

The Special Theory of Reality

An heuristic paper on the true meaning and nature
of time, energy, mass, space and space-time
(with consequential solutions)

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Abstract

My paper is based on extracts from my book (ebook and paperback – see www.einsteins-revolution.com) of the same title with further clarifications that will appear in my second book to be published soon. They are thus of an informal nature, but written primarily for the scientific community. My theory stems from a logical analysis of the true meaning and nature of the concepts of time, energy, space and mass. This is approached in a quite similar way to Einstein, with thought experiments, but I conclude that Einstein was wrong in his assumption that mass increases with speed, and that for radiation, the reverse is true; and that the constancy of c and time dilation have simple explanations without paradox when time is understood correctly as no more than relative spin. I also conclude that relativity is universally misinterpreted now because energy has to be relative and thus a property of matter as opposed to a separate entity, and because dimensions do not change. It is rather that considering them to change is a useful way of describing curved or relative motion. They thus describe the rotation of the universe and the galaxy, which are components of all orbits and either in part or in whole, are responsible for the illusion of expansion. But at the smallest level, such curvature of motion in neutrinos, which gives helicity, together with the understanding of a basic component of mass dependent on spin, give a clear and simple view of mass/energy equivalence, quantum general relativity, and the current notion of curled up extra dimensions. This leads to an explanation for the very nature of quantum mechanics and aspects of string theory in a way that offers clear visualization of the structure and behavior of particles, forces and radiation, all based on rings and spirals of neutrinos (or possibly even smaller particles). For string theorists this means the unthinkable: strings are made of particles! For gravity, the emission of gravitons in the form of spirals of neutrinos, quite similar to the emission of photons, provides a mechanism to confirm and explain Newton's inverse square law. This means that singularities are impossible and that black holes are self-regulating and quite probably the source of BMR. Explanations for star, galaxy and solar system formation are suggested. One very important aspect of my findings and related research is that antigravity has to be possible, which has huge implications for climate change and the energy crisis. This work is supported by experimental and observational evidence related to twisted light, the gravitational effects of eclipses, WMAP, SOHO, the relativistic heavy ion collider at Brookhaven, the Hutchison effect, records of human levitation and by computer simulation.

Introduction

Peter Marquardt, in setting out the “Minimum Consensus” of the *Natural Philosophy Alliance*, starts off as follows:

“Scientific modelling should and must be consistent and free of internal contradictions. This begins with the very first step: Analyse the vocabulary used in order to define the problem in question. Many a discussion is bound to remain fruitless if there is no consensus even about the basic terminology.”

This is the precise basis of my theory as set out in my book of the same title (Ebook and paperback published in 2004 and 2005 respectively), and the prime reason why physics has gravitated into confusion. Indeed David Gross, at the last Solvay conference admitted:

“We are in a period of utter confusion” and “We are missing something fundamental”

The reason is simple. The use of the words “time” “energy” “space” and “space-time” has been so careless that nobody can be sure what is precisely meant. And many who use these terms appear to have no really clear idea of the precise meaning that they are intending to convey. This does not just apply to careless students or science writers. Consider for instance what even the great Richard Feynman had to say about energy:

In Volume 1 of his *Lectures on Physics*(1963) Richard Feynman states:

“It is important to realize that in physics today, we have no knowledge of what energy *is*”.

This seems to imply that it has some sort of independent existence, which is going to be very hard to understand. Yet he then goes on to say that it is an “abstract thing”. A “thing” cannot be abstract if it is conceived to have some sort of existence. If something is abstract it is just an idea. This leads me to think that the consideration of energy has not been completely logical. If it is abstract we can say with confidence that it is just a useful idea. What, however, is an abstract thing which we do not understand? If it is some thing, which remains to be understood, it is not abstract. This confusion seems to have remained unrealised, even in great minds such as Stephen Hawking’s and many others I suspect. How else can they talk of “strings of energy” and “pure energy” and yet not define what they mean by “energy”.

The fundamental thing that has been missed is the principle of impotence, which can leave no doubt that energy has to be *relative*. This means that it has to apply to something real in motion

By carefully analysing the most fundamental terms used in physics and applying them logically to the apparent contradictions and paradoxes of relativity and quantum mechanics, I appear to have answers of amazing simplicity to this long-standing dilemma, which demystify both and explain the very nature of the latter. These answers are easy to visualise and extend from the structure of particles, through exclusion principle and apparently mysterious quantum phenomena, including the apparent constancy of *c*, duality and double slit experiments, and gravitational anomalies, up to alternative explanations for the solar system, galaxies, black holes, background radiation, and explanations for apparent expansion.

Although my book suggests explanations for various paranormal phenomena and that God may be the source of some of my answers, I do not consider that this is an appropriate forum for discussion on these matters, except insofar as the supposedly paranormal phenomenon of human levitation is concerned, because this is linked to the true nature of gravity and the possibility of anti-gravity.

Part 1

Selected and updated extracts from my book

Chapter 1

Time, Energy, Mass, Gravity and Light Explained?

For most people I suspect that time is considered to be something which “flows” relentlessly and continuously; which you might be able to slow down if only you could move fast enough; but which you have to live with, and through, and the very existence of which, surely nobody can ever challenge. To me it is “the relativity of events” and with no events there can be no such thing as “time”.

I also suspect that most people think of energy as a slightly mysterious entity that is vital to our very existence and without which we can do nothing; something which can be extracted from, or converted

from, matter. I consider it to be no more than a useful concept, which helps in the formulation of laws and in calculation, and which can even be shown to be relative. This, together with the explanation I suggest for the constancy of the speed of light, would mean that relative speeds in excess of the speed of light, and relative “energy” vastly in excess of anything conceived before, may be theoretically possible.

Time is that concept which helps us consider and record the relativity of events. The way we do it is arbitrary. We choose a recurring “event” which we think we can rely on being always regular, e.g. the orbit of the Earth around the Sun. We then compare the frequency of that event with all other events. But we can only consider this to be relative until we are absolutely sure that the “time” taken by the orbit does not change. Given that this may depend on the rate of spin of the galaxy, and the motion of the galaxy through space, it would be a reckless man who claims to be confident that we can measure time absolutely.

What we need to be very sure about is precisely what we mean by “time”. Einstein clearly considered it to be relative and variable and it was not his “fourth dimension”. Einstein said that the expression “four-dimensional space-time continuum” was a very “common place statement”. His next words were “space is a three-dimensional continuum”. He said that, according to General Relativity, the geometric properties of space are determined by matter (a statement which needs very careful consideration).

The motion of matter in space and the indisputable relativity of all motion, means that all locations must be considered in terms of four linear dimensions, the fourth of which is the relative displacement within different reference systems. Curved space-time is an inevitable consequence of the nature of our universe, but as I am sure Einstein would confirm if he were here, space-time cannot exist or have any meaning without matter. It is very important to distinguish between the concept of completely empty space, which as Einstein said would be three dimensional, and space plus matter, which requires a four-dimensional approach for clear and accurate representation.

So the meaning of “time” needs very careful consideration. Einstein said “It appears to me, therefore, that the formation of the concept of the material object must precede our concepts of time and space”. I think, therefore, that the best way is to consider a universe in which all motion, of every possible kind, has ceased. The temperature would be absolute zero. Without electrons spinning or orbiting nuclei, there can be no elements, without elements there can be no material and no life; not even the simplest event, such as the collision of two particles can occur. Comparison of events cannot happen so “time” has no meaning.

So the concept of time can only exist when there is motion. And all motion has to be relative. If there are only two particles in the universe, and one passes the other, which is moving? Try as you may, with no other reference point, motion can only be seen as relative. This is known as the principle of impotence, and in this case Viagra, or anything else, can do nothing about it. Energy, therefore, can only be considered in the same way, and it cannot exist without motion. I suspect a few raised eyebrows at this point. What about chemical energy?! Well, can chemical energy exist without electrons spinning and orbiting? I hope that every expert on the various forms of energy will consider very carefully if it could exist without some form of motion.

If a particle is moving in otherwise completely empty space how can the concept of speed have any meaning? Speed is only the comparison of a change in position with the regularity of an event. We clearly need to have more particles before we can begin to think about speed. So what is the minimum number required? If we had one more, which happened to be spinning, we could define one revolution as one unit of time if only we could be sure that the rate of spin were not changing. But then there would be no standard by which to judge distance, apart from the particles themselves, which may change in size, perhaps as they spin or move. What then if there were two particles spinning at different rates, at positions which we hope we can assume remain fixed relative to each other. If we compare the two rates of spin for long enough we might be tempted to assume that they must be regular and that one or other could be chosen as standard time.

We would, however, then be guilty of ignoring the possibility that the rate of spin of both might be

changing at the same rate. The two spinning particles might also both be moving through space at the same, and possibly accelerating indeterminate speed. We then see that it does not matter how many particles there are. We will always have the problem that time can only be a comparison of rates with no certainty of constancy; and speed is likewise just a comparison with whatever we gamble on to be fixed and regular. Time can thus only be one rate as compared with another; and that is why I define it as the relativity of events.

If rates of spin and speed can only be compared, the same must apply to energy. So to think of time and energy as though they have some sort of independent existence is clearly wrong. They were the “Calx” and “Phlogiston” of the 20th century. For those who do not know, before Priestly discovered oxygen it was thought that combustion was the giving off of “Phlogiston” leaving “Calx”. It is tempting now to laugh at this idea, but it must have seemed logical. Consider a dry, heavy log; when burned the pile of ashes clearly weighs less. When Priestly said that combustion was combination with oxygen to give a net increase in weight, supporters of Phlogiston theory probably scoffed. The greatest danger in science is assuming that something has to be right. Should we assume that the Universe has to be expanding, or that the speed of light cannot be exceeded? Consider the ideas that follow and judge for yourselves.

When we see just how subjective the concepts of time and speed are, the idea of one particular universal limiting speed immediately seems incongruous. To me it is clearly illogical. There has to be another explanation for the speed of light seeming to be the same to all observers. It makes absolutely no sense to me that if all speed has to be considered as arbitrarily relative, any particular speed should be special in an absolute sense.

There will be scientists at this point thinking that Einstein’s ideas in this respect have been proved to be right. With all due respect I say that nothing can be “proved”. We can only observe that something appears to be the case, accepting that we could be deceived. Does demonstrating that light has mass because it is bent by a gravitational field mean that mass has to increase with speed? What if the mass started as greater at the instant the photon was ejected and decreased to the value it has when it has stopped accelerating. Would not the phenomenal acceleration involved be then more easily explained? Mass and speed increasing simultaneously surely contravenes the law of conservation of mass and energy. Could there be a way of considering the whole question of mass and energy that makes more sense?

Supposing we start with a Universe consisting of fundamental particles (the smallest and most basic that can exist) which have no spin but only straight line motion of various speeds (individually indeterminate of course because there is no spin to give any concept of time) in any and all directions. There are a finite number of identical particles so they must have a finite kinetic energy. Eventually there must be collisions, many of which will be oblique and thus imparting spin (assuming that the particles are not perfectly hard and smooth). In the vacuum of space no sound would be generated and the particles have no heat to gain or lose. Those particles now spinning have energy of spin in addition to their translational KE.

If Newton’s Laws of motion are to hold, those particles not involved in any collisions must continue to move with the same velocity, so conservation of energy demands that the particles now spinning must move more slowly and the faster they spin the slower they must move. It thus appears that mass, in terms of a tendency to stay put, and spin are equivalent, and that the convertibility of mass and translational kinetic energy is then just a natural consequence of conservation laws.

If the only way of judging time is by rate of spin, then it follows that time so defined must run more slowly as speed increases. So it would seem that Einstein was right on this point. I have, however, to warn the reader of just how easy it is to be misled by this, and why many, including Einstein himself, may have been misled. “Time” does not exist! We cannot make “it” run faster or slower. Time cannot have a shape, it cannot be warped, and it cannot be travelled through. All we have is a sequence of events and the way we judge the relativity of these events depends entirely on what we chose to compare them with. If we define time as the rate of spin of a particle, we have to be prepared to accept that the constancy of this standard will change with speed. It is not that the rate of flow of some mysterious entity is affected

by speed, but rather that we can be misled about the relativity of events if we do not choose the means to compare them wisely.

It appears possible, therefore, that Einstein may have been right in some respects but wrong in others. Let us continue on the basis that Special Relativity is essentially correct, but that we must consider whether we can identify any logical source of error or confusion. It seems to me that rotation is essential to the concept of time as it would apply to a universe of only fundamental particles. These cannot combine to form elements so we could not, for instance, make a candle or water clock, let alone anything more complicated. These would need an atmosphere or gravity to work. We have nothing but rotation to judge time by. If these fundamental particles were perfect and identically smooth and featureless spheres, it would be impossible to judge rotation; but we are considering an imaginary situation so it seems reasonable to imagine the rotation.

