified by internal contradictions, then under the assumptions made here, they must remain peripheral to the Universal Rules. Internally inconsistent memetic structures are subscribed to by the majority of mankind however, and are almost universally known. Some examples are theories of economics not based on ecological sustainability, credos that preach love but only for your own congregation, and belief systems that deny the reality of evolution. There is also pressure to ensure that new interpretations are compatible with socially-acceptable paradigms or religions - one reason why Darwin's theory of evolution, despite overwhelming evidence in its favour, still provokes strong resistance in some quarters. Intellectual inertia or prejudice also inhibit active searches for alternative meanings. More positively, new combinations of elements may be selected for their beauty (e.g. Hardy 1967).

Logical thought proceeds from axioms, and Göedel demonstrated that a theory cannot generate the axioms it is founded on. At some fundamental level then, formulating a TOE has to be based on inspiration and resonance: choosing the right axioms must be a creative process guided by access to the IO. My assumption is that access to the Implicate Order (IO) occurs prior to paradigm changes, and it seems a legitimate scientific objective to seek mental states that promote this access and free us from incorrect interpretations.

3. Resonance as a flow of psychic energy

If memetic structures generated by thinking beings are stored somewhere and influence the future of the Universe, the number of memetic structures must have grown exponentially over time. The perception in nature of designs or logical patterns creates analogous structures in the mind, and these mental representations resonate with the object/idea in question stored as a 'master copy' in the IO or Plenum. A three-way resonance is supposedly established between the perceived memetic structure, its image in the brain, and the 'master copy' stored in the Plenum or IO (Fig 1). 'Resonance' reinforces the flow of subtle energy between these three elements, and I propose that this flow can be detected on inspired occasions by the human mind (Fig 1).

4. Human dualism as a source of inspiration

It seems inevitable that a better understanding of the creative process will take us outside the confines of science as now conceived, into the realm of mysticism. That access to the Implicate Order or Plenum occurs in a trance state is suggested by Bohm's words quoted above, and a form of mental dualism as the basis for creativity is suggested. Looking further I encountered two strikingly similar concepts which appear to throw light on this process.

A quote from C.G.Jung: "*Memories, Dreams, Reflections*":

> "*Somewhere deep in the background I always knew that I was two persons. One was the son of my parents … The other was grown up – old in fact – skeptical, mistrustful, remote from the world of men, but close to nature, the earth, the sun, the moon, the weather, all living creatures, and above all, close to the night, to dreams, and to whatever 'God' worked directly in him. Besides (the world of the schoolboy of 1890), there existed another realm, like a temple in which anyone who entered was transformed and suddenly overpowered by a vision of the whole cosmos….Here lived the "Other" who knew God as a hidden, personal, and at the same time, supra-personal secret. Indeed it was as though the human mind looked down upon Creation simultaneously with God. The play and counterplay between personalities No. 1 and No. 2 ….. is played out in every individual… but perceived only by the very few…. In my life No. 2 has been of prime importance, and I have always tried to make room for anything that wanted to come to me from within. When I was "there", where I was no longer alone, I was outside time; I belonged to the centuries; and He who then gave answer was He who had always been.*"

A quote from Castaneda's "*The Power of Silence*" reveals a strikingly similar concept:

> "*Don Juan commented that inside every human being was a gigantic, dark lake of silent knowledge which each of us could intuit' (but only those involved in sorcery could access readily)…Castaneda sensed for the first time in his life, a clear dualism inside him. 'Two obviously separate parts were within my being. One was extremely old, at ease, indifferent. It was heavy, dark, and connected to everything else. It was the part of me that did not care, because it was equal to anything. It enjoyed things with no expectation. The other part was light, new, fluffy, agitated. It was nervous, fast. It cared about itself because it was insecure and did not enjoy anything…It was alone, on the surface, vulnerable. That was the part with which I looked at the world.*"

These two examples suggest two basic postulates that may aid the searcher of creativity:

- Creative access to extra-ordinary storage sites occurs in a trance state when the mind reverts to an ancient, quasi-instinctive mode of operation when it is joined with an 'overmind' which has access to non-ordinary information storage site(s);
- The mind is then given holographic access to an atemporal universal information site where individual items of information are merged, hence extracting single items of information may be difficult.

