

## **EXISTENCE**

Musings on how it all started

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## ***Introduction***

I was educated at a Church of England school, where Christian teachings were of course provided. In due course I was prepared, by the Precentor of the local Cathedral, for Confirmation and although this was duly accomplished, the preparation started me to question all of the stories which had been told to me of biblical nature.

I look back, for instance, at the chosen daily hymns we used to sing at the school's morning assembly and wonder if any or many of the pupils actually understood the words of these. If closely examined, the hymns in "A&M" reveal a load of tosh and in the main consist of deferential, obsequious praise of the "Almighty", a hangover from the Victorian age.

By the time I had left school, I had decided all the religious cant which had been stuffed into my mind from instruction by rote needed to be re-assessed. I recall such things as having been given the Nicene Creed to learn and then recite, my teachers however failing to explain what it all meant or to ask me whether I agreed with its content and meaning. My school, admirable in many ways, had effectively inflicted on me a form of brain-washing. I rebelled against this, silently perhaps, but I still rebelled.

It amazes me how the global prominent religions have held sway over the lives of so many. There may be many reasons or causes, but the main one seems to me to be that of (possibly purposeful) mis-teaching of the young, this coupled with the perceived need within religious institutions to ensure protection and continuity of their organizations come what may.

As the years have rolled by, my outlook has hardened and I strongly deprecate the teaching of all religions which advocate unquestioning "belief", my considering that most if not all has a suffocating effect on human thinking—religious dogma attempts to snuff out rational thought, and succeeds mightily. The pageantry, costumes, celebrations, disciplines and rituals are seen by me as mildly comical, whilst darker consequences of religious activities and compulsions prompt my contempt. This is despite my acknowledgment of the benefits which many religions supply in the way of charitable works, education and moral instruction.

So I am critical, or even scornful, of religions. But a fair riposte would be to challenge me for a positive alternative to these varied beliefs. This short treatise is an attempt to provide that.

What I suggest in the following pages may well be nonsense or easily refutable by those with scientific expertise, and I stress that scientific knowledge of such topics as quantum physics and the like is not my strongest suit—I have none. So what follows is just my own lay-man's attempt at trying to make some sense of the origins of everything we notice around us. As I say, it may be nonsense but I consider it no weaker than the religious teachings to which I have been exposed over the years.

The questions I have are:

- What is existence?
- How did existence come about and how did it develop?
- What is the extent of existence?

You would earn my admiration, were you to read through to the last page!

## Section 1. **NOTHING**

*There is nothing quite so absolute as nothing.*

In my trying to determine the character and presence of “existence”, it may be better first to consider the other side of the coin—lack of existence, or “nothing”.

If we were to clear the Universe of all impedimenta, constellations, galaxies, celestial gases, dark matter, various elusive particles known as “bosons” (photons, gluons etc), “fermions” and gravitons, and anything else littering the skies, then we would have just empty space—containing nothing. But of course that is not of itself nothing.

Empty space has a number of properties: mainly it has capacity or volume, the ability to be filled by something. It has length, width and height, in unlimited directions and boundless. Empty space is therefore “something” and has existence. There are other aspects of existence (mentioned later in this writing), but with space as with everything else, we can only speculate on how it came to be and why it exists.

Nothing. It is absorbing to dwell on the full compass of what “nothing” entails. No concrete objects of course, no empty space, no dimensions of any type—nothing physical or tangible. Additionally, there can be no intangibles or physical laws and definitely no thing which might rightly be called the “Creator”. No history, no concepts of past, present and future. No motion, or for that matter no state of stillness. No energy. Zilch.

From such a state of nothingness (that seems to be contradictory itself, in that a “state of ...” must be something!), it must surely be impossible that anything could be derived.

**“Nothing” shuts out any possibility of allowing the creation and existence of something.**

Looking at this implication, I can only judge that “nothing” in this absolute sense is an impossibility.

Therefore, the only possible alternative is “something”. The nature of “something” and how that has evolved is of course the mystery yet to be solved, but at least we do not have to start from the base of *“in the beginning there was nothing”*. The “something” was therefore not created, it just exists, has existed and presumably always will exist, this because nothingness cannot have preceded existence and existence cannot by the same token return to nothingness.

For me, this is a factor crucial to an understanding of existence.

There is one small quirk which may be added.

Absolute nothing is something which we all experience—not that we are aware of it! Every night we go to sleep for hours and hopefully we sleep soundly. During that time, we are insensate to anything; so far as we are concerned, there is nothing and we are nothing. But we then wake up and continue our existence. Indeed, if we were not to wake up, we would not be aware of it. A strange personal form of nothingness, although I do not know where that gets me in trying to understand existence!

This touches on **solipsism** (= the assumption that everything else apart from one's own awareness of reality, is false and non-existent), a logical premise perhaps, but not a practical guide to the way by which to conduct one's activities.