So what does Special Relativity tell us about rotation? This is explained by Einstein in the General theory, Chapter XX111. If Special Relativity is right, the value of π for a rotating body is increased (This may be very hard to come to terms with and I appreciate the problems the reader may have in accepting it. I shall, however, try to make sense of it later, but for now let us see where it leads). This means that a point on the edge of a rotating body must travel further in each revolution as rate of spin increases. Consider now Figure 1.

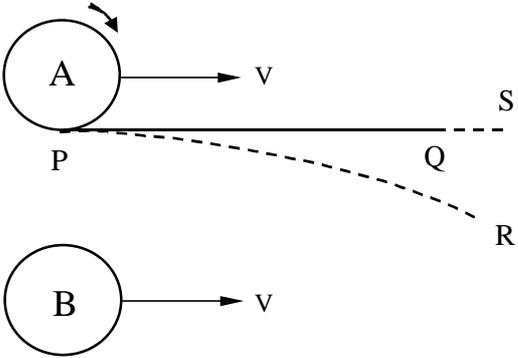


Figure 1

Effect of spin and motion on massless discs

A & B are imaginary flat discs with no mass moving at the same uniform velocity on parallel courses in free empty space. A is now imagined to be spinning, and purely as a starting point to simplify visualisation of the analysis, the speed of motion and rate of spin are assumed to be such that A is rolling along an imaginary line PQ.

Line PQ is equal to πD so in one revolution of the spinning particle A must cover the greater distance represented by PS or PR i.e. in both cases an acceleration. Newton would deduce either that there is a force acting on A but not B and that, if this force is gravity, A must have mass and B not; or that A and B both have mass and are attracted together by their own gravity (in the initial consideration of the curved path). We know, however, that the apparent mass can be attributed to A only and is entirely due to its spin. So once again it appears that mass and spin are equivalent.

Further examination of the above situation, however, as it would pertain to real particles with mass, leads to a further conclusion. We have already demonstrated that conservation of energy requires A to have less translational KE when it spins, so the acceleration represented by PS is ruled out. The only solution, therefore, is a particular curved path PR such that the sum of rotational and translational KE remains the same, i.e. the curved path PR is shorter than PS but a point on the edge of the particle now follows a

relatively longer hypercycloid, as compared to the cycloidal path it follows with the straight line motion of A. We can then see that high velocity and low spin will give slight curvature, but as spin increases and velocity decreases, the particle must move in ever tightening orbits. (For those readers unsure of this argument it is analysed in more detail in Part Two, and Appendix 5 of my book). As spin increases there must come a point where no orbit is possible and the particle will only oscillate or vibrate.

So it appears that we have demonstrated that when Einstein thought that heat has mass he appears to have been right. It would also seem, however, that in concluding that vibration was motion and so all motion means increased mass, he was mistaken. He was probably prompted to this view as what appeared to be the only explanation for the speed of light problem. Logic would thus seem to demand that there must be some other explanation for this very strange phenomenon.

How is it that light always seems to go at the same speed? Is there any clue how this might be explained in a way that does not defy logic and the laws of physics? It occurred to me that the significance of rotation to ideas of time might provide a clue. Light is a matter of frequency and so is rotation. Could it be that the various frequencies of light (and all EMR) are dependent upon rotation, which we have shown must vary with speed? This implies perhaps that photons rotate, which I understand is believed to be the case. There are, however, three points to consider. The first is that the frequencies involved are very high; could photons spin that fast? The second is how would the eye detect such rotation? And the third point is that the wave-like properties have to be explained including the way that photons seem to split and re-combine, i.e. as in double slit experiments (unless you are happy to accept that an indivisible particle can be in two places at the same time, which I am not).

The most likely answer to these points seemed to be that photons way well be comprised of a large number of smaller particles. If these were spinning fast enough they would tend to return to the group because of the tight orbit implied above, and if spin were in the same direction they would bounce off each other.

This idea was given greater credibility when I happened to see a Discovery Science programme about special effects. The particular item dealt with the computer simulation of a flock of birds. My attention was aroused when each representation of a bird was given just two components: a tendency to return to the flock, but to keep within a minimum distance of other "birds". Interest turned to excitement as the simulated "flock", when faced with an obstacle, split into two groups and then re-combined to form one "flock" after the obstacle. So if tiny spinning particles behaved in the way I had hypothesised, the ability of photons and other particles to split and re-combine could be explained.

In order to give a particular frequency, however, the photons would need to be spinning at a rate that would result in the tiny particles forming into rings so that frequency would register as a count of particles in unit time. The question then was in what plane would the photons be spinning? I considered each in turn, but as soon as I considered a ring moving face on, answers of amazing consequence hit me.

The particles in the ring would then describe a helix with forward motion. A helix would have the properties of a wave; at right angles to the direction of travel would be a frequency of particles to give electro-magnetic frequency; and, if the particles were small enough to penetrate deeply (like neutrinos) the helix would give a "screw-in" effect, which could explain gravity.

This was looking like an amazing bonus. Had I just stumbled onto an explanation that had been so much of a mystery for so long, that had defeated Einstein and everyone since? It seemed improbable but the more I thought about this way to explain gravity it seemed obvious. What else could pull in the opposite direction to motion but a screw?

If the idea was right in principle, however, there was still much to explain. If I was right, the idea would have to "fit" in many other ways and provide a much more complete explanation for the nature of light and gravity, not least of which was not loosing site of the need to provide an alternative explanation for the constancy of the speed of light. The latter required my ideas of the precise nature of light to be further developed. It appeared that each helix could probably only give one frequency. Would the answer be

something like DNA with intertwined helixes giving the whole range of frequencies? I was still pondering this idea when the mystery of spin $\frac{1}{2}$ took over my thinking.

If you have read Stephen Hawking's amazing books you should be familiar with the way he uses playing cards to illustrate the general idea. "Spin" in this context is not just a rate of rotation; it is a means of classifying the way total angular momentum is manifest in different ways the strange result of which is that the particle does not appear the same if it is turned through 360 degrees, but it does if you turn it through another complete revolution. The only thing I could think of which changed on turning was a gyroscope, because of precession. If rings of particles were likely answers to gravity and light, it seemed probable that quarks and electrons, which are spin $\frac{1}{2}$ particles responsible for radiation, are comprised of rings within rings, essentially at right angles, to behave very much like gyroscopes.

This idea immediately suggested an explanation for radiation. If the internal rings had very high rates of rotation, which were then contained by the lower energy outer rings, disturbance could release the inner rings which would then have some of the rotational energy transformed into motion. Some mass would seem to be lost and energy created. More accurately, rotational energy, which manifests as mass/energy would become lower mass and higher KE, in accordance with the laws of conservation. Light would, therefore, have mass and would be bent by gravitational fields, but the mass would be decreasing with speed.

The idea of rings within rings then seemed more likely to explain more about the nature of light than the intertwined helixes. An outer ring moving face on was clearly an essential component and then inner transverse rings at right angles would explain polarisation, would present to the eye in a way which made perception of frequency digitally, more straight forward, and would fit well with de Broglie's idea of an accompanying wave, related to some internal cyclical process in the photon; an idea which particularly impressed Einstein.

Obviously, gravity does not only work in the presence of light, so the outer rings of radiation (inner rings of particles) are being exchanged all the time. This would probably be between bound quarks, where incoming helixes would have a "foothold". This two-way process of exchange would be necessary to maintain numbers of particles and to maintain rotational energy. Incoming helixes would act as worm gears, exchanging energy until replacing lost rings.

The probable way that quarks combine together to form neutrons and protons was then starting to become apparent. This is best shown diagrammatically as in Figure 2. I must emphasise that my drawing skills on the computer are limited and the purpose of the diagram is only to convey the basic idea, which almost certainly will need refinement. What I am trying to portray will become clearer if you take three one pound coins and stand two up at right angles, edge to edge, to represent the two down quarks, and then place a third laying flat in front, so that all three coins are nearly touching, and then imagine that the coins represent just the outer rings of gyroscope-like arrangements. It may, in fact, be that the right angles will turn out to be smaller angles to facilitate a better packing of hadrons in the nucleus, but the arrangement shown helps to visualise the way that the transformation of neutron to proton can occur.

I have made several assumptions which others with greater knowledge of particle physics (and perhaps gyroscopes) may be able to correct. I have not shown any rings of tiny particles meshing with others. Bearing in mind that I think all the tiny particles, except maybe in the gluons, would all be spinning in the same direction (particle spin – not orbit) , and thus bounce off if they touch, I do suspect that such meshing may well be possible. This may be necessary to fulfil the spin $\frac{1}{2}$ requirement that the particle (quark or electron) will look the same if only turned around twice.

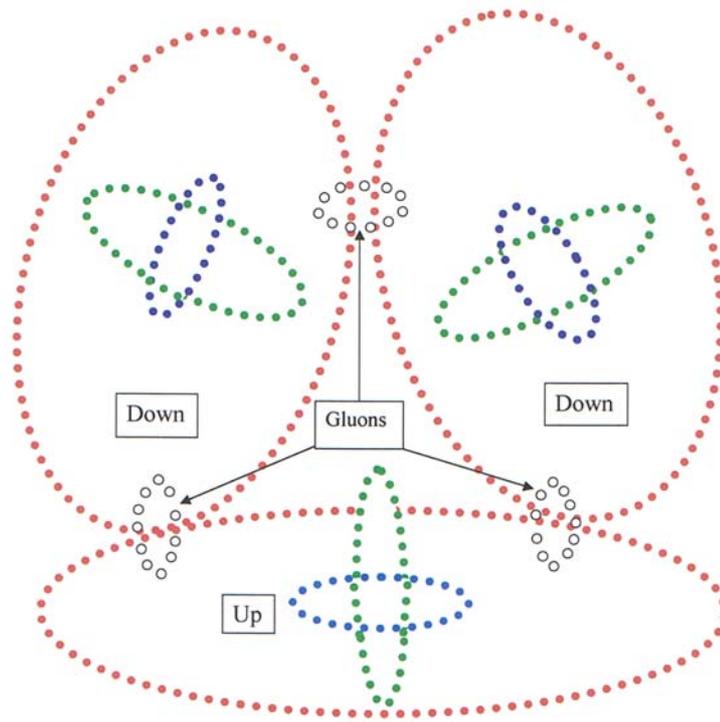


Figure 2

Diagrammatic representation of a neutron

The number of rings and particles and size of orbits is only indicative of the general idea. The idea of gluons also being rings of particles provides two answers. It explains why the force holding quarks together increases with separation (the opposite of most forces). It also suggests how new particles (electron and anti-neutrino) are liberated when a neutron becomes a proton, which also suggests that gluons and electrons are comprised of anti-neutrinos.

If the ring holding the two down quarks is broken, allowing one of the down quarks to move round to a position opposite the other down quark, and the whole arrangement turns through 90 degrees, so that there are now two up quarks spinning on the same vertical axis, each still linked to one down quark (formerly the up quark), the net result is a proton, with net spin on one axis, and the particles from the gluon.

Clearly the gluons would have to contain many more tiny particles than shown because an electron, being spin $\frac{1}{2}$, would need a minimum of three rings. I would guess that these would have opposite spin (rotation) to the particles forming the rings of quarks in neutrons and protons. I must point out that quarks do not need to have up or down orientation relative to anything, e.g. the Earth, but only in the way they combine. I have only used "up" or "down", which I think is considered to relate to spin direction, as with electrons, in the way I have to ease visualisation.

Positive and negative charge and magnetism can then be explained by helixes emitted with appropriate direction of rotation. Those spinning in opposite directions can intertwine and pull whereas those spinning in the same direction would push apart, like springs compressing and recoiling back. The interaction of helixes with helixes or with rings bound together would then seem to provide an explanation for all force at a distance. So, if all this speculation turns out to be right, Einstein is vindicated in his view that a unified field theory based on particles was possible.

Much of this speculation fits well with some aspects of established particle physics but possibly

contradicts others. For instance the exchanged and intertwined helixes, which I suspect give rise to forces between particles, depending on relative rotation, are clearly bosons. If, however, as I suspect, the tiny particles which make up the helixes are neutrinos, there is a problem because apparently, neutrinos are thought to also be spin $\frac{1}{2}$. But as far as I can gather, it would seem that spin $\frac{1}{2}$ particles are thought to be elementary, indivisible point particles. To me this just does not make sense. Surely some internal process has to be involved to explain spin $\frac{1}{2}$ and especially radiation. Unfortunately so much of particle physics now depends upon complex, statistical maths that ideas which can be visualised play an ever lessening role. What worries me is the expression "lies, damned lies and statistics". Clever use of math's, especially incorporating imaginary numbers, can demonstrate many ideas, which may or may not reflect reality. . The simple fact is that ideas in this field are frequently shown to be wrong, especially on the question of the indivisibility of particles. What is apparently known is that neutrinos can penetrate matter to very great distances, and are thus very small. They also come in three types, which may be interchangeable, some with more mass than others. Could this be just a question of rate of spin?

