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New Methods for a New Science:
Epistemological Considerations for a Consciousness-based Paradigm

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Abstract

Moving into a new paradigm – which considers consciousness as fundamental, and not merely a derivative or epiphenomenon of matter – it will be necessary not only to set new assumptions, but to revise the methodology. This article shows through a series of thought experiments that in multidimensional reality we cannot expect to fulfil the same scientific criteria as we do in the three-dimensional reality of physical existence. Especially, the criteria of objectivity, reproducibility and measurability must be critically re-examined. It is concluded that for a new paradigm to establish itself fully, the very criteria of scientific research need to be re-evaluated, else multidimensional phenomena will forever remain outside the scope of science. We can establish a new science, which is not restricted to measurements, but fulfils the criteria of systematic observation and the making of self-consistent models. New models might even transcend the conceptual mind, and could be based on non-verbal and non-mathematical cognitions, for which examples are given.

1. Introduction: Moving into a New Paradigm

In recent times, the word *paradigm* has been used and abused so often that it is beginning to lose its meaning. *Paradigm shift* has become a household term, signifying anything from establishing progressive theories to bringing forth a new, spiritual world-order. This over-use of the term obscures the fact that we do indeed live in times of a historic paradigm shift, as well as a "period of acceleration" (Vieira, 1997, p.11). In its potential our era is comparable to the Copernican Revolution, which ended the dark ages of religious dogma and set modern science on its course of unprecedented success. Now, yet another shift shall enable us to study things we have so far neglected or had no scientific means to explore: consciousness, non-physical phenomena, ultimately: ourselves. Our potential is significant: "[t]he day science begins to study non-physical phenomena," Nikola Tesla predicted, "it will make more progress in one decade than in all previous centuries of it" (Tesla cited by Kandaswamy, 2015, p. 72).

Nevertheless, as Thomas Kuhn put it forward in his seminal book on *The Structure of Scientific Revolutions* (1970), a paradigm shift cannot be expected to be a straightforward affair. Economic, social and personal assets are at stake: those who have invested their entire professional lives in an old system, will not give it up simply upon hearing something new. Consider for example the Simontons (1980) proposing a method of curing cancer with the help of positive visualisation: this promising option for all cancer sufferers at the same time constitutes a threat of financial loss, bankruptcy and unemployment within the giant pharmaceutical industry – a key asset to our economy, which alone in Europe employs 690,000 people directly and 3-4 times more indirectly (EFPIA, 2014, pp. 3-4). Therefore, as Kuhn has pointed out, a paradigm will only shift successfully, if a new alternative becomes available, not just scientifically, but socially and economically, as well. It might take more than one generation for a change of this magnitude to take place. In this sense, it seemed realistic, rather than cynical when Max Planck (1948, pp. 33-34) famously said that "[a] new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."

Thus a paradigm change cannot occur merely by bringing forth new theories, but through a complex social, economic and academic battle, which shakes, demolishes and reconstructs the very foundations on which science has been built. First and foremost it replaces the assumptions upon which everything held true was resting.

2. New Assumptions

Assumptions, by definition, cannot be proven. They are, therefore, not chosen according to the criteria of verifiability or falsifiability, but according to considerations of usefulness (c.f. Popper, 2003). Our contemporary mainstream paradigm assumes that the basic building block of the universe is matter (in its extreme form see e.g. Churchland, 2013). The usefulness of this assumption almost seems indisputable: it has brought us technology, medicine, global and space travel, genetic engineering, instant, world-wide communication and an explosion of information. However, with a great number of anomalies emerging in as diverse fields as quantum physics (acausality and quantum entanglement), biology (morphic resonance), medicine (near-death and out-of-body experiences) and psychology (synchronicity, the emergence of past life and inter-life memories) it has become necessary to question the materialistic assumption.

An increasing number of researchers are indeed beginning to change the assumption, and postulate consciousness as fundamental in the universe. Max Planck, Nobel Prize winner in physics, regards "consciousness as fundamental" and "matter as derivative of consciousness" (Planck, 1949, pp. 33-34). Similarly, "[i]t is not matter which creates mind, but the other way around. The stuff the world is made of is mind-

stuff," says George Wald (1984, pp. 1-15), Nobel-laureate professor of biology. "It is mind that has composed the physical universe."