## Section 2. DIMENSIONAL ELEMENTS

When looking at the dimensions of an object, we normally refer to three dimensions: linear, area and volume, with an extra “fuzzy” fourth dimension of time added. So our physical world as we can perceive it in daily life rests on just these spatial dimensions. In addition however, research scientists of a variety of disciplines investigate the possibility of further dimensions, not just one or two extra are theorised over but many more, even hundreds. This brings them into the realms of parallel universes, worm holes and other exotica which should be beyond the comprehension of lay-people, well this one anyway.

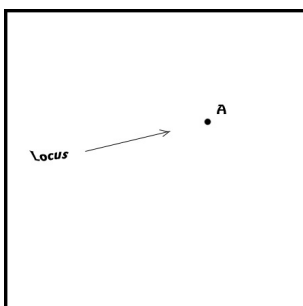
Because the layperson does not have the background learning and possibly the intellect to comprehend what the scientists explore, that cannot mean we should dismiss their theses as airy-fairy nonsense, as indeed we should not deny anything simply because we do not understand it. We should remember that they are knocking at the edges of human knowledge and experimenting in order to extend those boundaries. That some or even many of the theories may founder eventually does not make the effort in exploring them as wasted.

We can however consider the basics of existence afresh, even as a lay-person, and I have expressed my understanding of the factors involved. I call these dimensional elements (“DE”) and they vary somewhat from the traditional spatial dimensions.

### A. First DE = Location (Locus)

To start with, let’s be clear that we are dealing only with items of mental imagery, not physical things of the type that we can feel and see.

In order to consider any object of existence, it is necessary to fix its position - if it has no position or location, it cannot possibly have any other dimensional elements and plainly does not exist as a physical entity in any case.



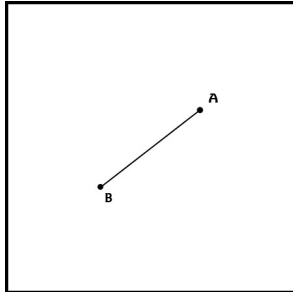
So we need to fix the location and we can call that the “locus”, any chosen point in a given space. It has no size and no existence apart from it inhabiting a given location.

The point “A” is the locus in the adjacent picture. This has been selected as within the shown space (although this is depicted on a flat surface, my intention is that it should be viewed as if in three-dimensional space—like a star in the sky). It looks like a rather large dot but that is just for clarity; the locus in fact would be invisible, having no size at all.

If the locus existed within an unlimited void, it would be impossible to fix the position—with the properties of our known physical world, choosing a locus in such circumstance would be impossible because we would have no reference points on which to base our choice. Nevertheless, that does not mean a locus cannot exist unless there are convenient reference points; on the contrary in an unlimited void, there would be unlimited “loci” (I prefer “loci” to “locuses” as the plural form).

### B. Second DE = Bi-polar - linear (two loci)

The second DE is the addition of another locus, making two loci and this introduces two sub-elements: a) distance and b) relative direction.



The picture shows our new locus "B" and it can be seen from the (imaginary) line, it is a certain distance and direction from "A". What that distance and direction may be would be impossible for us to determine unless we had other reference points, just as has been explained so far as concerns the 1DE.

All we can say is that "B" is at a distance from "A" comprising the length of the line "AB" and that "B" is in a particular, but indeterminate, direction and occupying a locus on an imaginary sphere having "A" as its centre and "AB" as its radius.

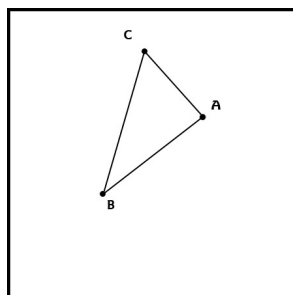
Or the other way round!

The second DE is equivalent to linear measure and our traditional first dimension in space.

Of course, there could be any number of additional loci along the line "AB", or indeed along an extension of that line. My purpose however, is to try to describe these elements in the least terms or values.

### C. Third DE = Area - plane (3 loci or more than 3 in the same plane)

Now, having a line with the 2DE, it is simple to create a plane or an area by the addition of just one more locus. In minimal terms, we then have just 3 loci and if we imagine lines joining them, the enclosed space provides a surface.



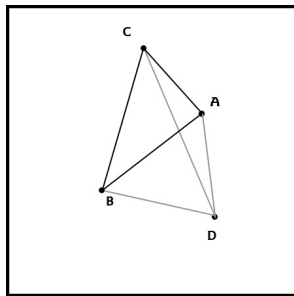
The addition of the locus "C" allows us to visualise a triangular area and we have formed a shape. It has no depth to it however, and is just a surface, just like for example the surface of a table-top.

Again, I have tried to represent this in minimal terms, just by connecting the loci with straight lines. You may consider that a more efficient way of producing a given area would be by describing a circle and this would be so in the sense that for a given area, a circle would entail the least distance of the loci from one another. However, a circle would entail more than just 3 loci and would need an infinitesimal number of loci, infinity being a topic which I may tackle in a later Section. So I am sticking for the moment to just straight lines.