It may be, of course, that I am wrong in my guess that the tiny particles, which I suggest make up light, other EMR, and gravity, are neutrinos. Could they be particles as yet undiscovered and unnamed, perhaps even smaller than neutrinos? Whatever the case, the idea of rings of particles seems to offer many possible explanations. The most crucial, however, is still to be addressed. Can it provide an explanation for the seemingly illogical way that light always seems to go at the same speed, irrespective of the speed of the source or the observer?

If, as I believe I have shown logically from basic considerations of conservation of energy, rate of rotation must change with speed, then frequency, if dependent on rotation as I suggest, must change with speed. This is not to be confused with the Doppler effect because there is no real wave and thus no actual wavelength to alter. It is thus apparent that for light to appear as such, as opposed to say infra-red or ultra-violet, it has to be going at the speed which will give appropriate frequencies. This means that photons would obey the rule of additional velocities, but different photons would then manifest as that part of light, to the extent that any change in velocity would be cancelled out.

In my book, Figures 3 and 4 are devoted to speculation on how reducing frequency is manifest, but for this paper I include only Figure 4a, which shows in diagrammatic form my eventual conclusions for the construction and motions (internal and external) of the photon, based on my earlier conclusion that rate of spin reduces with speed.

If you imagine a completely empty universe, except for one single photon, if time goes more slowly with speed, and the only way of conceiving of time is by the rotation of the photon, then we are forced to conclude that rotation must decrease as translation increases. And this is also a requirement of conservation of energy.

The fact that speed is indeterminate in such a situation does not prevent us imagining varying translation and if we were introduced into this scenario as observers the scale of our body would give meaning to the concept of speed.

The highly diagrammatic nature of these drawings is again emphasised. The helical path in particular is as shown merely to convey the impression of a helix. It would, represented accurately, appear as a sine wave when viewed at right angles from the side. As I have drawn it the helix is as viewed at an angle.

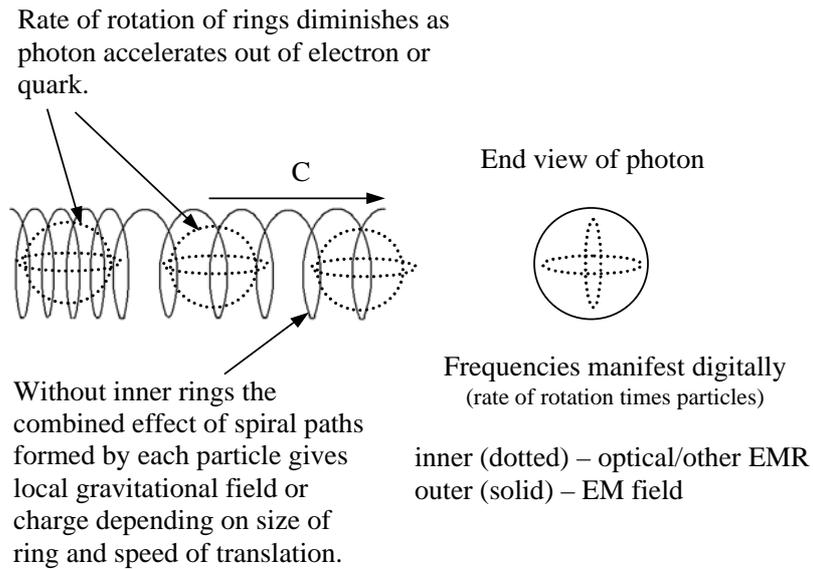


Figure 4a

Revised considered aspects of EMR and gravity

The diameter of the spiral would be very small; less than the diameter of an electron. For gravitational “waves” the inner transverse rings would be omitted, though I am not sure to what extent the destroyed momentum of these inner rings would actually counteract the pulling power of the helix; so maybe some EMR have some gravitational effect. I assume that gravitons must emanate from quarks, which must surely be larger than electrons. It may be, therefore, that the diameter of gravitational helices is greater than for EMR. The gyroscope-like arrangement also provides a possible physical explanation for exclusion principle and the wave-like behaviour of electrons. See Figure 5.

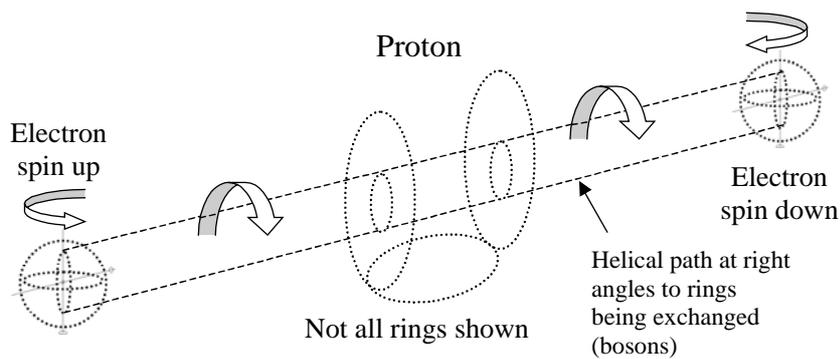


Figure 5

Explanation of exclusion principle

The direction of rotation of the helix is clockwise to the left electron and anti-clockwise to the right. So the result, assuming consistency in the relationship of spins inside the electron, would be the pairing of electrons with opposite spins along the axis of rotation of rings being exchanged. This illustration shows the basic principle in a diagrammatic way. One proton would have only one electron, as in hydrogen, but

assuming the same direction of rotation within protons and orientation determined by linking with neutrons, the pairing of electrons with opposite spins can be visualised.

It seems very likely that the emission of helices is not continuous but in bursts, as transverse rings tilt and lose containment. The effect of this would add to the long theorised, wave-like motion of the electrons, which is also a consequence of the helix generated by motion as with the photon.

In conclusion, therefore, the simple idea of particles forming into rings seems to provide potential answers to many things which have been very difficult to theorise in other ways, and certainly hard to visualise. This may, of course, be just speculation, but the more questions that are answered, the more likely a hypothesis is to be correct. This is a matter of probability and it has to be said that the chances of me imagining a completely false scenario which appears to fit in so many ways, seems just as unlikely as coming up with something which may be essentially correct.

It also seems possible that my rings and helices are the loops and strings of string theory. The crucial difference as far as I am concerned is that I have a very clear idea as to the precise nature of the energy involved (spin, orbit and translation of real particles). I have never been happy with the expression “strings of energy”. This implies that energy has some form of existence. This idea, which seems to assume that energy is some sort of magical substance, does appear more like alchemy than science to me. Scientists now seem to have adopted the science fiction concept of “pure energy”, which is a cop-out because it can be used as an apparently impressive way of seeming to explain anything, from healing to particle physics, without any real explanation at all. Perhaps most significantly, my tiny particles, spinning in the same direction, will feed off each other’s energy, giving each “string of particles” many frequencies of vibration, in a way which would be very hard to predict other than as probability, thus explaining the very nature of quantum mechanics.

Chapter 2

The Question of Dimensions

In the War “Send reinforcements, we’re going to advance”, passed down the line, became “Send three and fourpence, we’re going to a dance”. In the same way that “energy”, passed down the line of scientists, has distorted it from a concept into an entity, the idea of thinking in four dimensions has been passed down and distorted into what seems to be the idea that space is, in some mysterious way, something real with four, or even many more dimensions.

Confusion arises for various reasons. The worst culprit is probably the inadequacy of words and the casual, imprecise way they tend to be used. Consider the word “space”. We would now tend to automatically think of “the final frontier” after this word. We would then, of course, be thinking of a whole lot more than the concept of complete nothingness.

When Einstein talked of “The geometric properties of space” I cannot imagine that he was implying that absolutely nothing can be curved. “Space” in this context has to have the wider general meaning, which includes matter. In Chapter XV11, Einstein makes this clear in the short, unambiguous statement “Space is a three-dimensional continuum”. Immediately before this he said:

“..there is no more common-place statement than the world in which we live is a four-dimensional space-time continuum”.

Wherever there is motion it is essential to include the implications of the time “dimension” for two reasons. Consider moving house. I can say that I used to live at 10, Tower Grove, Weybridge. The address amounts to a three dimensional location, but since I have moved, I can only specify it as my

location on certain dates, so I am obviously describing my location in terms of four dimensions, the fourth of which is time. This is then the very common-place statement to which Einstein was referring.

But there is more to it than that. The Earth is moving, so while I was in bed at 10 Tower Grove, my position in space was constantly changing. So to my three linear dimensions relative to the Earth I have to add a fourth, linear dimension. As I have shown, time is dependent upon, and relative to motion and has no meaning without motion. Also the need for specification of position in four linear dimensions is only necessary when there is motion. The idea of time and motion, however, are inextricably entwined, hence Einstein's curved, four-dimensional space-time continuum. This four dimensional space-time continuum only becomes "curved" because of the motion of matter. General Relativity does not say that empty space can be curved. The following is an extract from the Encyclopaedia Britannica 1961:

"...the curvature of space-time is caused by the masses and their motion.Einstein's equations state essentially that the curvature of space-time at a given point in space-time is proportional to the amount of energy and momentum present."

(The underlining is mine.)

This has confused people because their concept of energy has been wrong

If we go back to my analysis of the way spin must affect the motion of particles, by giving curvature of motion dependant upon the relationship between spin (mass/energy) and translation, it is apparent that what I was describing was an elementary form of General Relativity; and if the particle considered is the smallest to which this can apply we have a definition of quantum general relativity. When the masses become more complex the interaction becomes more complex, involving, I think, the interchange of helices, but this still depends on the total mass/energy present. The latter was not understood by Einstein, who spent the rest of his life convinced that an explanation uniting all forces had to exist, but was unable to find it; probably I think because he was wrong in thinking that mass had to increase with speed.

What seems to have happened is that the expression "curved space-time" has been misinterpreted to mean that space-time can be thought of to have some sort of independent existence which is affected some way when mass is added. Einstein actually warned that this may not be the appropriate interpretation. This idea misses the whole point that time, motion and mass and energy are all inter-related. Space, in its meaning of complete nothingness is just the "stage" with the others as "players". The idea of a rubber sheet representing space-time, distorted by mass, has only served to compound this misconception. It was a useful way of conveying a complicated idea very simply; but, applied too literally, it conveys two aspects of the situation very badly. Firstly, a mass with no motion, if it could exist, would have no effect on space, time, or any combination of the two, if no other masses were involved, and if they were not moving no orbit would be possible. Secondly, it seems to have led some physicists to think that space-time has a "fabric". They now even talk of folding or tearing this fabric to permit time-travel. This is nonsense. Space is by definition, "nothing"; and, as I have shown, "time" does not exist. I have forgotten most of my math's but I do believe that $0 + 0 = 0$. What is in space, invisibly between planets, stars etc., may have a fabric, but this is material, which can occupy space but not change it. It is complete nonsense to talk about changing nothing. It may have saved a lot of confusion if Einstein had used the phrase "curved motion-time", which would have been more indicative of where the real interaction lay.

In recent TV quiz programmes the answer that time is Einstein's fourth dimension has been declared correct. Books I read at Brooklands in the early 60's insisted that time was not the fourth dimension of Relativity and I think that I have explained above why not. Even Stephen Hawking adds to this confusion. On page 35 of "The Universe in a Nutshell" he says "General relativity combines the time dimension with the three dimensions of space to form what is called spacetime".

I find it inconceivable that he actually conceives of General Relativity in terms which Einstein dismissed as a very common-place statement. It is more likely that it is just the casual use of words. But this is the way that false ideas are promulgated. He was, almost certainly, saving words for brevity and simplicity to introduce the idea of space-time without the long-winded and rather confusing description necessary to convey "four-dimensional space-time continuum" as a scientific notion.

This is always the danger with words; do we confuse with brevity or complexity? In his glossary Stephen Hawking improves on the description of space-time by saying it is “The four-dimensional space whose points are events”, but even this implies that space alone can have four dimensions. The problem is you cannot give a brief description without risk of confusion.

I have also found that scientists, including Stephen Hawking, talk about warping space and time; implying that either can be warped. They may not mean this, but some are bound to infer that this is the case. I am, however, concerned that when they talk of time having a shape, they are simply wrong. I have no hesitation in agreeing 100% with Einstein in stating that time travel is not possible.

The illogical concept of time travel is a result of not seeing what “time” really is. Life is “time travel”, that is a sequence of events. But an “event” is by definition “that which has happened” and “happened” means “done”, “over”, “completed”, “that’s it”, “forget it”, “spilt milk”, “finito”, “there is no way to change it”. Emotionally, we often want to change it so much that we hang on to the idea that past events exist in some way.

Time has no independent existence and so “it” cannot be travelled through. Events are not “beads” strung together on the “string” of time; they just happen and that’s it. “Time” is just a word we give to the way events relate one with another; it is no more than “the relativity of events”. Prediction of the future is a guess and nothing more. It may be a logical, well-reasoned guess, based on likelihood calculated from past experience, but a “guess” nevertheless. The future is, by definition, “that which has not happened”.