5. The role of time and the IO

Two opposing ideas on the IO have major implications for our philosophy of life:

1) The Universe and the Deity grow more complex with time as the Universe accumulates experience.

2) The IO is an atemporal store of information, which even at the start of the Universe, contained all future ideas and experiences (the Platonic idea).

These two hypotheses on the nature of the IO have quite different implications:

Hypothesis 1) sees human thought as creative (in the fundamental sense of producing a memetic structure for the first time). Although all correct new ideas may be implicit in, and based on, the IO Rules, they may not be present in the Universe in a distinct form. This hypothesis supposes the universe to be increasing in complexity over time in response to the activity of its inhabitants, and this inevitably requires some element of unidirectional time to apply, even within the IO.

Under hypothesis 2), memetic structures were pre-existent in the IO, but were only revealed over time. This implies that the IO is timeless, and the Rules were pre-programmed into the underlying structure of the Universe, implying a Creator. What we experience is a progressive revelation of pre-existing events, rather than their creation by human intent: i.e., the IO does not increase in complexity over time. By implication, all new inventions by intelligent beings are already stored there outside of time in anticipation of their formulation. If so, future inventions might be coaxed into being prematurely irrespective of any logical sequence of discoveries. (An example might be Maxwell's Dynamic Theory of the Electromagnetic Field, which is said to have anticipated the experiments that proved it). Often we hear that an idea is 'ahead of its time'- Is this consistent with an atemporal IO? Although we cannot distinguish definitively between these two frameworks, hypothesis 1) assigns a more significant role to intelligent thought processes and originality. I personally believe that creativity does count, and that is what we are searching for here!

6. A visual analogy to the Implicate Order

I assume here that the Universe is evolutionary: i.e., experience accumulates through time in the Plenum and if verified, moves to the IO. The number of new conceptual structures rapidly accelerated following the 'Big Birth' (of the first self-reproducing living cell which led to the proliferation of all life forms), and natural selection then gave rise to a wide variety of patterns and life forms. This occurred still more rapidly when neural networks became capable of manipulating memetic structures. One clue this idea offers is that natural processes (developed by Darwin's natural selection and recent modifications) are direct consequences of, and follow directly from the Universal Rules. A related speculation that seems worth considering, is that a neural network or brain evolved in this way. Hence a neural network or brain will have difficulties in changing its axiomatic statements, and will produce memetic structures that resemble those that gave rise to it. This conclusion also seems to follow from Göedel's hypothesis that the axioms cannot be deduced but must be given.