This is of course the same as the traditional second dimension = area or plane, but with the added ingredient, provided by the 1DE, of location. These Dimensional Elements are cumulative.

### D. Fourth DE = Volume or capacity (minimum of 4 loci, 1 being in a different plane)

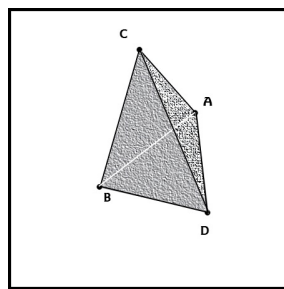
To arrive at the fourth DE, it simply requires the addition of another locus but this time placed anywhere other than in the same plane provided by the 3DE.



Here we see the fourth locus “D” and that lines have been drawn to each of the other loci “A,” “B” and “C”. The effect of this has been to multiply the number of planes to 4, fitting together as a pyramid and these enclosing a volume of space. Volume may be the wrong word since there are no contents. A better description may be that we have created a potential capacity.

This correlates with the third dimension of geometry, but this is not “solid” geometry because we are still just dealing with locations in space and not with any physical object.

### E. Fifth DE = Substance - solid (first DE of physical existence)



A crucial question of existence is: where did matter come from? Alongside that is another: what is matter made of? We await convincing answers or proven theories—possibly the experimenters at CERN will provide these. For the moment, let’s say matter already exists and we can use it for an examination of dimensional elements. To convert the 4DE of potential capacity to a solid, we need just to fill it with matter.

I trust this is a reasonable depiction of the three-sided triangle occupied by matter and thus forming a solid shape.

In doing this, we can now see that the object has four physical vertices, these being at the same spots as the imagined loci. The object occupies space bounded by the four planes and of course occupies only that part of space overall where the loci were chosen.

### F. Sixth DE = Motion of matter (and time)

Now that we have introduced matter, it can be seen stationary in space. Since it is the only such thing in boundless empty space, it is impossible to locate its position, despite it obviously occupying one. Nevertheless, unlike a locus, which has a location and no mass and which may be switched at will instantaneously, our item of matter (the “object”) must travel over a path to reach a new position. It has to do this even in empty space.

So in order to move from point “M” to point “N”, the object needs to travel through all of the loci along the line “MN”. It seems obvious enough, but why should it be different from changing a locus from one position to another?

Let us assume there are two objects which are to move exactly the same distance from one point to another. One of the objects reaches the target point sooner than the other. Therefore it is faster and the other is slower—we have introduced relative speed. Until one or the other of these objects started to move, there was no complication of rate of motion, but as soon as there was motion, we could perceive a relative rate of speed either from the original point or in comparison with the other object. It is motion therefore which I assess as introducing the notion of **time**.

Whilst no object moves, there is no time: it only becomes a factor when motion occurs, or is only a *phenomenon* which is perceived as part of motion. To equate it with one of the dimensions, “the fourth dimension”, appears to overstate its importance or misunderstand its nature. Time only exists as a

by-product or co-factor of motion, and motion in any case can only be perceived as relative motion—there can be no such thing as absolute motion.

We sometimes hear a person say “time stands still” when for instance looking at a motionless landscape. Of course it is not really motionless, on the contrary it is throbbing with motion (kinetic energy) as every cell and atom in the vista have parts in constant motion. Motion is so omnipresent that we take it for granted—it is all around us and forever present. Because of this, time is similarly extant and common-place, but all we really mean by time—and all we really can measure—is the relative motion of an object in comparison with another object or another locus.<sup>1</sup>

### **Space: the place where all dimensional elements reside**

There may be another dimensional element which should be considered but I prefer to see it as the basic container, in which all of the dimensions, previously described, reside. This is space itself, empty and boundless but a physical entity, with the characteristics only of potential capacity and of directions of width, height and depth.

Without space, we could have no objects of substance. So, space, although empty, if it is empty, cannot be regarded as “nothing”; it most certainly is something, having the characteristics I have mentioned. Not only is it something but it’s also something tangible, regardless of any lack of emptiness.

### **Summary**

I have plugged the various dimensional elements of *physical* existence and you may wonder: to what end? Mainly, my object is to build a picture of existence from scratch, rather than trying to understand it in the ways the scientific community seem to approach the problem—through analysis of matter.

The presence and dynamics of *physical* existence are dependent on all of the above dimensional elements, with the addition also of space (which itself has the characteristics of at least three of those dimensional elements (2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup>). The birth of our universe, the “Big Bang”, was dependent upon the existence of these underlying features, so either the Big Bang created them—I doubt it—or they already existed before the Big Bang.

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<sup>1</sup> There could be the argument that time allows motion to occur—no time, no motion. That may be so, but, subject to being corrected, I prefer my conjecture that time is but a phenomenon brought about by motion.

### **Section 3. SCALE**

#### **Does size matter?**

Every view we have is subject to the scale with which we see it. In earlier centuries, our horizons were limited by our ability to travel and by our means of perception—apart from the naked eye, we had few means by which to peer at detail or to bring far things closer and bigger. The smallest we could perceive was a grain of sand, the furthest we could see was the stars; additionally in this latter case, we had no means of judging distance.