To some the concept of completely empty space seems to be a problem. In my book I use a humorous sketch to establish the simple extent of this concept. But in deference to the historical philosophical debate on this subject I went on to examine the concept in depth in Appendix 1. For reasonable brevity in this paper I have not included my appendices. The main point to remember is that it is illogical and inconsistent to contemplate the extent of empty space. It is only the limited experience of our own existence that leads some to ask this futile and meaningless question. A material body can only have “extent” in the context of its antithesis (the absence of material bodies). Space does not “exist”; this is a contradiction, but existence requires its antithesis.

The idea of space being created, as in the current Big Bang theory, is not only contrary to this logic, it has the insurmountable philosophic problem of what existed before space was created. If it was not nothing i.e. not empty space, then what was it? Something other than nothing has to be something. The desire to make space finite is more to do with the limitations and experience of our own minds than logic.

Some ideas seem to sit very uncomfortably in the human mind. For me one such idea is that the phenomenal amount of matter in the Universe, with a phenomenal level of energy, can have emanated from a singularity, set in something that is neither something nor nothing, with no indication of why it should be there in the first place. All this is assumed because nobody has considered that there might be an alternative explanation for red-shift. I shall propose two such possibilities later.

The question of dimensions seems to become even more confused in String Theory. There are several versions of this and, if I have understood what they are saying (mostly from TV programmes I confess) they require space (or space-time; this is not always made clear) to have many dimensions. If this is indeed what is being argued, it is ludicrous. It would seem to me that they are confusing degrees of freedom, which apply in three-dimensional space, with Einstein’s four dimensional continuum. There is a great temptation for scientists to want their ideas to appear more mysterious than they are, having seen the awe in which Einstein was held and the celebrity status he was given. This in itself, may have held science back, because few have been brave enough to challenge Relativity.

If it is, as I suspect, just degrees of freedom which they think will be required to achieve a unified field theory, my helix of spinning and orbiting particles, rotating and moving, with transverse rotating rings of similarly spinning and orbiting particles, may well fit the bill. This, of course, applies to EMR; I am assuming that the requirement for gravitational field alone would be less. The way that I describe tiny

particles like neutrinos orbiting, solely by reason of their spin, can either be considered as a variation of Newton's first law of motion or as a tiny, curled up, extra dimension. I prefer the former.

It also occurred to me that if the rate of spin of the particles making up my helixes were variable, the idea that the loops and strings of String Theory contain energies of many frequencies would be satisfied. This idea led me to possible explanations for some paranormal phenomena, but I shall leave this to my book, except insofar as levitation is concerned, which is dealt with later.

To conclude this chapter I shall summarise what may still be confusing to some; that is what, exactly, is "a four dimensional, curved space-time continuum"? The answer is, just like time and energy, it does not exist; it is just an expression used to convey the fact that the nature and motion of matter are such that time, energy, mass, speed and dimension are inextricably linked, and governed by laws which mean that curvature of motion is a natural consequence. This is determined by spin and translation from individual particles to complex arrangements that produce gravitational fields. It is entirely determined by, and is a description of, the motion of matter. So the idea of an entity called "space-time", which could have a physical influence on motion, is misleading. Time and space cannot be combined in any way because neither have any physical existence. They are part of an idea and no more.

Regarding Chapter 3

In the interests of brevity I have not included most of this Chapter, but the following is of considerable importance:

I think that Einstein's most famous equation has simply confused many people. An exception may be Richard A. Mould, the author of "Basic Relativity". On Page 117 he says:

"You can imagine that energy and mass are really the same thing, and that this thing simply manifests itself in different ways. In one form we recognise it as mass, and in another form we recognise it as energy. In one form it reflects the inertial properties of matter, and in the other form it is a measure of the work related activity of matter. You can think of $E = mc^2$ as representing a change of this things units as from feet to inches or, in this case, a change of dimension from kilograms to joules. Consequently, neither mass nor energy can be destroyed and the other created in its place. Total mass and total energy are equivalent, not interchangeable in that way."

(The underlining of "matter" is mine, because this is fundamental to my theory.)

It is also interesting to note his comment in the preceding paragraph that "it is reasonable to speculate that the rest mass of an object is also a measure of some kind of internal energy." This accords with my conclusion that mass is dependent upon spin. The longer quote also seems to tie in well with my ideas, but I would go a little further and explain "thing" as motion in either of its two basic forms: spin and translation.

I have also noted recently that in the recent theory known as "Loop Quantum Gravity" it is suggested that matter exists at "nodes of spin". I have enquired if the authors agree that this is another way of saying that mass is spin but as yet I have no reply.

What is clear to me is that the realisation that energy requires something to be in motion has led logically to an idea which is simple and elegant, but which inevitably leads to that which is extremely difficult to predict or represent mathematically. So, although Einstein was right in essence on his ideas on simplicity, reality, and a unified field theory, he was doomed to failure in expecting mathematics alone to supply the answer without the knowledge we have gained since.

Chapter 4

Is the Universe Rotating?

This was considered by Stephen Hawking in the seventies but ruled out because of background radiation. If, however, I am right about mass being dependent upon spin, and the way gravity works, it would mean that black holes would be self-regulating and of necessity emitting matter/energy in the form of gravitational “waves”, much of which would not be “sucked back in”. It may also mean that some light or other EMR is emitted, which both relativity and my theory suggest must be red-shifted, perhaps to microwaves. I present further argument and observational evidence in favour of this possibility.

A rotating Universe might then be an alternative explanation for apparent expansion, which would then be an illusion. Uniform rotation would satisfy Hubble’s law essentially, but there would obviously be anomalies near the axis of rotation. I have recently started enquiries as to whether there is any evidence of less than expected red-shift from any parts of the sky. It may well be that nobody has actually been looking for this effect, though I also suspect a strong reluctance to supply me with this information. Figure 6 illustrates the illusion of expansion, which a rotating Universe would create.

It must also be appreciated that the curvature of light shown has nothing to do with the bending effect of gravitational fields, except insofar as it might be considered as another aspect of General Relativity. The reality would be that the light actually follows essentially the straight line determined but its gyroscope-like construction but this would then appear as a curved path relative to everything that is rotating.

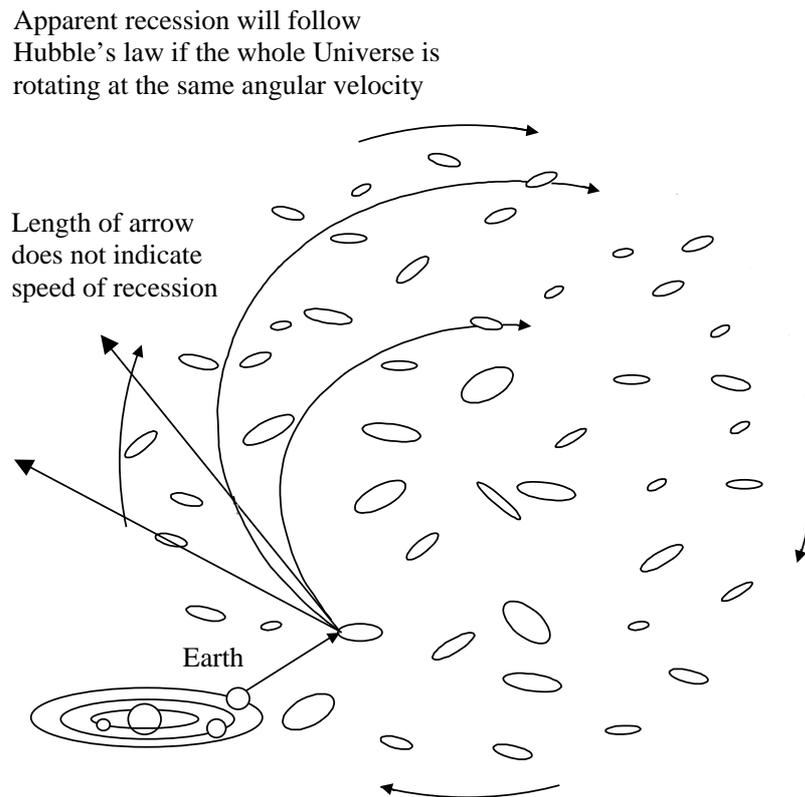


Figure 6

Illusion of expansion in a rotating universe

In Chapter 1 I suggested that a fundamental particle that spins must follow a curved path, with the degree of curvature dependent upon the rate of spin, so that only a particle with no spin would obey Newton's first law. So should the spinning photon then have to follow a curved path? The answer is that I am saying that the photon is not a fundamental particle but has a construction, the nature of which will tend to keep it on a straight path. The outer ring is then de Broglie's "pilot" wave, guiding the motion of the photon, and acting as rifling does in keeping the path of a bullet essentially straight (I do not rule out some inherent curvature of motion).

It is obvious that if the whole Universe has always been rotating at a constant uniform rate, the galaxies furthest away will appear to be receding the fastest, which accords with observation as encompassed in Hubble's Law. The attractiveness of this solution is obvious in dispensing with the huge philosophic problems associated with the Big Bang. Not only that; the Big Bang is not a straightforward theory apart from this. There are "cosmological problems" which have defied answers for some time. These are mentioned in a recent book entitled "Faster than the Speed of Light" by a cosmologist working at Imperial College, called João Magueijo. We seem to be both suggesting that light can go faster than the speed of light.

This requires some qualification because what I am suggesting is that photons, and the particles which I hypothesise make up photons, can travel faster than the speed of light, whereas perceived light must travel at c in order to appear as light. João Magueijo, however, is suggesting that light may have exceeded c in the early stages of the Universe. He, like almost all physicists now it seems, are desperate to solve the cosmological problems associated with the Big Bang because they see the latter as established fact.

I have to say that I find this both puzzling and unscientific. How can something be considered so certain when it implies that nothing can have altered the nature and straight path of light over many millions of years of travel? This seems to me to be a huge and naïve assumption. A rotating Universe is just one possible alternative. Why is the possibility of frequency reducing during such an immense journey never considered? What means do we have of testing that this could not happen? We have only been considering the question of apparent expansion for a split second of cosmological time. (Since drafting this I have learned of other "tired light" theories)

If my idea that frequency is related to rotation is right, it seems quite reasonable to assume that some reduction would be almost inevitable. Interaction with gravitational fields and radiation could well have this result, which would also be essentially proportional to the distance travelled. Maybe Einstein's greatest blunder was allowing Hubble to convince him that the Universe was expanding. I have no knowledge that Einstein ever considered the possibility of a rotating Universe other than Stephen Hawking seem to imply this. It does have obvious consequences for the idea of curved space-time, though obviously it could not be the sole cause or everything would orbit at the same rate.

It does, however, seem possible that it could provide a significant component. It is mentioned on page 150 of "The Universe in a Nutshell" but only in considering the possibility of time travel. Professor Hawking there says "The Einstein universe does not represent the universe we live in because it is not expanding". When something is considered to be indisputable fact the whole scientific process is in danger. Many, including Stephen Hawking apparently, will no doubt argue that the rate of rotation is severely limited by the inability of galaxies at the edge of the Universe to exceed the speed of light. Even before concluding that mass does not increase with speed, I have argued that relative speeds in excess of the speed of light have to be possible.

When doing "A" levels at Brooklands College in the early sixties I used to make the following argument: if a spaceship is travelling between two space ports at a considerable distance apart, such that its top speed at about the mid point of the journey is $0.75c$; and a spaceship on the return journey pass on a slightly different trajectory at the mid point, both having identical propulsion systems, how would their relative speed at the mid point be calculated by space control at each port, if the two ports are known to have no relative velocity?

I suspect many students all over the World have asked similar questions and may have received similar replies about how time on each ship would be slowed down so that their perceived relative velocity could never exceed c . I was never happy with that argument because it seemed to me that one should be able to look at the whole system of ports and ships as one frame of reference. If the rule of additional velocities applies at some speeds and all speeds are relative, why should there be any philosophically acceptable reason to consider any relative velocity unattainable. I can see no reason why, knowing that “ship time” runs slower than “port time”, space ships should not have devices regulating their clocks to port time, which can be standardised between the two ports. Also, if Newton’s third law always applies, any relative velocity must be exceedable by any rocket (or other propulsion system) that has not run out of fuel.

It would seem that I am supported in this view by the late Professor Sir Hermann Bondi, KCB, FRS. He confirmed to me the following view: “Special Relativity does not say that nothing can move faster than light (though many books claim this), only that nothing can be accelerated from a speed less than ‘ c ’ to speed exceeding this value.” The latter is, of course, because mass is considered to increase with speed, which I doubt. It would appear, however, that even if I am wrong about mass decreasing with speed, I am supported by Professor Bondi in seeing no reason why a Universe which has always rotated should have any limitation on the speed of individual galaxies. Even if the speed of light were a limiting factor, the illusion of an expanding universe could be quite dramatic.

This is illustrated in figure 7. This shows three paths of light from a galaxy at the farthest extremity of the Universe, whose final destination would be a point at the centre of rotation. The first path assumes the distant galaxy to be moving at $0.98c$, the second path assumes about $1.4c$, and the third about $1.6c$. We have, of course, to say relative to what? So I shall say relative to an imaginary sphere surrounding the Universe, which has no motion.