Working with inappropriate (not useful) assumptions or not being aware of an underlying clash of paradigms when it comes to a scientific dispute will inevitably lead research into a *cul-de-sac*. Currently, much of our global research into non-physical phenomena is suffering from this inhibition: the example of investigation into near-death experiences (NDEs) will illustrate the point.

3. Clashes of Paradigms: The Example of Near-Death Research

NDEs have been noted throughout history (c.f. Shushan, 2009), however, only lately has medicine progressed enough to reverse the state of so-called clinical-death (the ceasing of blood circulation and breathing) on a regular basis. This has lead to an overwhelming increase in NDEs: according to the Gallup Study conducted in 1992 there were 13 million adult near-death experiences in the US alone (Meyers, 2009). A similar study conducted in Germany by Knoblauch *et al* (2001) has found that 4% of the population has had a near-death experience. The systematic study of these numerous cases began with Raymond Moody (1975), who found that people who have experienced the state of clinical death report similar and highly consistent experiences. Death, according to these reports is described as an out-of-body experience, which involves leaving the physical realm (often through the sensation of travelling through a tunnel), meeting deceased relatives and friends, notably also spiritual guides, who facilitate a panoramic life review and assessment of the life just terminated or paused (Moody, 2012).

Various hypotheses were formulated to explain the phenomenon. One group of researchers provides various materialist explanations for NDEs (c.f. French 2005): some psychological, others physiological. Psychological theories postulate that NDEs are dissociative defence mechanisms against the death trauma, for example through a form of depersonalization caused by extreme emotional stress (Noyes/ Klett, 1976, 1977) or false memories (French 2001).

Physiological theories tend to explain NDEs through the release of various hormones and chemicals, such as endorphins and enkephalins (Carr 1981), naloxone to produce hellish NDEs (Judson/Wiltshaw, 1983), serotonine (Morse *et al*, 1989), ketamine (Jansen 1997), and dimethyltryptamine or DMT (Strassman 2000). Other neurobiological models explain NDEs through severe malfunction of the brain resulting from the cessation of cerebral blood supply (Engman, 2008), elevated carbon dioxide levels in the blood (Shermer, 2002: 152-157) and oxygen deprivation of the brain (Hines, 2003: 101-104), or more specifically a surge of electrical activity before the brain runs out of oxygen (Chawla *et al*, 2009). All these theories attempt to explain NDEs without recourse to anything non-physical.

On the other hand, another group of researchers take the experience at face value and interpret it exactly as the person experienced it: as consciousness separating from the body in the moment of death (c.f. Sartori, 2014). This approach leads to the conclusion that consciousness is not dependent on the brain, similarly to a computer program which is not dependent to run on the same computer on which it was written (c.f. van Lommel, 2010).

In truth, this entire physical versus transcendental debate is so ancient that goes back to Greek antiquity (Moody, 2013), yet there is still no resolution in sight. The crucial point is that there can be no resolution, as both parties have different assumptions, and *are right within their own paradigm*. (It is a little bit like presenting a whistle to a blind and to a deaf man. Both will use different senses to study the object, therefore it will be impossible for them to come to an agreement within their own perceptions. The deaf man will tell accurate information about the size, form and colour of the object, without grasping its function as a sound-maker. The blind man might be less able to describe the physical form of it, but will be able to hear its sound and understand why it was made. The man who can hear, as long as he doesn't allow the deaf man to convince him that the sound he heard was a hallucination, will be able to learn more about the ways a whistle works – which might lead him one day to build a church organ.)

If one assumes that the world is based on matter, the survival of the individual after the body (matter) is dead (destroyed), is a nonsensical idea. However, if one assumes that consciousness is fundamental, then it is logically correct to conclude consciousness can exist beyond matter, space and time. Since assumptions by definition cannot be proven, the materialists cannot prove that the world consists of matter, if they tried, they would only produce tautologies. In the same way, it cannot be proven that the world is based on mind (consciousness). The assumption must be chosen because of its usefulness. As we have seen from the NDE debate, the materialist paradigm does not allow for any further study of consciousness. It simply dismisses NDEs as hallucinations and consciousness itself as an epiphenomenon of the brain.

On the other hand, the mind (consciousness) based paradigm allows us to expand our knowledge and provides us with the framework in which non-physical phenomena *can* be studied meaningfully.