With ever-increasing and less inaccurate means of determining size and distance, we can now observe or at least determine the existence of minuscule objects: molecules, atoms, particles etc, and estimate the size and distance of heavenly objects. Both the microcosm and the macrocosm. As humans, we are limited by our senses to just the sight of objects within these two “...cosms” but have discovered more detail and extended our view, by magnification—microscope and telescope—both optically and then through other means in observing radio waves and the like. We apparently can determine even smaller or larger objects not by observation but from the evidence of their existence due to their perceived effect on others. Surely, with the talents and efforts of the scientific community, we shall continue to increase our perception of both microcosm and macrocosm.

#### **Microcosm**

What we can see through the eye-piece of a microscope are objects so small they are not visible by our eyes alone. Looking through it, our vision is filled by such as a single cell amoeba—it fills our vision, in the same way that we may look at a building, yet the latter is so many times larger than the amoeba. To us, the amoeba is very, very small because in relevant terms it certainly is by comparison with that we are normally used to in everyday life. But under the microscope, if we switch to look at another amoeba, we may see that it is only slightly larger or smaller than the first we looked at. So, we may determine in this micro world of relative differences which are not particularly large, just as in our normal world about us, we compare sizes and distances in *relatively* narrow boundaries.



Even were we to go with our scientists to the present finest limits of perception, and identify such particles within atomic structure as may be so minute that it is unclear whether such objects even have a mass, the smallness is just a relative term of comparison.

Let's hypothesise the existence of an omnipotent observer (the “OO”) and he has reduced his size to that of an atom. The view about him would be similar to that we, normal humans, can see only with an extremely powerful microscope. Electrons, protons, neutrons and the plethora of particles surrounded by or contained within these are all of a muchness in size and distance to the OO. For instance an atomic particle may appear to the OO as much the same size as an ant may appear to us.

It's all relative.

Give the OO his own microscope, and he could discern objects (if there are any) so much smaller than himself as an atom is to us.

## Macrocosm

Now go the other way. Presently we have identified the solar system, our galaxy and other galaxies and such phenomena as black holes, super novae and more. We have expanded our view of what we call the Universe. The distances are so vast, to us, that we have needed to adopt more convenient units of measurement, notably the light year (5,879,000,000,000 miles). The most distant object which has been identified (a quasar) is 13 billion light years away. There should be no reason for us not to expect that there are objects even further away. How far away?

Let's say our OO changes his relative view to take in the whole of our Universe as we now know it (which for argument's sake could extend in all directions by some 13 billion light years as its radius) and that this view becomes the same as we, for instance, encompass an earthly landscape in our view. At that scale, the OO would be unable to distinguish such detail as the individual stars within galaxies and certainly not our Earth, unless he were equipped with a suitably powerful microscope. But he would be able to see beyond our present known universe, especially if he were equipped with the equivalently-scaled astronomical gear we presently use. To the OO, a mere 13 billion light years would be like a few miles we see to the horizon.



We could extrapolate this indefinitely. Another OO ("OO2") might be scaled to view what our first OO sees about him as equivalent as that we can identify as small as an atom.

But the scientists tell us the Universe commenced with the Big Bang, before which there was "nothing", not even time. They also say the Big Bang *created* the Universe, the implication being that space was also created simultaneously. I find this difficult to comprehend. Certainly who am I to question the Big Bang theory but I am also (superficially) aware of the steady state argument which Professor Fred Hoyle vainly propounded. I'll come back to this in a fashion after considering some other matters.

## History and future

I am tempted to draw a similar distinction in our appreciation of the passage of time. We can of course contrast the scale of the time of just a day or an even shorter period, with that of bygone ages of the Earth—micro-time as against macro-time. Nevertheless, I'm unsure where this may have relevance, except perhaps if we were to consider what/when was the beginning of time, and how/when will be the end of time.

My suggestion, already outlined, is that time has no existence as a unique and sole dimension but is a by-product of motion: it exists whenever and only when relative motion is occurring. Any movement or change displays its own rate of relative motion, which in turn introduces the phenomenon of time.

I stress again that there is no single entity, tangible or intangible, which may rightly be termed as "time", but every movement, change or motion—whatever one calls it—exhibits a direction of its change of position and a concomitant rate of doing so, relative to whatever one is comparing it with.

Time is not a single entity: we should be referring to "times", ie in the plural because each relative movement etc has its own unique time associated with it.

It is illogical to think in terms of the beginning and end of time, except as described above.

### Implication of scale

In terms of linear, square and cubic measure however, scale would seem to draw us to the problems of a) what is the shortest/smallest/nearest and b) what is the longest/largest/farthest that exists. Scale should allow us to appreciate that nothing is so big, so small or so *complex* as it would be surprising to find something else even bigger/smaller/more complex. We should not be confined in our outlook to the perceived scale of things we find in everyday life.