If we call the distance from the centre of the Universe to the distant galaxy R , path 1 is about $1.2R$, during which the Universe rotates through 0.1875 of a complete revolution or 67.5 degrees, giving a distance travelled by the galaxy of $1.17R$ in the time taken by light to travel $1.2R$. Paths 2 and 3 represent 180 and 360 degree rotations respectively. (All path lengths are to the galaxy at the centre of rotation).

We then have to consider whether the position of our galaxy can be considered to be somewhere near the centre of rotation. Whilst I do understand that the local group is thought to be located quite close to the centre (of the observable Universe – see Appendix 6 of my book, not included in this paper but available on my website) I have considered different cases to allow for considerable margin for error. Apart from any other source of error I am suggesting that our observations could be illusions.

See figure 7, next page

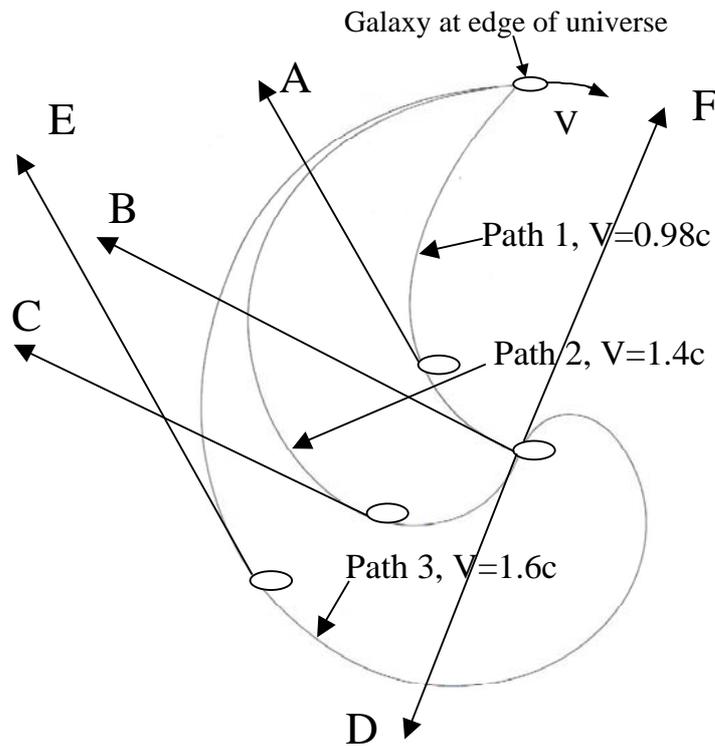


Figure 7

Light paths across a rotating universe

Depending on the precise position of our galaxy, we could be a very long way out with the apparent sources A – F, but we would arrive at the same conclusion as Hubble. Even with the distant Galaxy moving at less than the speed of light (path 1), the extent of the error in the position and motion of the galaxy is very significant. The above considerations are independent of the size of the Universe as these are proportions applicable to any circular rotation.

What I am suggesting is that this rotation contributes to all orbits as part of general relativity and can be described by considering dimensions to change (even though they do not actually change) and that this is equivalent to considering the value of π to change in rotating bodies (which is actually physically impossible).

If you remember in Chapter 1, I referred to Einstein’s conclusion that Relativity results in increased values of π . For a flat disc it is possible to imagine distortion into a dish shape, which would decrease the value, but any distortion which could increase the value is inconceivable; this is even more obvious when we consider a sphere. I tried for a few moments to imagine if the effects of Relativity on atomic size and packing could account for it, but it is quite ridiculous. Any effect would have to be uniform; the edge of the sphere could not, for instance become corrugated. Any section through the plane of rotation would have to remain circular.

There is, however, a relativistic way in which increasing values of π can have a real meaning. This is most easily described with reference to the helix which I think explains EMR and gravity (see figure 8 below). Before considering figure 8, however, it is important to make absolutely clear what I mean by “relativistic” in this case. I am not, in this instance, applying the Lorentz transformation. What I am doing is considering the consequences of relative motion in a very basic way in order to demonstrate one way to eliminate the error which would result from not being aware, or taking account, of relative motion. In order to understand my point here remember that I see radiation as rings of spinning particles rotating and moving, so each spinning particle in those rings which are moving face on will follow a helical path.

It is just that aspect of EMR (and gravity in my theory) that is considered. What I am looking for is a way of compensating for the error that would result from not being aware of the forward motion of the ring.

The initial formula for arc length of a helix is from Kreyzig p.462. I have confidence in the derivation which follows, despite my own very rusty maths, because the formula is of the same form, without squares, which I derived by considering the point on the edge of a particle to move a greater distance than the circumference, which is also what happens, but in a slightly different way, when circular motion becomes helical, though the actual paths taken are of different form (see Appendix 3 in my book).

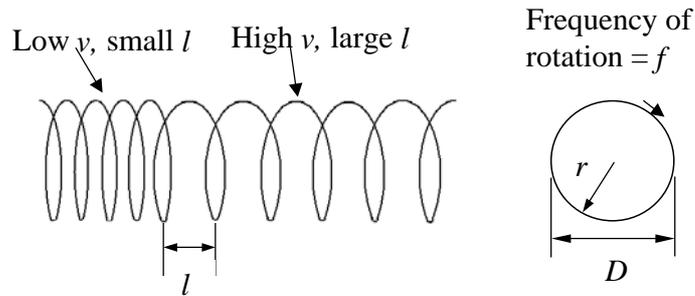


Figure 8

Consideration of helical path

Arc length of helix (one complete turn) is given by:-

$$s = 2\pi \sqrt{r^2 + \left[\frac{l}{2\pi} \right]^2}$$

$$s = \sqrt{(2\pi r)^2 + l^2} \quad s = \sqrt{(\pi D)^2 + l^2}$$

$$\text{Therefore, } s/D = \pi_1 = \sqrt{\pi^2 + \frac{l^2}{D^2}}$$

$$\text{Inserting } l = v/f \quad \pi_1 = \sqrt{\pi^2 + \left(\frac{v}{fD} \right)^2}$$

The new value of π derived has a real meaning as follows. If a ring of particles of diameter D is rotating with a frequency of rotation given by f , the distance travelled by each particle in one revolution is πD . Using f we can determine the speed of the particle and thus its energy if we know its mass. If, however, the ring starts to move face on (v), the particle will describe a helix. The distance travelled by the particle in one revolution will be $\pi_1 D$.

What we have shown is not that the value of π has changed, but that the assumption that it can be considered to have changed is useful in describing the relativity of events accurately. Clearly if a ring of particles is rotating and we are not aware of its other motion we will come to a conclusion about the kinetic energy involved which would be different relative to an observer who is aware of the motion. So again we have demonstrated that energy is just a concept, which must be considered as relative, and that relativity can be taken into account by assuming dimensions to change.

It is also interesting to note that my old "A" level physics text book from the sixties (Nelkon and Parker) tells me that the energy of a moving and rotating ring, rotating at a rate which would allow it to roll is given by:-

$$E = mv^2$$

This would thus appear on first sight to confirm Einstein's famous equation, but I am saying that mass reduces with velocity and I cannot say that rotation would be of the right order. Also I think that mass needs to be considered in a different way to the current approach. It seems to me that the mass of particles which can actually be measured, protons, electrons etc., is not just caused by simple spin, but the effect of spin is then multiplied in the gyroscopes and groups of gyroscopes which I suggest comprise spin $\frac{1}{2}$ particles and hadrons. So it is not just that hadrons are much larger than leptons, it is the grouping of gyroscopes that multiplies the effective mass (i.e. the resistance to motion).

Returning to the idea of increased values of π , in a rotating universe standard motion, where no forces act, would be curved. Points on the edges of particles would thus have to follow longer hypercycloid paths. The faster the speed of the particle the closer to a straight line would be its motion; the slower it moves the more curved would be its path and the greater its rate of spin in comparison with motion. So faster rate of spin would mean the point on the edge of the particle having a longer relative motion in space (or rather relative to everything else), as would be described by assuming π to have increased.

So the question arises: do dimensions actually change or is the assumption that they can be considered to have changed useful in describing the true relativity of events? Put another way, does change of dimension mean that anything that rotates must follow a curved path, or is the Universe rotating, which means that everything has to follow curved paths. The other alternative is that I am completely wrong, the Universe is expanding, and one day someone will be able to make sense of what seems to be nonsense. Personally I find huge difficulty reconciling the idea of conservation of mass and energy, which Hawking and everyone I think, including me, wish to uphold, with the idea that everything in the Universe emerged from a singularity.

As I have already indicated, the rotation of the Universe cannot be the sole cause of all curvature of motion or everything would orbit with the same angular velocity. It would, with the almost insignificant effect of the rotation of the Galaxy, be a component of all orbits in absolute terms, which Einstein showed in his General theory, would be indistinguishable from true gravitational field. The General theory seems to imply, or to have been interpreted by some to mean, that there are no gravitational forces. Einstein could not have been satisfied with this idea or he would not have spent the rest of his life trying to find a unified field theory. My helix suggests a way that gravity can be a real force, resulting from the exchange of momentum of real particles in a way that answers so many other questions that indicates a strong probability that it may well be correct.

Further analysis in this respect is contained in Appendix 5 of my book and Part 2 below.

Regarding Chapter 5-8

I have condensed these into analysis and conclusions based on experimental, observational or other evidence and opinion. Members of the NPA should find my Chapter 5 on the state of science to be confirmation of the dire need for your organisation, but that is all that needs to be said in this paper.

Analysis and conclusions based on experimental, observational or other evidence and opinion

My theory anticipates that photons and electrons are based on the same form of construction, which explains why they behave in a similar fashion. Current theories offer no clear explanation of what radiation is exactly, nor how and why it is emitted. In my theory the photon fits inside the electron in a manner that provides a clear and easy to visualise mechanism by which radiation is released, which applies in similar manner to higher energy radiation from quarks. And this explains precisely why the electron gains or loses energy, which can be far higher than just considering the spin and orbit of a solid particle. The exchange of rings as interacting spirals, in limited directions, with force dependent on the rotational energy of the rings, explains exclusion principle and quantum numbers (particular orbits).

This idea, in which both photons and bosons are released in burst as outer rings are disturbed and lose containment explains the wave like motion of electrons first theorised by de Broglie. The relationship demonstrated by de Broglie, and confirmed by others, including Stephen Hawking, between frequency and momentum is also confirmed in my theory in which mass and frequency increase with rotation.

The outer ring of photons, which I see as moving face on, gives de Broglie's accompanying, guiding, pilot wave, which together with internal transverse rings explains duality. This spinning outer ring would act like rifling in a bullet, explaining the basically straight-line motion of light. There is clear experimental evidence for the pilot wave being a spiral of real particles which can carry orbital angular momentum.

In New Scientist of 12th June 2004, in an article entitled "Twisted Light" on page 40, the author refers to the work of Les Allen in 1992 at the University of St. Andrews (UK), in showing that twisted light (which is not what I am saying exactly) carries angular momentum.

For singly twisted light, it works out at one quantum unit of angular momentum per photon, so Allen suggested that this "orbital angular momentum" is a property of the individual photons, which is exactly what I am saying about the outer ring. The Author then goes on to say that in 2001, Alois Mair, now at Harvard University, working with Anton Zeilinger's group at the University of Vienna was able to "prove" this (I prefer "verify"). The group created entangled pairs of twisted photons and showed that the twist resides in each photon (*Nature*, vol. 412, p313).

A twisted photon apparently appears to travel along a helical path, subject to the fact that its position at any point can only be inferred as a matter of probability in quantum mechanics, giving a spread-out quantum wave function, which the author says is exactly the same as the corkscrew of classical twisted light.

There is then Roger Penrose's Twister theory, recently resurrected in serious consideration being given by some String theorists, as mentioned in his recent monumental work "The Road to Reality". I was greatly encouraged to find that this great mathematician and physicist has concluded, just like me, that he is not comfortable with the idea of extra dimensions. His article in New Scientist "Strings with a Twist", 31 July 2004, p26, mentions that twister theory does not require more than 4 dimensions, which I have explained is in no way mysterious but is the natural consequence of motion. This is not a property of empty space but the simple, logical way to consider the motion of matter in space. Unfortunately many theorists seem to have this wrong!

My encouragement was slightly deflated by finding that, just like everybody else these days it seems, Roger Penrose is not able to give an account of the way that he sees things to work in a way that can be clearly visualised. His theory does seem to involve light having helicity, but what the precise mechanism is to explain this is not clear to me. Perhaps it is more clear to those who are able to understand the highly complex maths on which it all seems to depend, but then why not include an attempt at conveying what is actually visualised if it is possible, so that it will be apparent to those whose maths is not on the same level. But then I think that being able to visualise gradually “disappeared” in the last century as quantum theory itself manifest as an on-going mystery.