A number of researchers have already taken steps towards a consciousness-based paradigm and changed their basic assumption(s): postulating either the primacy of consciousness (matter derivative of consciousness), or a consciousness-matter dualism[1] –however, many have stopped here. Yet, in case of a paradigm shift, it is not only the basic assumptions which need to be questioned critically, but also the scientific method. We cannot expect to use the same methodology as in the past. (That would be the same as adapting the Cartesian world view, but still expecting Moses to bring down the laws of nature from Mount Sinai inscribed on stone tablets.) We need

1 Note: the following arguments presented in this paper are based on a purely consciousness-based paradigm, but can be adapted to a dualistic world-view, as well.

to ask ourselves: how useful is the methodology of the old paradigm for gaining knowledge in the new? Which components of the scientific method are essential? Which are themselves assumptions?

4. Completing the Paradigm Shift: Finding a New Methodology

In short, with the emergence of a new paradigm, we will not only acquire a new body of knowledge, but will need to change our epistemological framework: the way we gain new knowledge. We must examine which criteria of the scientific method are fundamental, and which are assumptions. In particular, three major criteria of current scientific research and experimental design need to be re-assessed critically: objectivity, reproducibility and measurability.

4.1 The Criterion of Objectivity

A logical consequence of the materialist paradigm is the assumption of an objective reality "out there," which can be studied, experimented on and measured independently of consciousness. However, once we assume the fundamental nature of consciousness, we can have less expectation for experimental results to give us objective data about an independent reality. The following thought experiment shall bring the problem into awareness:

4.1.1 Thought Experiment #1: The Scientist's Dream

Let's think that a scientist goes to sleep at night and dreams about conducting an experiment. Will the results of the experiment so obtained be (in the traditional sense) scientifically valid? Of course not, since the experiment itself was the produce of the scientist's nightly mind. Once we acknowledge that consciousness is fundamental, the same logic must be applied to conducting experiments in the waking state: their results will also reflect upon the (day-time) consciousness of the experimenter. The thoughts, sentiments and energies (in short: thosenes) the experimenter holds can influence or (co-)create the results.

Within a consciousness-based paradigm, experimental results must be seen (at least partially) as expressions of the consciousness of the experimenter. Experimental results tell us about the reality dependent on the particular consciousness of the experimenter, rather than a single, objective reality "out there." In other words, when experiments are conducted, consciousness must be treated as one of the variables.

To accept this "illusion of objectivity" (Sheldrake, 2012, p. 291) can be most challenging to those scientists, who have invested much in the old paradigm. It might appear that our entire "laborously erected intellectual edifice might collapse under the impact" (Boadella, 1985, p. 245): after all, if we cannot objectively rely on the results of our experiments, what can we rely on? In this regard, it is important to remember multidimensionality: in our three-dimensional, physical (or consensual) reality experimentation may carry on as previously, only when moving to higher, non-physical dimensions (more subjective realities) we must remember to include the consciousness factor, and conduct experiments treating the consciousness of the experimenter as one of the variables of the experiment.

4.2 The Criterion of Reproducibility

If experimental results depend on the consciousness of those who perform it, as we have now seen, the experiment will only be reproducible by consciousnesses who have similar thosenic backgrounds. The results might or might not be reproducible by somebody else. This postulate challenges another of the classic scientific criteria: the reproducibility of experiments.

4.2.1 Thought Experiment #2: The Scientist's Cat

The following thought experiment has originally been created by physicist Erwin Schrödinger (1935) and has become known as Schrödinger's cat. The setup is as follows: a closed box contains a cat and a deadly device that is switched on randomly. The main question theoretical physicists wanted to answer in the 1920s was about the state of the cat in the container. How can one correctly describe the state of the cat before any measurements are done? It turns out that the only consistent treatment of this problem necessitates two new concepts, previously unknown in physics. First, the correct description of the cat is a superposition of two states, namely "the cat is alive" and "the cat is not alive." Only the sum of these two states allows one to describe the system correctly. Second, it is only the measurement (observation) which decides, whether the cat is alive or not. This means that the measurement or observation process does change the state of the cat, since the sum of two states ("alive" plus "dead") has now collapsed to a single state ("alive" or "dead"). In other words, observation changes the system.