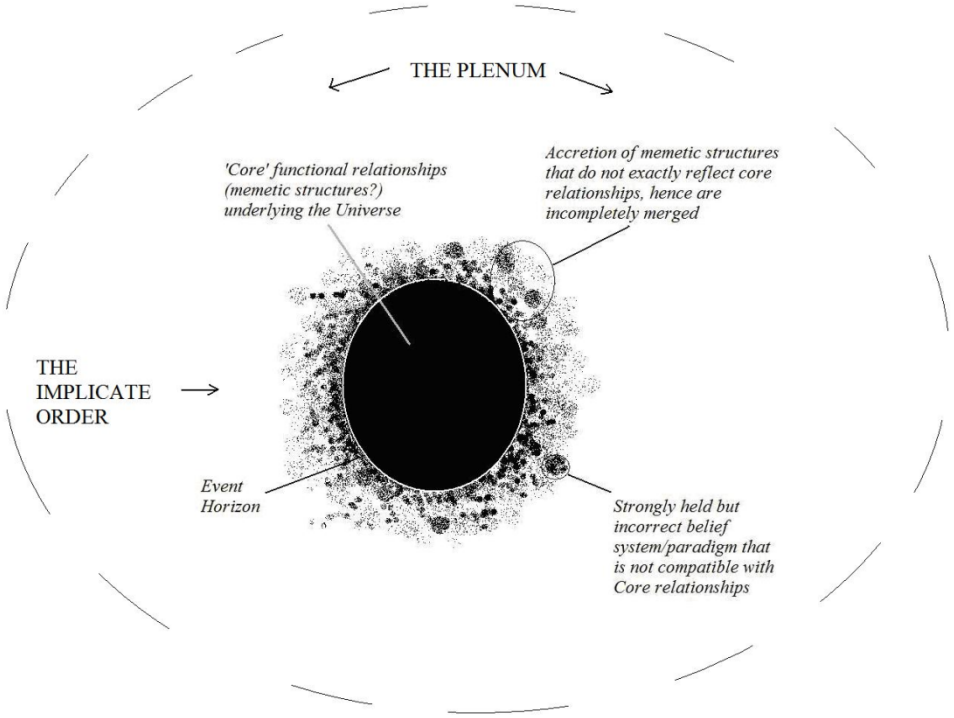

Fig 2. An analogy to the formless Implicate Order in terms of a Black Hole, in which the 'Rules' which continuously (re)create the Universe through the holomovement, are separated from flawed mental memetic structures developed by humans. (This is only intended as an analogy, not that Black Holes are necessarily repositories of universal wisdom!)

7. An analogy to the IO and Plenum

A visual representation of the IO and Plenum for creatures living in the Explicate Order is impossible, but the analogy of Fig 2 may help in discussing our interactions with them. Fig 2 supposes that the basic axioms and memetic structures underlying the Universal Rules are integrated inextricably within an 'Event Horizon' in a fully compatible holographic mode. As for Black Holes, the internal structures within the 'event horizon' will resist investigation. However, (unlike a Black Hole) the 'Rules' are supposed to continuously outfold through the holomovement and create the elements of the EO we are aware of. New concepts compatible with the Universal Rules may enter and merge with the core: an event marked energetically to the originator as 'resonance'. I also assume that flawed memetic structures created and continually used by mankind are stored in the Plenum and accessed in certain mental states, as discussed later.

By definition, natural structures (e.g., DNA, quasars, nerve cells, and even behaviour patterns) arose by evolution as consequences of core relationships. Thus we gain an idea of the core elements by the products they generate, and this is probably the main reason why Science and the study of nature has been so successful. So what are the 'incompletely merged or flawed mental phenomena'? Social organizations, religions, scientific paradigms, schemes, designs, strategies were all evolved through mental activities, but probably there are few which are fully compatible with the Universal Rules. Such flawed memetic structures are shown in Fig 2 as 'strongly held but incompatible belief systems'. For example, the belief that the earth is flat, that organisms did not evolve, that the Universe was created in 7 days, or that the Universe consists solely of matter and energy. The

analogy between Fig 2 and the IO prompted the idea that there are at least two ways that we may interact with non-ordinary locations. In discussing these in relation to the proposed schemas in Figs 1 + 2, I distinguish them as follows:

1) *Creative thought*: When a memetic structure is first formulated which is compatible with the Universal Rules, the originator receives confirmation in the form of mental resonance – or a sense of rightness. Original discoveries subsequently propagated in other minds, as discussed by Rupert Sheldrake (1988), show Morphic Resonance with an intensity that increases with the number of minds accessing this specific storage location.

2) *Accessing dogmas and paradigms*: A more prevalent phenomenon occurs when entire social groupings conform to, and reinforce, belief systems by, en masse, frequenting locations in the Plenum where flawed memetic structures are stored. My proposal is that revisiting any dogma or (incorrect) memetic structures reinforces such extra-IO locations, and also rewards mental 'visitors' by another form of resonance. It must be evident that the first category, 'Creative Thought', is a solitary activity, characterised by a sense of shock and surprise: the second is characterised by familiarity, a sense of belonging, comfort and easy acceptance.