This is why my theory “stands out from the crowd”. The main reason for this I think, is that I have looked for an explanation which does not see energy as an entity. I have looked for motion and in doing so in a logical way, which considers solutions to otherwise insoluble enigmas, I appear to have hit on a clear picture of the way everything works which is uncannily similar to the vague notions that others are seeing in the “mists of their maths” (including string theory).

My analysis suggests that the standard model is incomplete, and Roger Penrose seems to agree in saying that it is not a “finite theory”. It does not give finite answers and he says it contains something like 17 undetermined parameters. To me it is as clear as day that electrons and quarks have to be divisible and have a construction to account for the nature of radiation. Einstein confused everybody. Energy is not something you make from mass (matter). When you take the view that energy is not a “thing” which can exist, and see it as motion, all becomes clear. I may not have all the details right yet but it has to be logical that whatever is in quarks and electrons comes out as radiation, to be constantly replaced in the presence of the Sun of course.

But what my theory provides, which I believe would have caused Einstein immense joy, is an explanation of that which dogged him for so long. The unpredictability and uncertainty of quantum mechanics is, I am quite sure, the quite natural and expected consequence of particles in each ring spinning in the same direction and, in touching and bouncing off, feeding off each other’s energies. The net result of large numbers acting in this way could only be predicted, with our current abilities and perceptions, as matters of probability, but there has to be an absolute reality, for which Einstein argued with such conviction.

My theory is based on neutrinos moving in helices. Some may find my explanation of why this should happen hard to follow, but this is actually a known property of neutrinos (which I discovered after concluding that it stems from a more logical interpretation of relativity). Page 162 of “Nuclear and Particle Physics” by Burcham and Jobes states the following:-

“.... it will be necessary to ascribe a new property of *helicity* to the neutrinos. This is a correlation between the spin direction of a particle with its linear momentum which makes it move like a screw.”

The significance of this may not have been realised because it is thought that neutrinos have zero, or almost zero, mass, zero charge, and extremely small interaction with matter. If, however, my view of mass turns out to be correct, extremely fast spinning neutrinos would certainly have a fundamental component of mass. This would still be tiny compared to hadrons (neutrons and protons), and even electrons, but multiplied by the huge numbers thought to be present, if they moved in unison in a helical path, the momentum destroyed in the opposite direction to travel in the screw-in effect could well be enough to account for the exceptionally weak force of gravity.

It has been thought, during about the last hundred years, that gravity waves travel at the speed of light, as opposed to instantaneously as thought by Newton. It seems to me that they may travel either faster or more slowly, perhaps significantly or even substantially. The latter would increase the angle between the helical path and the direction of travel (giving the “screw” a finer “thread”) and thus allow more momentum to be transferred to the opposite direction, if this were needed to account for the strength of the field, but other answers may be provided by speed in excess of c .

The best way to test my theory of gravitation is probably in experiments I can suggest to see if gravity can be disrupted. These experiments stem from explanations of paranormal phenomena and are outlined in Chapter 7 of my book.

It is, of course, just possible that the new, very powerful particle accelerators will show that quarks are divisible, but I suspect that the particles released may just seem to disappear as they go straight through the walls of the apparatus, unless they quickly recombine into other particles. And indeed evidence from Brookhaven appears to point in this direction, though unfortunately the results have been interpreted on the basis that energy can be converted to matter.

The following words appear in New Scientist (16 October, 2004, p35)

“the extreme energy of their collision is turned into matter”.

The underlining is mine. The author is a science writer but I have to suspect that, clearly contrary to the views of Richard A. Mould (also working in New York), this “magical” turning of energy into matter is the generally held view of what is going on. This alchemistic-like interpretation is blinding their eyes to what is almost certainly happening. The article in question refers to work going on since 2000 at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory in Upton New York. This involves sending beams of gold nuclei in opposite directions around a 4 kilometre track. The immense energy of the collision actually dislodges quarks, and it is when these collide that it is apparently thought that energy is turned into matter. Virtual particles apparently turn into real ones as jets of particles emerge. I have to say “come on you guys, think! Isn’t it more likely that what is in the quarks is being released?”

It seems to me that considering mass and energy to be just different aspects of motion leads to a better understanding of the way Einstein showed them to be inextricably linked together. It fits precisely with the way Richard A. Mould describes the relationship in “Basic Relativity”. It contradicts Einstein on the question of mass increasing with translation, but then Einstein contradicts himself on the basis for this. He shows that all speed is relative but then implies that one speed, ‘c’, is absolute. He was right to say that the speed of light is the same to all observers, but not understanding why, suggested that mass must increase with speed to explain why it could go no faster, thus implying that nothing can be accelerated past ‘c’.

This is contradictory when all speed must be considered only as relative. There has to be a more logical explanation for the constancy of the speed of light which permits ‘c’ to be exceeded. If frequency depends on rotation, which changes with speed, an answer is provided by which light only appears as such when its speed relative to the observer is the same. Mass, then reducing with translation, permits the huge acceleration to ‘c’ and beyond, but only at ‘c’ do we see the appropriate frequencies.

We then have an answer to the second greatest enigma of the 20th century (or was this actually the greatest, with duality a close second?) and a return to logic because any speed, which is arbitrary by its relative nature, can be exceeded if you have a means of propulsion. Once again, if I am right, the consequences for the future of mankind are staggering, especially if the ability to overcome gravity and the abolition of a cosmic speed limit are brought together. If we can also go one step further, assuming that mass is spin and maybe can be cancelled by spin, in some overall sense or at atomic level, perhaps incorporating anti-matter, we (that is our space probes) may be able to accelerate with little or no energy, in the same way that UFOs appear to be able.

Gravity has to be disruptable. There is both historical and current observational evidence that this is possible. The following extract from Chapter 7 of my book includes the observations of a highly respected scientist:

The following is a quote of a report by the Editor of the Hartford Times, F. L. Burr of an incident in the Connecticut home of a silk manufacturer in 1852, relating to a 19 year old medium called Daniel Dunglas Home:-

“Suddenly, without any expectation on the part of the company, Home was taken up in the air. I had hold of his hand at the time and I felt his feet – they were lifted a foot from the floor. He palpitated from head to foot with the contending emotions of joy and fear which choked his utterances. Again and again he was taken from the floor, and the third time he was carried to the ceiling of the apartment, with which his hands and feet came into gentle contact.”

D. D. Home levitated many times after that and performed the feat in front of large numbers of witnesses over 40 years. These included Thackeray, Emperor Napoleon III, Ruskin, Rossetti, Mark Twain and, most notably, William Crookes, one of the era’s renowned scientists, later to be knighted and become president of the British Association for the Advancement of Science. He wrote in the *Quarterly Journal of Science*: ‘The phenomena I am prepared to attest are so extraordinary, and so directly oppose the most firmly – rooted articles of scientific belief – amongst others, the ubiquity and invariable action of the force of gravitation – that, even now, on recalling the details of what I witnessed, there is an antagonism in my mind between *reason*, which pronounces it to be scientifically impossible, and the consciousness that my senses, both touch and sight, are not lying witnesses.’

My book refers to many other instances of levitation, perhaps the most impressive of which is the amazing and compelling account of Joseph of Coppertino, but there is much more recent and current evidence of anti-gravity effects. All such work is usefully brought together following website of Tim Ventura www.americanantigravity.com

In most cases only a small effect has been produced and some effects mentioned are not true anti-gravity but simply means of producing lift, but Tim Ventura’s account of the high voltage Hutchison effect shows a remarkable similarity to F.L. Burr’s description of an apparently gradually establishing or self-reinforcing effect.

There is also observational evidence to suggest that gravity is a real force explained by the exchange of real particles. On 27th November 2004 it was revealed in an article entitled “Shadow over Gravity”(New Scientist, p.28) that observations carried out way back in the fifties, and repeated since, which I and many others probably, have been blissfully unaware, suggest very strongly that Relativity is not able to answer all questions about gravity. This relates to the effect on Foucault’s pendulum of eclipses. The effect was first observed by a French engineer, economist and would-be physicist called Maurice Allais. What he observed during eclipses on 30 June 1954 and 22 October 1959 was that the rotation of Foucaults pendulum actually reversed with the eclipse. The effect was independently confirmed by three Romanian scientists, who were unaware of Allais’s results, during an eclipse in 1961. Then in 1970 Erwin Saxl and Mildred Allen (USA) repeated the experiment and concluded that “gravitational theory needs to be modified” (*Physical Review D*, vol.3, p823). They even recorded a weak effect with their torsion pendulum during a lunar eclipse. Allais had previously found that the rate of rotation increased and decreased in the course of a day.

My theory then actually predicts that anything which prevents or effects two-way exchange must have consequences for local gravitational field. The Moon is unlikely to block gravitational “waves” completely but may well have some diminishing or focusing effect, including the rotation of groups of gravitons to give something very similar to Lense-Thirring drag. There could, therefore, be two effects on the apparatus: one caused by a very localised change in the Earth’s gravitational field, and a direct effect on the apparatus of the changes in both the Sun’s and the Moon’s locally directed field.

What Allais noticed about the change in the rate of rotation during the day has to depend on the relative position of the Sun, which in turn must affect local gravitational field if I am right about the exchange of gravitons. Clearly gravity is not turned on and off with day and night, but there would have to be some change, even if generally unnoticed. It should be quite possible to rule out other explanations so far

suggested, such as atmospheric effects or increased human activity during eclipses, neither of which seem very plausible and would not account for all of Allais' observations.

I am, therefore, very interested to see how experimentation on the gravitational effects of eclipses, and its interpretation, proceeds. At least one person, Thomas Goodey, an independent researcher based in Brentford, Middlesex, in the UK was planning further experimentation in this respect with more accurate apparatus. In May 2004 he presented his strategy to the Society for Scientific Exploration in Las Vegas and invited physicists to join him. Apparently several accepted, so the eclipses on 8 April 2005 in Latin America and 3 October 2005 in Portugal and Spain, could provide further observational evidence in support of my theory.

General Relativity does not have to be wrong for this to be explained but rather that the understanding of it needs to be modified or clarified. I have never been happy to accept that Relativity has to mean that "there are no gravitational forces". The fact that the effects of motion and real forces can be indistinguishable does not mean that they have to be. Gravitation can have two or more components. If we start with bodies in space with no motion, attracting each other in accordance with Newton's inverse square law, they will not orbit at all. The result would be a "big crunch". General Relativity, or any other explanation of our Universe, has to have other motion as a prerequisite.

Friedmann realised this, and because of what seemed to be observational evidence in favour of expansion, this has been accepted rather than any other motion. The extent and nature of the motion, in relation to the strength of real gravitational field will determine the net result in which orbit is determined by total energy and momentum present, which must then give a more complete and accurate answer than just considering Newton's laws alone. It seems to me to be far more likely that the motion most able to explain our Universe, and to maintain it, is rotation. In this case orbit, which as I have shown can explain everything about matter and forces, is a natural consequence rather than an occasional resultant. Clearly just the right degree of motion will balance gravity, keeping the Universe stable. But, of course, it could be both rotating and expanding or contracting to some degree, depending on the rate of rotation, but still appear to be expanding because of the illusion I have identified.

There are then four components to the orbit of planets: the rotation of the Universe, the rotation of the galaxy, curvature of path due to spin, and curvature due to real (pure) gravitational field caused by the interaction that I have suggested. Taken as a whole, this amounts to General Relativity, with real forces indistinguishable from apparent ones resulting from motion. The real force that I have identified as the probable result of the structure of quarks and electrons, is clearly very similar to light and so its intensity will obey the same inverse square law, but the effect of this will depend upon the inherent motion in all bodies.

The essential point to remember is that rotation of the universe does not imply that space alone can rotate and influence the motion of bodies to give orbit (this is a fundamental misunderstanding of the true meaning of general relativity). The reality of the situation is as described above Figure 6, where I said:

"The reality would be that the light actually follows essentially the straight line determined but its gyroscope-like construction but this would then appear as a curved path relative to everything that is rotating."

But in this case we are talking about planets rather than light.

There is also observational evidence from the probe WMAP in support of my suggestions that background microwave radiation originates from black holes and that the universe may be rotating.

NASA's Wilkinson Microwave Anisotropy probe revealed a surplus of microwaves coming from the galaxy's centre (New Scientist 16 October, 2004 p11). Unfortunately everyone is so committed to the idea of the big bang that the only explanation that has been suggested, to my knowledge so far, is that the annihilation of dark matter, more densely concentrated at the centre of the galaxy, could be responsible. Apparently these microwaves are typical of those generated when high energy electrons and positrons

spiral around magnetic fields, which immediately made me think of Stephen Hawking's description of supermassive black holes at the centre of galaxies (The Illustrated Brief History of Time-updated and expanded edition, page 125).