This thought experiment highlights a central difference between the materialist and consciousness-based paradigms: in the latter, consciousness plays an active, not merely observational role in shaping reality. What follows is the postulate that consciousness of a different quality produces different experimental results. Therefore, it cannot be expected that people with different thosenic backgrounds will

produce the same experimental results. It can only be expected that experiments can be reproduced by people of similar thosenic backgrounds.

This might explain, why para-psychological experiments, which have produced promising results while conducted by sensitive individuals, failed when repeated with the participation of opposing sceptics. For example, when CIA interrogation specialist Cleve Backster came to the idea of attaching one of his office plants to a polygraph (lie detector), he noticed that the polygraph registered a change in the electrical resistance whenever the plant was harmed, or – even more peculiarly – when he just *intended* to harm the plant. Backster interpreted this as primary perception in plants, even as evidence that plants can feel and demonstrate an ability comparable to human ESP (extrasensory perception), such a telepathy (Tompkins/Bird, 2002). However, when Backster's experiment became subject to the *MythBusters* television show (2006) on Discovery Chanel, no effects in plants could be registered. Does that prove that plants have no primary perception, or does that prove that two different types of consciousness (Backster on the one hand, who sensitised himself to his plants and the television sceptics on the other hand, who explicitly aimed at "busting the myth") produce different results?

4.3 The Criterion of Measurability

Another important criterion of the classic scientific method is measurability, i.e. quantifying results against an objective, standardized scale. As we, however, move into a multi-dimensional paradigm, it becomes absurd to expect scales of a lower dimension to measure phenomena of a higher dimension. Our final, third thought experiment illustrates this point.

4.3.1 Thought Experiment #3: The Scientist's Table

Following up the ideas of Abbott (1992), let us think of a scientist who has a table upon which 2-dimensional beings (straight lines, triangles and circles) live. These beings are sentient, but limited through their two-dimensional experiences: when told about space (third dimension), only the more progressive thinkers among them do not dismiss the concept as "mystical mumbo-jumbo." Imagine, however, that those of them who were progressive enough to acknowledge the existence of a third dimension, attempted to design some experiments to measure space. Whilst in the second dimension, they are limited to two-dimensional measuring scales, therefore all their measuring attempts would prove futile. They would never be able to capture volume, a three-dimensional measurement, with only two dimensions. One of the three crucial coordinates of volume (height) will remain missing in their two-dimensional world.

Similarly, if we insist on measuring anything relating to non-physical (higher dimensional) realities, we are bound to make mistakes due to the limitations of our physical reality. Time is often considered to be the fourth dimension, and thus it is no surprise that near-death (even out-of-body) experiences tend to collapse time perception as we know it.

Studying non-physical or higher dimensional realities it appears that we must (at least for now) give up our requirement to acquire precision knowledge, and instead aim to develop techniques and ideas which broaden our experiences and perception, to push out the limits of what is knowable, with the hope of later gaining more precise understanding.

As early as 1954 Arthur Köstler made the distinction between two different styles of scientific development: he calls them *association* and *bi-sociation*. *Association* is characterised by working within a rigid sets of rules and a confined set of themes. *Bi-sociation* on the other hand, breaks dramatically with scientific tradition, in order to explore entirely new horizons (Köstler, 1954). *Bi-sociation* needs to occur fully, before a new order is established and – within a new set of rules – new research can be conducted.

The following example of measuring the vibrational state (VS) installed through voluntary energetic longitudinal oscillation (VELO) demonstrates the challenge researchers are facing when moving into revolutionary new territories.

4.4 The Limitations of Using Old Methods for a New Paradigm

In her recent study, Nanci Trivellato (2015) aims to find a measuring scale for bioenergicity, which shall serve "to grade a broad range of diverse bioenergetic and parapsychic abilities" (Trivellato, 2008) in students of consciousness studies. The measurement concerns especially the VELO, an exercise designed to consciously mobilise one's bioenergies up and down the body for the maximum dynamisation of the energo-soma (subtle energy body), also known as the vibrational state (VS), (see e.g. Trivellato & Gustus 2003). The aim of a measuring scale, *inter alia*, is to give students a more objective and useful feedback about their progression, so that they no longer need to rely solely on their own subjective experiences. Measurement occurs via energetic coupling initiated by the researcher, who uses his or her energetic sensibility to gauge the student's mobilisation of bioenergies on a scale from 20% (normal state) to 60-100% (vibrational state).