8. Resonance and a 'sense of rightness' – theory and practice

A 'Law of Resonance' has been postulated (e.g. Keener 1999; 2003), by which a phenomenon and its mental visualization are linked as a unitary whole by resonance. This has been called 'Magical Thinking': the old idea that "objects which resemble each other are connected, and without physical energy transfer, manipulating one affects the other – similar I suppose, to the theory of 'entangled' elementary particles. The magical view of the Universe is that "behind the world of appearances is a hidden network of forces that can be tapped by spells and rituals" (George 1995). The parallel between this ancient conception and Bohm's framework is striking! In other words, resonance is synergy and not electromagnetic radiation, even if the objects/minds involved are widely separated in time or space. Targ also considered that psychic functioning is a kind of resonance, and in some states of mind alternative axioms are chosen through a sixth sense of 'rightness' in which resonance plays a key role. If mental states exist when the IO is accessible to human thought, the mind becomes aware of this 'sense of rightness', and reacts to the resonance generated while the correct memetic structure is stored in the IO. Recognizing that a new idea as correct, according to Mangan (2001), depends on the most important non-sensory experience: this is 'coherence'; i.e., a sense of 'rightness', or 'wrongness'. Potworowski and Ferrari (2002) noted that 'Feelings of Rightness or Wrongness' (FOR/W) apply in various contexts as a sixth sense. Such sensations are linked to the aesthetic sense and mystical and moral experiences, and could imply a connection with the IO. These authors seem to believe that an overarching function of cognition is to systematise patterns in the stimuli received, largely subconsciously. A Feeling of Rightness (FOR) is induced by a good fit of observations to a new concept, and at the same time, the inconsistency of the previously accepted world view is brought into relief. Seen in this way, our reaction may be called instinctual, even if we rarely assign an explicit role to human instincts (see however, Desmond Morris 1997).

We recognize the 'rightness' of a new concept, and this implies that some resonance occurs between what we have 'in our head' and a similar concept stored elsewhere. Potworowski and Ferrari (2002) supposed that "a 'FOR' energizes us, interests us, and/or moves us" through 'non-intellectual valuation' or 'affective resonance": this emphasizes the important cognitive role of bodily sensations in the process of discovery. As they wrote: 'Values are inherently fuzzy entities

that "provide a guiding force in our decisions …about everything". In extreme cases, "entire sets of values can suddenly change, as in a conversion experience". In summary, he opined: "If there is resonance, then there is value".

9. Creativity and Serendipity

The Oxford English Dictionary recognizes the dichotomy raised in this paper by its definitions of 'Creativity'. This may be an 'Act of God', implying no scope for human ingenuity. However, 'Creativity' is also defined as: 'A product of human intelligence, esp. of imaginative thought or artistic ability'. This suggests that mankind and other intelligent entities may contribute to the complexity and future trajectory of the Universe. It will be difficult experimentally to distinguish between two mechanisms of information access: local or non-ordinary. Like a stand-alone computer, an individual brain has a limited data set, but we cannot distinguish information stored locally there, from information coming from the 'cosmic web'. It would therefore seem of no particular disadvantage to consider the unconventional hypothesis that the mind is able to 'voyage' to some extra-dimensional location(s) where information is stored, and access it there by resonance (and the relatively new field of 'Distant Viewing' in fact relies on this procedure).

Historical evidence suggests that many new discoveries were generated extraneously to the stated research objective: i.e., 'serendipitously'; though Campanario (1996) noted that in reporting, discoverers often 'rewrite history' so that the new solution subsequently appears to be a product of their directed investigation, and not an unsought solution found while investigating some other hypothesis. 'Receptivity to unsought factors' seems one key to creative thought, implying the ability to work 'outside the envelope' and to avoid 'mental ceremonies' built up round the established paradigm. In this context, it is remarkable that key breakthroughs were often made outside an academic context (e.g., Einstein in a patent office, and Lovelock working as an independent investigator). I assert that the radical change in perspective their ideas brought about would have been hard to achieve under peer pressure within a specialized research institute! In other words, the way Science is carried out, such as its referees and editorial process, the group review in specialized symposia, etc., reinforce linkages to the existing paradigm, as does mass education. Like other group activities such as religions, most scientists are drawn to those sites which provide energetic rewards to group membership, and 'eccentric' concepts often lead to exclusion.