The universe about us and our own bodies are perceived by us all as marvels of complexity, as indeed they are in relative terms. But they are just degrees of simplicity/complexity in a scale of unknown size, possibly limitless. And so, relative complexity is likewise nothing to be surprised about.

*Size does **not** matter!*

I'll repeat that: size does not matter.

## Section 4. INFINITIES

**Infinity** is a concept which is awkward for both mathematicians and Joe Public to deal with. We cannot count to infinity and we find it difficult to come to terms with something having no beginning or no ending or neither.

In many cases we can work around the problem. For instance although a decimal fraction may be  $0.3^\circ$  (3 recurring endlessly) and rather useless for exact calculation, when converted to a simple fraction of  $\frac{1}{3}$ rd, it presents no such problems.

Some relationships can be more difficult, a well-known example being  $\pi$  (pi) being the number of times the circumference of a circle exceeds its diameter = 3.14159etc. A decimal which cannot be translated into an easy simple fraction (nor apparently so in any other modal base) to provide a finite figure. But it is just a trick of arithmetic and not really a true infinity, because all we need do is to unroll the circle's circumference, measure off 3 diameter lengths and we can see the remainder as a finite extra length.

But there are other natural infinities, such as:

Heat - There appears to be no theoretical upper limit to the temperature anything may be raised, despite there being a limit to what we can actually achieve or perceive.

Force - Any kinetic force which has no opposing force counteracting it, will continue in motion and in the direction of the force.

Dimensions of space - endless if we place no limit on them. A line of say 1 metre, an area of a square metre, and a globe of 1 metre diameter are all examples of finite dimensions, but we can extrapolate the size of these endlessly. If to gainsay that, we were to say that no physical dimension is infinite and that eventually we must come to the end (eg of the Universe), the simple question then to be asked is: what's on the other side of the boundary so formed?<sup>2</sup>

There must be many other ways (perhaps not an infinite number!) where infinity crops up, but one which I find difficult to contemplate is that of time; I have already laboured the point in this paper that this is an ephemeral adjunct to a true physical attribute, that of motion, ie change or kinetic energy.

I repeat my contention that time is only apparent when there is relative movement—it starts and stops with that movement. So, if there were an endless movement (see above—from a kinetic force with no opposing force), there would be endless time in respect of that (relative) movement, but for that movement alone.

Apart from that, it seems we must accept infinity as something that is real in physical existence, no matter how difficult it is for us to comprehend or cope with it.

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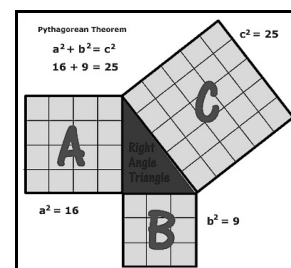
<sup>2</sup> A convenient theory holds that the universe bends around upon itself (not unlike the situation were we all existing on the inside surface of a balloon), so that if we were to venture far enough, we would come back to the point from which we started—a convenient way of side-stepping infinity!

## Noumena (concepts and constants)

So far, we have been considering only infinities as are encountered in the physical domain. There are those which exist as intangibles also.

This other class of infinities may be described using a simple example.

In about 400 BC, Pythagoras was able to provide a clear proof of why the square of the hypotenuse is equal to the sum of the squares of the other two sides of a right-angled triangle. Prior to that, it was known (probably for many earlier centuries) that this was so as a practical physical feature, enabling buildings and other edifices to be constructed with square sides—the simple measure of 3, 4 and 5 must have been in common use long before Pythagoras and his theorem. Whenever the discovery was made and regardless of when the proof was provided, the physical law had of course been extant before it had been discovered—it was just that it was unknown by humanity.



So when did the right-angle rule, as described in the equation  $a^2 + b^2 = c^2$ , come into being? Certainly, it was present before humanity or any forms of life inhabited the Earth. If it applied on Earth, there appears to be no reason why it does not apply on any other celestial body as well, so we can assume that the rule applied even before the Earth was formed.

We are now getting back to the Big Bang era and by the logic above, we can assume the rule existed at the instant the Big Bang occurred.

But the rule is not itself something physically tangible as was the case with the elements involved in the Big Bang. Rather it was and is a concept, one which applies whenever a right-angled triangle is created. We call it a physical law, but it is not itself something physical, just that it affects things which are physical. It's there as an intangible, in store awaiting it being applied should a right-angled triangle ever crop up in existence—it does not depend upon existence such as that provided by the Big Bang. It has a “steady state” of its own existence.

Countless other examples could be used to describe this. It leads me (possibly naively) to consider that the Big Bang cannot be the beginning of all existence—it explains the development of the Universe (or just “our” Universe, if there are others) but there is also a **steady state** of existence of concepts or of what I label as **noumena**. In this circumstance, they have neither beginning nor end, indeed the steady state does not rely on the phenomenon of time, it's just there. What better example could there be of infinity!