Possible evidence of a rotating universe was found by João Magueijo and Kate Land at Imperial College, London early in 2005 (New Scientist 2 July 2005, P.35) when they identified an alignment in aspects of background radiation detected by WMAP. This is not the only explanation given, but Magueijo referred to the alignment as "an axis of evil", presumably because of the implications for the big bang. In the same article it was reported that there appear to be stars in some galaxies older than the considered 13.7 billion years age of the universe, an age which I seriously question in my book along with the possibility that expansion could be observed as many seem to think (Appendix 6, which is also on my website www.einsteins-revolution.com)

This also refers to other observational evidence that throws doubt on the big bang as follows:

Stephen Battersby, reporting on the American Astronomical Society meeting in Atlanta Georgia in January (New Scientist 17 Jan 2004, p.14), drew attention to observations showing that galaxies in the "early" universe look unexpectedly mature, very much like our own; and superclusters were observed where they should not have had time to form.

There is now theory and observational evidence linking black holes to galaxy formation, which suggests that all galaxies have a central supermassive black hole, so my conclusion that these are the source of background radiation suggests that the now slightly mottled BMR revealed by COBE and WMAP is the result of clumping of galaxies.

Concluding Remarks

If Einstein does turn out to be wrong about mass increasing with speed it is, I think, a relatively minor point in terms of the huge step forward in thinking that Relativity provided at the time. It is, of course, not a minor point when considering the possibility of space travel, but that is just one issue. But relativity never made complete sense as conceived and especially as interpreted by most since. It was a brilliant attempt to make sense of some very confusing information, but with the information we now have it is possible to analytically deduce a more complete explanation for c , the true meaning of time dilation and curvature of motion, which removes paradox.

In purely scientific terms, it is far more significant that Einstein was right about a unified field theory, which seems to apply if gravity and other forces can be explained by the helical paths of tiny particles I suggest. This provides a possible reality, which seems to fit well for now. This is the essential qualification to any claims of discovery of "reality". We cannot know anything with absolute certainty. There has to be a reality, however, irrespective of the difficulty in perceiving it. A particle, which is assumed incapable of sub-division, cannot be in two different places at the same time. If it manifests as such, the only logical conclusion is that it can indeed divide and re-combine.

The title of my theory is, therefore, intended rather to emphasise that science must persist in the objective of seeking reality and realising that which is not real, rather than suggesting that I have definitely found it (though I may have, at least in part). Its purpose is to draw attention to the futility of accepting that two or more mutually exclusive realities can be true. If we accept such a notion on the basis that quantum mechanics is somewhat mysterious, we might as well go back to the dark ages. We are already headed in that direction if we assume that energy is some sort of mysterious substance, beyond comprehension, or

that everything in our immense Universe magically came from nothing. When ideas seem ludicrous it is time to consider alternatives that “fit” better.

The essence of my theory is, therefore, that reality is to be found in motion in its two basic forms. Time, energy and mass are no more than comparisons of motion. All things can be explained by the ever more complex interaction of spin and translation. The most likely realities at the two extremes of scale appear to me to be that the tiniest particles that can exist form rings when they spin in the same direction which may be determined by (or the reason for) the rotation of the Universe. Spin in the opposite direction (anti-matter) is, therefore, non-sustainable in general, though it can clearly be maintained in some situations. This cannot be an absolute theory of reality because we still have no idea what the tiniest particle is comprised of, nor why it should exist, nor whether the rotation of the Universe is absolute or relative to some other unknown reality. Will some scientist in 2100 discover that this assumed “tiniest” particle is actually made up of many, much smaller ones?

We are now aware of such extremes of scale that this may not be as impossible as our emotionally influenced minds, which illogically insist that this has to stop somewhere, tend to limit. In the same way, the speed of light, which seems incredibly fast to us, is painfully slow on the universal scale. It may well be the same illogical emotion that leads us to think that nothing can possibly go faster.

My conclusions, at the point of publication of my book, which summarise what I call “The Special Theory of Reality”, or which might alternatively be called “Ring theory” are as follows:-

1. Time has no independent reality, but is simply comparison of frequencies, which helps establish the relativity of events.
2. Energy has no independent reality; it is purely a concept defining aspects of motion.
3. Mass, in its most fundamental form, is also an aspect of motion, i.e. the spin of the tiniest particles. This effect is multiplied in the gyroscope-like arrangement of rings in large particles. Mass must then decrease where translation occurs at the expense of rotational energy.
4. As a consequence of 2., something material in nature has to exist and have motion, including both spin and translation, before concepts of time and energy can be formulated and matter, capable of interaction, can exist.
5. The relationship between spin and translation is determined by conservation of “mass” and “energy” which determines curvature of motion and thus the orbit of the tiniest particles (quantum general relativity).
6. Combinations of orbit and translation of the tiniest particles (probably) enable interactions in the form of all forces and radiation. This generates helixes with a “screw-in” action to explain charge, magnetism and gravity and a component of radiation, and linked rings to explain the strong and weak nuclear forces.
7. Spin $\frac{1}{2}$ particles are thus comprised of rings within rings in a gyroscope-like arrangement providing containment for high rotational energy, the disturbance of which provides an explanation for the mechanism by which radiation is released.
8. The wave-like motion of such particles and radiation is thus explained by the helixes so generated and the facility to split and re-combine.
9. Gravity then has an easily understood mechanism whereby helixes pull with a screw-in action into the rings forming other particles.
10. Black holes must, therefore, be self-limiting and possibly the source of background microwave radiation in a permanently existing, rotating universe (or as existing since creation).
11. Frequencies in EMR are dependent on the rate of rotation of rings and the number of particles in each ring and are thus experienced digitally. As I theorise that the rate of rotation diminishes with speed, each EMR e.g. light, only appears as such at c and thus must always travel at that speed relative to any observer. There is, therefore, no reason to consider c to be a limiting speed for all motion.
12. As a consequence of 10. and 11. the supposed expansion of the Universe may not be a reality but an illusion caused either by the decay in the rate of rotation of photons or by the rotation of the Universe.

13. Given the philosophical and cosmological problems involved with Big Bang theory and the sheer number of explanations which “Ring Theory” can potentially provide, either alternative suggested in 12. should be considered as a better fit to reality until observation or other evidence indicates to the contrary.
14. Particles in each ring spin in the same direction and thus bounce off each other, feeding off each other’s energies in a way that would result in any line of them (string) having many frequencies of vibration. Although determinable in principle this is beyond our perception and maths to predict other than as a matter of probability. This idea is, therefore, consistent with, and an explanation for, quantum mechanics and aspects of String theory.

Further discussions on the questions raised in my theory are contained in my book, copies of which will be available at the conference in Tulsa in early April 2006.

Part two includes some wide-ranging conclusions that have arisen since the publication of my book and further clarification of the more complex issues.

Part 2

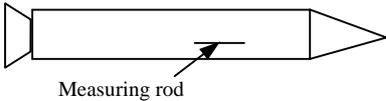
Further Conclusions

1. Dimensions

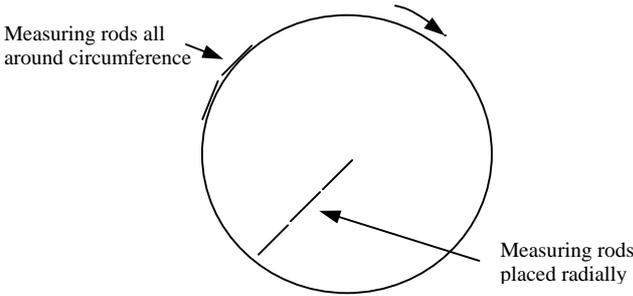
In my book, I indicated some hesitancy on the question of changing dimensions. My thoughts on this matter are now better clarified. As far as Einstein’s theories are concerned I think that the most logical interpretation stems from the concept that curvature of path, that is a natural consequence of our universe, can be described by considering dimensions to change. The Lorentz transformations do not have to imply an actual change of dimension. But it is important to realise that rate of spin does change with speed. So any device that relies on rotation (or its limited forms of vibration or oscillation) e.g. clocks, will give different results with different relative speeds, as is borne out by experiment.

So from this point of view, dimensions do not change. However, as I have concluded that the rate of spin of particles decreases with speed, in the case of those particles with an open structure, there can be a three-dimensional change in the dimensions of such particles and thus of physical bodies, depending on their individual characteristics. It is likely, therefore, that experiments, which may be construed as verifying this aspect of special relativity, could be misunderstood. It has to be remembered that such three dimensional change is physical and in no way related to special relativity in which change of dimension only in the direction of motion is considered.

Consider first the rocket ship and the measuring rod within it, both travelling at the same speed and thus subject to the same change of dimension implied by special relativity. So, clearly, the occupants of the rocket will be quite unaware of any change if it does actually occur.



Now consider Einstein’s flat rotating disc with which he deduces the increase in π for rotating bodies (because shrinking measuring rods only around the circumference will give a larger value for this distance):

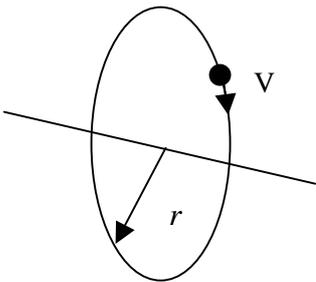


The rods are shown just outside the disc for clarity but in practice would have to correspond precisely with the edge of the disc, and so as real rods must also have some width they would correspond with the actual material of the disc.

Now we can see that there is a contradiction unless, just like the rocket ship, sections of the material of the disc around the circumference change length also, resulting in some distortion. But then any distortion would have to change the length of the radius in contradiction of special relativity (where there is no forward motion). And if there is no distortion, there can be no change in area and so relativity appears to be giving a false result if we use an increased value for π .

And when we go on to consider a rotating sphere the impossibility of distortion is even more apparent. So how do we make sense of this? Is special relativity wrong in this particular sense i.e. changing dimensions? I say not necessarily. We just need to approach it from a different perspective and with different understanding of what it actually implies. The essential thing to remember is that relativity is all about relative motion and we have to consider different reference systems. I will demonstrate below why this is essential to our consideration of energy.

Consider a particle moving in circular orbital motion as shown below (as viewed at an angle). How this orbit is possible with no point of attraction at the centre, in apparent contravention of Newton’s first law of motion develops from these arguments:



The energy of the particle (if not spinning) is:

$$\frac{1}{2} MV^2$$

where $V = 2\pi rf$ (f is frequency of rotation)

Now supposing the orbit in another reference system has motion relative to the above system to the right, with a value of v , i.e. the orbit is moving face on at right angles to the plane of the orbit. Relative to the first reference system the particle now has spiral motion so in each orbit the particle travels further than in the initial reference system, and the kinetic energy must be calculated as a higher figure. On page 58 of *The Special Theory of Reality* I use the formula for arc length of a helix (spiral) to derive the increased value of π that we now have to use to give the new distance travelled by the particle:

So by considering π to have increased we have avoided the error that would have arisen regarding the relative distance travelled by the particle and thus the value of kinetic energy that we must now ascribe to the particle. And, of course, it is immediately apparent that energy is always relative.

$$\pi_1 = \sqrt{\pi^2 + \left(\frac{v}{fD}\right)^2}$$

I also showed in Appendix 3 of my first book that as a spinning particle moves faster, the distance travelled by a point on its circumference can also be calculated by considering π to have increased

However, I had shown in Chapter 1 of *The Special Theory of Reality* that, with no input of energy, the only way that a point on the edge of a particle could travel further as spin increases is if it follows a curved path so that the path in space followed by the point was the longer hypercycloid than the cycloidal path with no curvature of motion. Implicit in the above conclusion is that, with no input of energy, translation can only increase with reduced rate of spin, which confirms that the only way for π to increase with spin is if it follows a curved path. But then I am saying that as rate spin increases the orbit must get ever tighter, which would surely mean that the Hypercycloid path would get ever shorter.

The answer to this dilemma lies in two considerations of relativity. Firstly we have to remember the fundamental importance of relative motion. While the hypercycloid may be reducing from one point of view, relative to the ever-decreasing translation of the particle it can still be considered as increasing. The second point is that we are talking about an increasing rate of rotation and we have to be very sure what we mean by this, because, as Einstein and I have independently concluded, “time” can not be considered as something which “flows” at a rate independent of motion.

If we consider this particle to be completely alone in space, the only meaning that we can give to the concept of time is the spin of the particle. So as it spins ever faster we have to conclude that time for this particle is now going ever faster. This is why Einstein included the behaviour of both clocks and measuring rods in the relevant chapter and warns of the difficulty in following the reasoning. I think this is because for most people the whole concept of time is very difficult. I hope that the analysis in my first book of the concept of time now makes this much easier to follow, but I suspect that many will still find difficulty comprehending that time cannot be considered to have any meaning independent of motion.

We can, therefore, at least argue the case that increased curvature of motion is equivalent to considering π to increase with spin. So any curvature of motion is equivalent to considering the dimensions of measuring rods to have changed and even those dimensions for which physical change is impossible to have changed, purely from the point of view of describing the true relativity of events.