10. Are Ceremony and Creativity polar extremes?

The Oxford Dictionary defines 'ceremony' as a formal religious or public occasion, and 'Ceremonial' as: 'A system of rites to be used at a formal or religious occasion'. A negative view of 'Ceremonious' emerges as: 'having a fondness for ritualistic observation or formality'; where formalities may be 'of an empty or ritualistic kind'. Thus, 'Ceremony' has several characteristics that can be generalized more widely:

- Activities in which ritual is observed exactly, even when its original meaning has been lost.
- An event established by 'The Founders' sets the pattern or original form of the ritual;
- When a ceremony or ritual loses relevance it no longer causes resonance, and is called 'empty'.

A broader definition of ritual seems useful then, since one basic feature of an active ritual is that it seems to induce resonance. Ritual is then defined as a stylised procedure that closely imitates past performances. Its religious significance is 'a prescribed order of performance of a rite', but its broader significance is 'a procedure regularly followed', since we unconsciously use ritual when following fixed thought patterns or performing routine activities within an accepted paradigm. While doing so, we are less aware of, or less in conscious control of, our acts and thoughts. In this wider sense, ritual and ceremony play a huge role in human activities, and not simply in religions. Mental rituals invoke particular mental states; perhaps even in recalling past events we unconsciously access extracorporeal states as information sources. As the antithesis of creativity, 'ceremony' can be usefully broadened to include any activity, mental or physical, in which a pre-established procedure is repeated exactly. It is effective to bear in mind the original motive for the ceremony, and conform to its pre-established means of celebration, otherwise it becomes 'empty' and devoid of psychic energy. Some activities which fall within this broader definition are:

- Invocations of past states associated with particular emotions or a high personal energy;
- Prayers, assertions, or incantations of a fixed form, whether repeated aloud or mentally;
- Repeating activities that have induced specific mental states or emotions in the past;
- Adhering to a form of reasoning or paradigm which has achieved consensus from many minds.

The point is that an element of ceremony is implicit whenever a conventional concept, memetic structure or physical manifestation, is accessed. It is assumed that multiple repetitions reinforce its attractiveness in the Plenum. Jung referred to such 'Ideal forms' as 'Archetypes'. Sheldrake implied some form of Universal Memory when he referred to 'The Presence of the Past'. If past events influence the present and future, a past experience must be stored somewhere, whether we call that location the Akashic field, the Plenum, or the IO. Where these extra-dimensional realms are located – except for physicists, is less important than learning to access the information stored there.

To recap the argument so far: it is sensed that resonance may occur on at least two occasions:

1) When a correct new concept or memetic structure is born within a single mind which better explains some phenomenon or experience. It is supposed that resonance results from the rearrangement of memetic structures within the IO as this new elaboration of an existing correct concept is uploaded. The new concept will still be difficult to access by minds where the old memetic structure is part of their mental filter for sorting incoming information. However, as other minds progressively modify their mental filters allowing rational access to this new structure, its site in the IO/Plenum will be reinforced. Eventually the new concept may eclipse in attractiveness older sites in non-ordinary locations where now-obsolete explanations are stored. The saying that: 'An old paradigm dies with its last adherent' illustrates sadly, that obsolete memetic structures are slow to disappear since they are part of the fundamental building blocks dictating what is feasible to that mind – and indirect evidence suggests that these building blocks may be immortal, judging how frequently archaic ideas resurface.
2) A ceremony or ritual is effective if it duplicates a memetic structure stored in the IO or Plenum and is reinforced by multiple accessing. The high energy invoked by 'traditional' ceremonies or dogmas resulting from mass access, (see the treatment of Galileo's new idea on the solar system!), and may obscure non-ordinary locations where the correct concepts are stored.

11. Diagnosing resonance

'Inspiration' is the word often used for resonance - describing a sharp intake of breath as we become aware that a new interpretation has fallen into place. Keener (1999) suggested this occurs instantaneously, and is often referred to as a 'revelation' or 'paradigm shift'. As one trained in vital energy fields (Caddy 2007), such experiences expand my aura, and I refer to this experience as 'resonance'. Others (e.g. Sidorov (2002) have suggested that we will only make progress in paranormal studies by considering more seriously the subjective experiences of "qigong masters, remote viewers and others" – i.e., not just by experiments where observers in 'ordinary' mental states examine the EEG recordings of the brains of 'sensitives'! Treating the 'subjective experiences' of exceptional persons seriously, and seeking to confirm them through group experiments with 'sensitives' seems likely to be a more productive approach.