A **noumenon**, pl. noumena, seems fairly accurately to describe what I have posited. The dictionary definition is:

*“Object of purely intellectual intuition, devoid of all phenomenal attributes.”*

It may be regarded as the antithesis of “phenomenon”, an effect which appears or which may be perceived. A noumenon may give rise to a phenomenon.

## Section 5. **EXISTENCE OF WHAT?**

I've established in my mind, rather obviously, that there is an existence, in that absolute nothing is an impossibility, and that existence is a steady state—or at least the bare minimum is that it is, has, and always will exist. Such existence is a steady state since it does not depend upon time, the phenomenon I equate to being a factor of relative motion.

There are seemingly the following items which could comprise this steady state existence:

1. **Space**, and its dimensional elements. This is the boundless container within which everything tangible fits.
2. **Noumena** and constants. I've already mentioned the simple example of the right-angled triangle but there must be a myriad of other cases; for instance numbers and mathematics generally. Such intangibles do not need space in which to exist.
3. **Substance**. Whatever the form of "substance", it must be the building block for the development of any universe and anything else. I say this on the basis that it would be a fine trick of nature to manufacture something out of nothing, so much so that it must surely be an impossibility (like nothing itself). Substance would also appear to be indestructible, whatever the form it may take.<sup>3</sup>

That's it, and of course the unanswerable conundrum is why do these things exist? Why does not absolute "nothing" reign supreme? We know (or I have assumed) that absolute nothing is an impossibility because of our very presence, but had it been the case that not even these items listed above existed in steady state, then "nothing" *would* have been the outcome.

Basic "substance" must possess many remarkable properties. It may or may not have mass, it may or may not consist of what may be described as "energy". Its form may perhaps comprise countless individual particles, such as is contemplated by the Higgs Boson, although I cannot understand how it can be anything other than an amorphous fog or particles all touching against one another (because otherwise, this would entail there being space, truly empty space, in between, and that would make the conductance of energy or of any other forces impossible). It may or may not be compressible or expandable, or take alternative forms or forms which would appear at least different to human sensibility.

However, all of this can just be uninformed conjecture on my part. Similarly, how basic substance has developed into complex forms such as those with which we are familiar in everyday life, is far beyond my cognition and maybe yours also.

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<sup>3</sup> The scientific community also suggests a counterpart to "matter" with the parallel "anti-matter", although that is well beyond my own ability of understanding. The theory has it that if matter and its complement of anti-matter were to mix, both would be annihilated.

## Section 6. THE EMPTINESS OF SPACE?

Is space empty, apart from the objects we know that float around in it?

In the macrocosm, we on Earth see or otherwise experience the effects of objects occupying other parts of the universe, such things as radio and other forms of wave activity such as electromagnetism (eg light) and gravity. How can these pass through a void to reach us? Surely any waves or forces must travel through some substance to arrive at a destination.

Alternatively, the pulses/forces may possibly comprise particles of some nature which are emitted from their source. Scientists seem to have latched on to this latter hypothesis and have suggested particles such as photons (light) and gravitons (gravity), but I wonder whether these have truly been identified or just have been assumed to exist by way of deduction, ie there being no other known explanation.

In the microcosm, there is much the same question. We know, for instance, that a hydrogen atom consists of a nucleus with just one electron circulating about it in a “shell”. If we were to equate the nucleus as being the size of a football, then the electron would be travelling in its shell at a relatively remote distance from the nucleus, equivalent to about the length of a football field. At that scale and in such relative terms, that’s an enormous distance!

So what’s in between? If there were absolute empty space, how could the nucleus and electron interact so that the latter is held in orbit whizzing about the former? Perhaps again, this may be explained by the existence of gravitons and/or other particles to transfer the necessary forces from one to the other.

### “Super-latency.”

That possibility aside, I have conjectured there is instead an all-occupying substance, similar say to a fluid or gas but having no form and being continuous in nature. It might occupy all of both inner and outer space.<sup>4</sup> To give it an identity, I have coined the name “**super-latency**”.

If there were/is such a medium as super-latency, it would/will help explain some unknown phenomena, mainly the transmission of forces.

An aspect which needs consideration as part of these musings, is the so-called “speed of light”. This is approximately 300,000 kilometres per second or 186,000 miles per second and is the rate at which mass-less energy—as particles or waves—travels within empty space. It applies not just to light but to other forms of radiation and electromagnetic activity.

That it does apply to forms of energy other than just light (and each of the individual components of “white” light), indicates to me the speed is limited not by the nature of light etc but by the medium through which it passes. Indeed the speed is reduced when passing through a transparent mass such as air or glass; it is the medium which affects or even may dictate the speed, not the energy source.