Can an experimental design like this fulfil the classic scientific criteria of objectivity, reproducibility and measurability?

As the researchers themselves are aware, using one's own energetic sensitivity as a measuring instrument re-introduces the subjective element into the process: objectivity is lost insofar as an external measuring instrument is not used, but the consciousness (perception) of the researcher. In itself, this does not need to be a

problem: classic scientists also use their own perceptions, for example the colour of a litmus paper as pH indicator. However, in the present study researchers are *highly trained* to perceive bioenergies, i.e. their consciousness is qualitatively different from the average human consciousness, which will make repeating their study impossible at the general academic level. In other words, if objectivity is retained by training the consciousness researchers to remain highly consistent in their perception of bioenergies, the criteria of reproducibility is compromised. Finally, measurability remains controversial, because in this experimental design the subjective experience of one human being is measured against the experience of another human being, which is ultimately subjective also, in the absence of an external scale.

The crucial question remains, whether these problems constitute a fault in the research design *or* constitute challenges inherent in penetrating new realms of knowledge, to which the methodology of the old (materialist) paradigm cannot be applied?

In the terminology used by Köstler, Trivellato's (and in general IAC's) leading-edge research into consciousness is moving through the stage of *bi-sociation*, during which science is expected to break through boundaries and must face epistemological clashes with the old paradigm. Once the parameters of the new science are sufficiently set, opportunities for objective measurement might arise[2] or other criteria for a logically conclusive, empirical system of scientific model-making will be set up. Until then, we need to find methods to expand our knowledge beyond what can be known today: the methods of transitions are not the same as when working within established science.

5. Examples Of a New Methodology

We seem to have two options regarding the problems presented through the thought experiments above: we either declare that consciousness and higher dimensional phenomena must remain outside the scope of science – or create a new, logically sound methodology. Physicist Fritjof Capra proposes that instead of objectivity and measurability at all costs, the scientific method of the new paradigm should be based on the conditions of systematic observation and self-consistent model-building (Capra, 1982: 415-416).

In the following, methods are outlined which can be used and developed for the study of non-physical and multidimensional phenomena. While a single paper like this cannot possibly exhaust all the possibilities and challenges, the aim is to give impulses for further thinking.

2 See, for example the current attempt of Alegretti (2015) to use fMRI to detect bioenergy.

5.1 Qualitative Analysis of Subjective Experiences

At the early stages of its development, any new science is bound to rely primarily on qualitative data. "Long before the application of mathematics to describe the dynamics of avian flight," Russell Bernhard (2006, p. 43) brought as an example, "qualitative, fieldworking ornithologists did systematic observation and recorded (in words) data about such things as wing movements, perching stance, hovering patterns, and so on." Anecdotal, random data collected in the early stages of a new science – for example, when early pioneers of out-of-body research reported their own experiences (e.g. Monroe, 1998) – can then be standardized through systematic qualitative analytical methods. Contemporary consciousness research can greatly benefit from studying qualitative research methods from related social sciences on its path to "scientific consolidation" (Serrano, 2015), such as social anthropology and sociology. Social anthropology, especially could serve as a "cross-fertiliser," the ethnographic methods of which could be applied to field research in non-physical realms. The newest methods in social anthropology, like cognitive-empathic participation, help anthropologists to explore new concepts with an open-mind.

5.2 The Logic of Non-Sense

Universal limitations of our thinking are the hardest to detect: if everybody works with the same limitation, there is no reference point for comparison. From time to time we must therefore ask whether our most evidently held "truths" could not perhaps be limitations. Moody (2013) pointed this out, when he began to think whether our classic, Aristotelian logic based on a binary system (true & false), could indeed be a limitation, especially when it comes to understanding the near-death experiences he was investigating. People, who have had near-death experiences frequently report their experiences to be ineffable: the words or concepts of our language simply are not sufficient to describe them, especially the concepts of time and space.

There is, however, another logic, beyond the binary one: it is the logic beyond the intelligible: the "logic of non-sense," as Moody calls it. At the first glance, gibberish seems to contain no information whatsoever. However, upon closer scrutiny, it turns out that different types of gibberish – Moody identified no less than 70 – do carry different types of information insofar as they trigger different reactions in different parts of the brain.