All scientists seek explanations for their observations, and when one is found, this is marked by a sense of satisfaction or exaltation. Observations by vital energy adepts suggest there is an expansion of the aura and crown chakra when an event is particularly effective or moving, and this phenomenon may be detected with training (Motoyama 1995). Events which are particularly relevant to scientific creativity occur when an observation suggests an anomaly from accepted theory – the question is whether the attraction of the established paradigm can be resisted long enough to explore new interpretations of this anomalous observation.

Eastern schools of qi/prana energy or martial arts strictly adhere to the form and influence of the founder of a school. In learning the 'Katas' or ideal forms of martial arts schools, small errors in posture are corrected; not only because the exact form is more efficient, but because it is easier to learn. According to this interpretation, copying the original form exactly which has been repeated thousands of times, leads to resonance; augmenting the vital energy of the participant through a chain of masters back to the originator. Hence the practitioner is asked to remain 'in the spirit of the master', and this is rendered tangible through an expansion of the energy body. To western ears an over-emphasis on the 'Master-Pupil' relationship seems to deny our personal freedom. Certainly we have to break away from fixed forms if we want to develop new ones, and that is not an easy process.

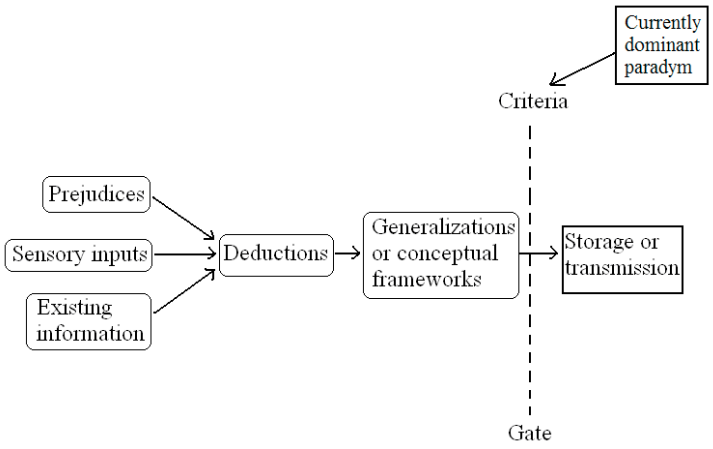

Fig 3 . Phenomena are viewed through a 'Criteria Gate' created in part by the current paradigm, and which plays a key role in filtering out incompatible phenomena and interpretations.

12. The problem of paradigm fixation

Over the last 50 yrs, a debate has arisen on the paradigms in Science. The view ascribed to Karl Popper by Lakatos (1978) is that alternative paradigms can be chosen rationally and are not always competing (Bohm and Peat, 1987). They may coexist, and address different aspects of the same problem. In the intellectual sense, although paradigms based on established theory facilitate understanding of past analyses as 'katas of the mind', they strongly constrain our thought processes (Fig 3): i.e., they act as a filter through which we view any new phenomenon. If the axioms that form part of the filter are false, our observations will be misinterpreted. We have to remain flexible so that when 'anomalies' suggest a new paradigm is needed, we can recognize them and seize the occasion. One strategy for overcoming this effect is to learn all relevant factors to the subject in question, then keep the mind silent in a light trance or meditation. This seems a useful way of inducing contact with non-ordinary storage locations. If a new interpretation emerges in this way, it may be difficult to resist the old paradigm before the new one is energized. Charles Darwin said that whenever he came across an idea that contradicted his cherished theories, he had to write it down in the next half an hour or his mind would find reasons, valid or otherwise, for rejecting 'discordant' information, just as the body rejects transplants of tissue with a different DNA from its own.