The medium which so bears upon the “speed of light” (a misnomer, it seems) must possess a certain quality to do so—I ask myself why it should be *that* particular speed and not any other. Empty space, if truly empty, ie a vacuum, cannot almost by definition possess any characteristics other than its

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<sup>4</sup> And now I find that this also is something presently engaging scientists’ attention who are theorising over and experimenting with such esoteric objects as “gauge bosons” and the “Higgs Field” (which seems not unlike what I have so simplistically postulated).

emptiness. Space, whilst empty, truly empty, can transmit nothing. This gives weight to my conjecture postulated above, that all of space in the macrocosm, in the microcosm and in-between, is occupied by super-latency—it is all pervading.

I realise that this could be taken as a rather romantic flight of imagination on my part; my conjecture is based on no more than just that written above, so it may be swiftly cast aside by those with a scientific background of the elements. Nevertheless, that's my suggestion until and unless I receive some educated feed-back to the contrary!

### **Relative difference**

A property of whatever may be identified as the basic substance of existence must be that of “force”; force to allow movement to occur—converting potential energy into kinetic energy. Energy cannot exist in the way that concepts and constants (= noumena) exist, ie energy needs both space and substance. Although it may lie dormant (as a part of or as a form of substance), it needs one more factor: **relative difference**.

Relative difference is needed to be the trigger for development of substance into complex or more complex form. It is not much use having energy evenly located throughout substance because no development or movement could be initiated. Relative difference provides tension of different degrees, tension which can then be released in kinetic energy.

It is the existence of this which I would see as the instigator of all development of our present world and beyond.

## **Section 7. NATURAL CONSEQUENCE**

Perhaps there are more than a single item of relative difference (as mentioned in the previous Section); it may even be an inherent quality of all substance. One or more may have created the conditions from which the Big Bang erupted. Maybe the Big Bang is just one of many such occurrences and maybe there are numberless other universes (multiverses and/or parallel universes!), not just our own.

The scientific community has now decided that the Big Bang was the first sign of kinetic energy leading to the formation of our Universe. From that beginning, we have been presented with evidence of how all the celestial bodies developed, in particular, our galaxy, our solar system and our planet. On Earth, we see the evidence in the rocks and in other physical features of how there was an ordered, albeit turbulent, development resulting in the world as we know it now. These developments did not occur randomly but as a result of some preceding event or events and as logical steps.

The implication is that everything has occurred according to rules of natural laws in logical order. In other words, there was a **natural consequence** to the formation, not just of the Earth but of the entire Universe as we presently have it.

If that is what has happened from the time of the Big Bang, the birth of our Universe, perhaps that circumstance also applied beforehand—that any development or motion in existence, not just in our Universe, has occurred only in an order of natural consequence.

This, I know, raises the question of what is “nature” and “natural”. It seems reasonable to suggest that this harks back again to the steady-state existence of noumena as described in Section 4.

### **Certainty from possibility**

From the observations made in this monograph about scale, infinities and the inconsequential nature of time, it follows that if there is a possibility of something occurring, a movement or change, then such a possibility becomes a certainty. If there is any sort of chance as against impossibility, then it *will* occur. Time should not enter into consideration, except that the relevant event may take eons of years (or other measurement of time) before occurring, or take place in an instant—it matters not how long. All that may be expected is that any such event would take place as a natural consequence (this creating the possibility/certainty) and only as a natural consequence of the circumstances as then existed.

As discussed in the next Section, the concept of natural consequence encompasses not just inanimate development but life also.

### **Of what value are my conjectures?**

As could be the case with all of my conjectures, the reasoning in arriving at this conclusion may be suspect (and I wish I could apply the principle to betting on a horse in the 2.30 at Ascot), but what I like about this line of thinking is it is an application of reasoning to arrive at a result, rather than unquestioningly accepting a particular notional belief (faith) espoused by any of most religions.

Indeed, “belief” is a concept which I suggest might be carefully examined. It should mean the assumption of something as fact despite not having all the evidence to know it as certainty. The

degree of probability one assesses may vary case by case but if the probability is low, let's say mathematically at 10% for example, it would be most unwise to rely on such a probability to assume certainty. Going further, if there are few, if any, indications of probability of something, then it would be senseless to "believe" it as a certainty. The sensible alternative is just to reach a conclusion that the answer is unknown.

Yet that is not a reasoning which is expected of adherents to most of the leading religions. Their lot is but to accept doctrine, in some cases force-fed, without question—"belief" is a pre-requisite, not a conclusion at which to arrive after careful consideration of the credibility.

To me, the fall-back position of "belief" can be dangerous when it becomes an obligation as ordered by certain religions or religious leaders. "Belief" and its sister "faith" are two words which seem to be habitually ill-applied and their meaning devalued thereby.

**Section 8. LIFE**

Most think that life is something very special and so special, it could not have evolved naturally from inanimate matter. That may be so but I am yet to be shown any evidence convincing me. Also, many people, if not most, are of the belief that the intangible “soul” of humans sets us apart not just from inanimate objects but others in the sphere of life. Such belief appears to have little evidence to support it, and to me is irrational.

More likely, for me, from the evidence we have of the Earth from Big Bang times, the advent of life was simply a small, albeit important, step in the Earth’s natural development: a step in the succession of natural consequence.