The study of non-sense holds value, because everything which falls outside of our current knowledge parameters is *by definition* for us unintelligible. For example, in Galileo's time the theory that our planet revolved around the Sun was unintelligible, a type of non-sense: how can the Earth revolve around a heavenly body, when the Earth was *down here*, and the sky was *up there*? For people of his time to understand

the heliocentric concept, they had to study what they perceived as non-sense, shift their paradigm in order to facilitate it and subsequently make sense of it (c.f. Moody & Tsakiris, 2012). If we are to gain truly new knowledge, we also must be willing to face what *we* consider non-sense, in order to broaden the boundaries of what will make sense in the future.

5.3 Beyond the Conceptual Mind

One of the central concepts, but at the same time limitation, of contemporary science is the idea that all knowledge must be cognitive, in other words: in order to consider something as valid information, we must be able to process it mathematically or linguistically. Non-conceptual knowledge is dismissed, albeit we know from experience that it exists, sometimes with utmost relevance to our lives. For example: how else would we know that we have fallen in love?

Even if we acknowledge the existence of non-conceptual knowledge, it might appear challenging to think of it as scientifically relevant. To follow Capra's new-paradigm requirements of scientific knowledge: systematic observation and model-making, could there be a system which includes non-conceptual knowledge?

Such systems have existed historically, used for passing on knowledge which belonged to the non-physical realms. For example:

- In various martial arts traditions, we can find systems designed to manage the body's subtle energies. These systems could not be communicated well through language, instead detailed and precisely choreographed sequences of movements were taught to students, in Japanese called *kata*. As Buddhist martial arts teacher, Hayashi Tomio points out, *kata* were "kinaesthetic treaties," in which old masters left their principles and knowledge embedded (Tomio, 2014). In this system, knowledge about the non-physical world is developed kinaesthetically, and instead of verbal or mathematical theories, *movement carries information*.

- Other civilisations which knew about the body's subtle energies, and were aware of the existence of a non-physical body or psychosoma, similarly had to find ways to confer non-conceptual knowledge about it. Non-conceptual knowledge cannot be understood by logic alone: its transference is consciousness-altering. John West, based on original research conducted by Schwaller de Lubicz, has shown that the Great Temple of Luxor from Ancient Egypt follows the outlines of a symbolic model of the human body (Schwaller de Lubicz, 1981), at appropriate places highlighting the energy points best known to us as *chakras*, as well as their evolutionary relevance. The entire temple is designed to promote understanding: not directly, rather it is the evocative power of *symbols and harmonic proportions which carry information* (West, 1979).

- Tibetan culture is a classic example of a civilisation based upon the study of the mind: in Tibetan Buddhism serious, systematic study is devoted to understanding multi-dimensional aspects of reality, such as consciousness functioning in the dream

and *bardo* (in between death and life) states. Albeit Tibetan Buddhism is a highly developed system of logic, it too, has aspects which cannot be communicated by sharing cognitive concepts. If one reads, for example, through Tsongkhapa's Six Yogas of Naropa (Tsongkhapa/ Mullin, 1996) and finds instructions to gain lucidity in a dream or out-of-body state, the instructions often appear non-sensical, until one begins to practice. Consequent practice opens dimensions of being, in which the instructions start to make perfect sense. In this case, various *meditation practices carry information*, which remain unintelligible for the non-practitioner. (Here, we have another example of knowledge depending on the quality of consciousness. One's own consciousness needs to be transformed, before new levels of knowledge become accessible.)

6. Conclusion

Fritjof Capra (1982) once wrote that "[p]sychic phenomena seem to manifest themselves only outside the framework of analytic thought, and to diminish progressively as their observation and analysis become more and more scientific." In this paper, we conclude, that this is so, because so-called "psychic phenomena" belong to multidimensional realms, which are larger than the current parameters of science. While moving into a new paradigm, which facilitates the study of multidimensional phenomena, we must extend our parameters, and be guided, not limited by, the criteria of systematic, empiric model-making. Beyond the boundaries of what is currently known, lies the realm of non-sense, which remains unintelligible only for so long, until we flood it with new lights of understanding.

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