Scientists are put through a rigorous conditioning during training which discourages 'flights of fancy'. This is reinforced by meetings or symposia where peers are very hard on 'unfounded speculation'. As a result, many aspects of multi-spectral reality which enter our conscious perception may be deleted by our 'world perceiving program'. A new idea at odds with the accepted view is winnowed through the fine mesh of the current paradigm before it can enter a 'citable publication'. Accepting many paranormal phenomena as reality would require substantial changes to the underlying TOE of Science: hence their diffusion is blocked, in some cases, despite statistically valid experiments supporting them.

The most famous debate of this type was the particle versus wave theory of light between Einstein and Bohr, but on a smaller scale, such debates are common. One example from my field - the population dynamics of fish resources, makes it clear that a Darwinian evolutionary tree can be constructed in many scientific fields between the 'founding paper' and subsequent publications. Often a new theory may be developed by returning to earlier logical bifurcations and following up one that was formerly rejected. Thus although the basic axioms may remain in place, interpretations are gradually modified over time. Therefore, much published science in a given field retreads the same thought patterns; merely adding small branches or codicils to the work of the founders.

13. A personal experience of creativity

In 1999, my co-author and I thought we had discovered a principle of general applicability in the field of statistics. Stamatopoulos and Caddy (1991) describes an extension of the original geometric formulation of linear regression invented by Karl Pearson (Pearson 1901). Our paper was rejected by most statistical journals since we did not refer to modern papers. This was inevitable, since modern regression theory had long departed from Pearson's geometric approach that was the basis for our reasoning. This paper hasn't been widely cited, but my point mainly relates to the energy flow this discovery generated within the authors. Following this unexpected discovery, "Our dream was that a whole new body of theory might evolve from our humble paper! The sensation was somewhere between awe and exaltation as we explored the confines of the new intellectual space

we had created, and the nature of space-time was suddenly vibrant with possibilities" (paraphrased from Caddy 2007). I hypothesize that such rare occasions create significant movements in the IO as a new 'site' or connection is created, with inevitable feedback to the authors. As a productive scientist, I would only claim 5% or so of my publications explored really new ideas in my field of quantitative marine ecology rather than new applications of old ideas. Although these new ideas were not necessarily adopted widely, they provide possible points of departure for new scientific initiatives.

14. Incubation and creative games

Non-ordinary sites are more likely to be visited by investigators when their personal energy is high since creative trance lead to resonance. Ecstatic experiences seem to facilitate strong intuition for new solutions (e.g., László, 2009). One process strongly implicated in the search for new solutions is 'Incubation': that is, when tackling a new problem, it has been recommended to absorb all relevant information, then allow the mind to 'take a holiday'. A period of unfocussed attention or 'empty mind' while the investigator participates in leisure activities allows mental voyaging; thereby hopefully uncovering a new solution to the problem. The new conceptual arrangement is often reported to be perceived in a spontaneous but complete manner. A commonly-quoted example is of the physicist Nicola Tesla, who, quoting poetry to a friend while walking at sunset, stopped in a trance, and "like a flash of lightening, the solution to the problem of alternating current motors appeared to him… a revelation with the images as sharp and clear and as solid as metal or stone".

An old tradition in Sardinia (Aresu 1995), recorded by Aristotle as already ancient in his time, was that a person seeking a solution was buried there in a 'Giant's Tomb' (there are many in Sardinia – but they were not necessarily tombs) – they remained in a trance for several days during which new solutions or healings emerged. Their modern equivalent is the 'meditation tank' where sensory deprivation leads the mind in new directions. Trance states, or incubation, may allow us to access sources of information such as the IO which are not available to rational thought. In shamanic experience, this access is often described as ecstatic (See Eliade 1972). On the contrary, conventional thought processes work along cause and effect pathways; reasoning from established axioms, while confining the mind's attention to time-sequential processes. However:

1) New discoveries contradicting existing theory, tend to occur in ecstatic states or in meditation. They involve a change in axioms, or the incorporation of what previously were considered 'extrinsic factors'.

2) Trance states, a silent mind, or meditation, open a wider field of information which has the perceptual feature that all knowledge is connected, and facilitates access to non-ordinary information storage locations for concepts, designs and mental frameworks.

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