Rather than the advent of life being a unique, some say divine, occurrence, its derivation may be explicated (or hypothesized) as the serendipitous conjunction of chemicals in the primordial swamp whereby the elemental constituents combined, possibly with catalysts, to provide new objects in a repetitious series of events. These events might provide a means of self-perpetual reproduction of those objects. Reproduction, providing a preservation of the species, is what I regard as the essential characteristic of life. Pure supposition on my part, of course, but it seems as likely as, no, more likely than, any other solution.

The advent of life on the planet seems a logical development from natural consequence and not something which came out of the blue or with the help of some intelligent and powerful third party, which is usually the characteristics given by various peoples to that unexplained presence, “God”.

**Religion provides no credible explanation of life**

There is no need to argue the case of the adherents to “evolution” against the school supporting “intelligent design”—Professor Richard Dawkins has already done this expertly and for me convincingly.<sup>5</sup> Why, when a rational, albeit more prosaic solution of natural consequence, presents itself, should it be necessary to dream up a divine being to explain our state of existence? This “*God of the gaps*”, as it is often referred to, has been found fallacious innumerable times as our scientific knowledge has progressed.

I prefer the natural to the super-natural.

I am tempted to launch into a diatribe renouncing all religions which depend on a super-natural “God” or “gods” to explain the formation of life on Earth.<sup>6</sup> Perhaps I have already done so in this paper’s Introduction and elsewhere, but why gratuitously attack others’ comfort zone? If they are happy in their personal beliefs, it seems just ornery to try to create doubt and confusion. And of course, who am I to question other persons’ understanding?

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<sup>5</sup> But Professor Dawkins seems to rail against religions and their followers to a degree which even I find more than necessary!

<sup>6</sup> There are a number of labels applied to adherents to different beliefs: “*theists*”, “*ditheists*”, “*polytheists*”, “*atheists*” and more. I suppose my own tendency is towards agnosticism but that sounds too negative and defeatist since I wish to propound something positive and not just to deny or to be satisfied with a state of ignorance. I do not wish to be closely associated with any such movements or philosophies, and labels such as these can be unhelpful.

But I draw attention to how limited in outlook, theists seem to be. The major religions concentrate on the way “God” is the father of humankind, or allow that this paternal responsibility possibly extends to other living things (albeit presumably only on Earth), but little if any concern is shown for the rest of nature. If “God” was the creator of life, this same being (or another!) must have created the Universe and everything else in existence. “God” must have created himself! That’s a nice trick.

A further point: Many apparently look, but in vain surely, for the “Meaning of Life”. Would it not be more realistic to assume that no meaning arises? Why do we seek a meaning to govern how we behave during our life-span? One may say that it provides us, humans only, with the sense of morality, a characteristic unknown in non-human life, but that’s a little hard on our cousins in the animal world! I regard myself (even if others may demur) as having moral standards and I try to keep to them despite having no sense of religious duty or of trying to comport myself with the discipline of some life meaning.

## Section 9. CONCLUSIONS

My naive musings expressed above have hardly brought me to a complete understanding of existence. However, I believe it has confirmed previous notions, in particular why I am so disparaging about religious beliefs, and more particularly those upon which the larger religious institutions are based. A scientific approach to understanding has not and may not ever provide us with a complete explanation of existence, but it keeps furthering our knowledge and continually makes redundant the ways where the “God of the gaps” has been used as a way of covering our ignorance.

So I have a number of conclusions, some of which may lead me in the right direction, but the main determination is that, although not anywhere near to an understanding, I am at least following a path of enquiry which relies upon observation and reasoning, rather than on uncritical acceptance of *belief* of matters pressed upon me by others.

1. Nothing is an impossibility, therefore we must start from the premise that there is something.
2. Dimensional elements of physical existence are similar to spatial dimensions but, with space itself, are greater in number.
3. Time is not a dimension but evidence of the presence of relative motion (= change) or kinetic energy.
4. A steady state of existence is a background to developments such as the Big Bang.
5. Existence comprises both tangible and intangible (noumenal) components.
6. The formation and existence of our Universe does not preclude there being other forms of existence. Our physical Universe is but a subset of existence overall.
7.  $e \approx m$ . Perhaps, but I’m no Einstein.
8. An essential requirement to the start of our Universe is a **relative difference** in the force within existing substance (mass or mass-less), so that an action may occur. This, supposedly, is the “God” factor because it is this which must kick-start a process. Nevertheless, although this could have started our Universe, it does not explain existence itself.
9. Existence developed according to natural laws, or **noumena**, as I call them—it’s a matter of **natural consequence** which also encompasses evolution of life or natural selection.
10. Such questions of how and why absolute nothing does not prevail and existence (of space, noumena and substance, including my conjectured **super-latency**) does prevail, may forever remain a conundrum.<sup>7</sup>

The search for enlightenment continues!

QED, or not.

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<sup>7</sup> This is as seemingly unanswerable as the old chestnut question to be asked of theists, of where did “God” come from, how and why!