We have, therefore, to consider which is more likely to be the correct interpretation. Do the actual dimensions of objects and completely empty space change in some way, forcing bodies to follow curved paths, because of the presence and motion of masses, or is it rather that curvature of motion is natural and is describable by considering dimensions to have changed.

We have to consider that which appears to fit best and thus answer most questions. And in this respect the most critical test is whether this approach can unify relativity and quantum mechanics. Second, I think, we have to see which approach appears to fit best with other theories, such as string theory and

perhaps clarify the question of apparent extra dimensions. We can also see whether it appears to offer any clarity to particle physics astrophysics and cosmology.

I consider that two simple ideas can provide answers to all these questions. The first is that Newton's first Law only applies to a particle with no spin, so that we have a new law of motion in which curvature of path is dependent on spin. The orbital path in my first diagram above is then possible if the particle has spin and my new law applies.

If, as I believe I deduced logically in Chapter 1 of *The Special Theory of Reality*, a fundamental component of mass is also dependent on spin, then we can see that curvature of path is dependent on mass (spin) and total energy (spin and translation) in the tiniest particle that can exist, which would give us quantum general relativity. And then all you have to add is the motion I considered after the first diagram to give the spiral motion that I have demonstrated can provide the mechanism to explain all fields; and thus this is the only missing component to give the curvature of motion maintained by Newton's inverse square law of gravitation.

It is also apparent that this new law of motion is precisely equivalent to considering there to be extra "curled up" dimensions of space, without the ridiculous notion that nothing at all can have "dimensions". And when you add the combinations of spins and orbits that I have gone on to deduce from considerations of quantum theory are the basis of particle and radiation structure, the extra dimensions implied may resolve the debate, which now seem to have been narrowed down to somewhere between a total of 5 – 11 dimensions.

And I have suggested that particles in any one of my rings would have the same direction of spin so that they would bounce off each other, feeding off each others energies (rates of spin) in such a way that would result in the ring (loop of string theory?) having many frequencies of vibration. This would give the effect of unpredictability that can only be mathematically determined as matters of probability thus explaining the fundamental nature of quantum mechanics. So it appears to me that this idea "fits" remarkably well by appearing to bring together the three most significant and successful ideas of twentieth century physics.

This alone is a very powerful argument in favour of my interpretation, but in addition to this the idea of rings and helixes suggests many answers as listed on page 77 of my book as follows:

- (a) How and why light manifests as both particles and waves;
- (b) why the speed of light appears the same to all observers;
- (c) how radiation is actually released;
- (d) how frequencies are perceived;
- (e) how and why EM field is at right angles to EMR;
- (f) how polarisation works exactly;
- (g) how spin $\frac{1}{2}$ operates;
- (h) why so many types of quark are possible;
- (i) why the force linking quarks increases with separation;
- (j) how particles split to form new ones;
- (k) how gamma radiation is so damaging;
- (l) how and why high energy particles give off high energy radiation;
- (m) how and why mass is lost with radiation;
- (n) why radiation travels in straight lines;
- (o) how neutrons can become protons;
- (p) how charge and magnetism operate.

I think that these have been adequately explained or are self evident, but the explanation of those not so far mentioned is as follows:

Many types of quark are possible because of the possibility of permutations of rings, numbers of rings and their orientations.

Gamma radiation is so damaging because it must represent the fastest rotating of all rings.

Everything else above is described in the forgoing, but in addition a practical demonstration of how charge and magnetism operates is possible by getting two identical, flexible springs and screwing one into the other and realising that they can either push or pull depending on relative rotation, even when the springs are bent into curves.

I also forgot to include the following explanations:

Gravitational lensing and gravitational red shift are caused by the interaction of gravitational helices and similar rings and helices that comprise light. This is, of course, of great significance as these were two of the three early confirmations of general relativity. The other is the precession of Mercury, which I do not challenge at this stage as I suspect that general relativity is essentially correct but just misinterpreted in the way it actually operates.

Strange quantum phenomena such as particles that disappear and reappear somewhere else is explained by the convertibility of spin and translational energy and the ability of particles to break down into virtually undetectable smaller particles that can recombine if high translation is reconverted to high spin.

The “sparticle” of supersymmetry, which can have very high mass, can be small in size and derives its mass from spin so fast that it has no vibration.

Exclusion principle has been explained but is missing from the list

Heisenburg’s uncertainty principle is explained and confirmed as still applying in Chapter 8 of my book and further compounded because of the additional difficulty in my theory of determining the precise position of particles that are expandable constructions whose internal driving motion is by its very nature highly unpredictable and changeable.

I have given (e) above additional thought and I think that, as regards the motion of an electron, there must be the spreading out of spirals when it spins and is free to move, to establish the magnetic field.

My theory suggests that electrons and positrons do not annihilate into nothing but a photon, but rather the containing outer rings become the undetectable anti-neutrinos and neutrinos of which I theorise they are respectively comprised. And they can co-exist for some time if they form together or are brought together slowly at the correct angle, which allows them to rotate together in opposite directions (at right angles to spin up or down) like two counter-rotating gear wheels, until their energy runs down and containment of inner rings is lost.

2. Application of my theory to the solar system and galaxies

I recently discovered that my theory appears to suggest solutions for the formation and particular pattern and distribution of bodies in the solar system. This became apparent after I was contacted by a fellow signatory of the open letter on cosmology, David Caulder Hardy, whose theory, Genesis Continuous, impressed me (<http://homepages.xnet.co.nz/~hardy>)

He is suggesting that planets form from material ejected by the Sun and that they spiral out over very long periods as the Sun’s gravitational field decreases. The latter seemed beyond doubt to me, but see <http://home.comcast.net/~pdnoerd/SMassLoss.html>

This could explain the very close correlation between the separation of most planets and the Titus/Bode progression, and is certainly a rational explanation for the lengthening of Earth years. But I could see that

the implication in my theory that the potency of the gravitational field of every body in the solar system must depend on the strength of the Sun's field, further supported the exponentially increasing solar distances of the planets.

Although this might not necessarily be the case, depending on the actual rate of decrease in solar mass over the period of existence of the solar system, I then discovered something that could not be explained by the decaying field of the Sun alone. I found that it is not only most planets that follow an exponential progression, but also many of the moons; and most of the other moons are relatively close together or in shared orbits that could well coalesce into larger moons that could eventually fit into a similar pattern.

This appeared to me to be a strong indication that the fields of the planets are indeed exponentially diminishing. It also suggested that many of the moons are "born" from planets in some way similar to the way that David Hardy suggests that planets are born from the Sun. It is hard to imagine moons being captured in such a way that many can share precisely the same orbit with another body, sometimes three to the same orbit.

But this then suggests that moons are eventually lost, which could well be implied by the huge number of moons of Jupiter, the reducing number belonging to the planets beyond, and the decreasing sizes of those planets, which could have lost material faster than their tendency to expand. And this also suggests that Pluto, Sedna and beyond could be lost moons.

There is observational evidence to suggest this possibility. Lunar laser ranging, carried out since reflectors were placed on the Moon during the first Moon landing give many, highly accurate measurements indicating that since 1969 the lunar distance has been increasing by an average of 3.8 cm each year. Whilst this time period is reasonable in terms of experimentation generally, it has to be remembered that it is very short indeed in the timescale of Earth/Moon existence. There is, however, one further observation that gives at least some indication that increasing lunar distance could be along term phenomenon.

In the second century AD Ptolemy refined the previous calculation of Hipparchus of Nicea (190-120 BC) to give a lunar distance of about 376,000 km, which although thought to be and underestimate, suggests that the current very accurately known figure of 384,403 km (mean) may well have increased over this very much longer period.

My main reservation about Genesis Continuous, that current theory and observation suggested that there may not be sufficient iron and none of the heavier elements in the Sun, but which, at the same time, also seemed to be a contradiction in the accepted nebular hypothesis, was soon resolved when I discovered observational evidence from the SOHO probe (www.thesurfaceofthesun.com) strongly suggesting massive amounts of iron and electrical activity that made me think of the high voltage Hutchison effect in which iron had been converted to lead.

The above site is linked to the site of Prof. Oliver K. Manuel, Professor of nuclear chemistry at the University of Missouri, Rolla (<http://web.umar.edu/~om/index1.html>) who suggests that the Sun formed from remnants of a supernova and may have fission rather than fusion as the main driving force, with fusion only occurring near the surface.

SOHO images obtained by detectors specifically attuned to the very high frequency of the iron nucleus appeared to show permanent features, which some suggest indicate a solid surface. The only way that this makes sense to me is if this is highly condensed plasma in a Sun with considerably more mass than supposed, which may help to explain galaxies, where more mass is needed to explain why stars are not thrown off by the high rotation which extends to stars at the peripheries (sigma). The fact that iron in the Sun can be ejected is strongly suggested by the presence of a ring of material, thought to be mostly iron, two solar widths from the Sun, discovered in 1983.

Further possible indications of reducing gravity came in another unexpected way when I realised that this could mean that some planets and moons, including Earth are expanding. Commander Lawrence Myers

will be presenting a paper at the NPA Conference in early April 2006, which suggests strong geological evidence and possible laser ranging evidence (satellite and long base line lunar) that the Earth has been expanding over a very long period and may still be expanding. This was first suggested by the late Prof. S. Warren Carey in 1956.

It is beyond the scope of this paper to analyse such findings other than to say that Panagea on just one side of the globe, when there is evidence of new formations in much of the Pacific basin, seems far less likely than expansion from a much smaller planet where everything fits together.

The smaller size of Mars needs no explanation if it started smaller than the Earth. But the evidence of extensive volcanic and possibly tectonic activity which ceased at some point suggests to me that Mars may once have had a much larger Moon, which contributed significantly to its internal heat until it either moved away and was ultimately lost or broke up leaving the irregular shaped Phobos and Deimos to slowly spiral in. This has recently been suggested by others.

See: http://www.space.com/scienceastronomy/mars_moons_origin_030729.html

It may be that our large Moon has made the vital difference to the degree of internal heat and thus tectonic activity that has facilitated the expansion here that ceased or was significantly reduced when Mars lost its large moon.

Some suggest that inner planets eventually expand to form gas giants like Jupiter and beyond. Whilst I do not rule that out, because reaction of water in the form of steam with iron in the core can produce the hydrogen, and because despite the gravitational potency of gravitons diminishing, there could be increasing mass from accretion and possibly other processes, there is now observational evidence that suggests an alternative solution.

There is evidence of large planets, most likely gas giants, in other solar systems in extremely fast orbits close to stars. One explanation is that these formed further out and spiralled in thus gaining angular momentum, but I find it difficult to see why such spiralling in would stop. If, however, these planets form from material thrown off from fast-rotating stars, and slowly spiral out, and the rate of spin and activity of the star decreased so that subsequent planets formed by more gradual processes, the pattern of our solar system and others could be explained. There is actually remarkable evidence for this hypothesis. See <http://hubblesite.org/newscenter/newsdesk/archive/releases/1998/19/>

This remarkable picture from Hubble appears to show a planet being thrown off, perhaps faster than would normally be the case because this is a binary system, where one star could have gained angular momentum from the other, perhaps coinciding with periodic activity, that had thrown off a huge plume of material from which the planet condensed. This was 450 years ago so perhaps more planets formed from this material.

This then suggests the way that my theory can account for the shape and rotation of galaxies. We are now fairly sure that all galaxies have central supermassive black holes, which appear to be linked to galaxy formation and spin, but which also appear to periodically stop feeding and then resume again. My theory explains this because increasing mass and density must eventually be self-defeating in inhibiting the rotational energy in quarks necessary for graviton emission, and density must also inhibit such emission. This is why singularities are impossible and why I call supposed "black holes" "grey holes". It seems possible, therefore, that they periodically lose containment and their very fast rotation throws off material from which fast orbiting and fast spinning stars form.

The shape of the galaxy, and more uniform spin than expected, can be partly explained by the rotation of the universe, and partly by my new law of motion, in which fast spin can transform into higher translation (which also accounts for our day getting longer as the Earth gains speed to spiral into larger orbit). When we also take account of larger mass in stars than thought, the need for dark matter and energy (the two must go together) is less clear. In my theory, however, this does exist as spirals of neutrinos (see also New Scientist, 4 March 2006, p.14) but this transmits energy rather than being a separate source of energy.

My theory also suggests that the gravitational fields of stars close to the grey hole will be more than if the grey hole were not there, and that this effect will be passed on, collectively extending the gravitational effect, which further explains why stars can rotate so fast at the edges of galaxies without being thrown off.

So we see a consistent pattern emerging of similar mechanisms for galaxy, star, planet and moon formation which follows the principle that information cannot be transmitted without losing energy, because there is a hierarchy of more energetic systems giving rise to less energetic systems. Such consistency, and again the number of answers that my theory suggests, is a strong indication that it could be correct.

Because spiralling out is also an apparently consistent feature, it may be tempting to suggest that galaxies also spiral outwards in some way as an explanation for apparent expansion. In my view the reverse is more likely to be the case as otherwise the principle of energy loss and conservation of total mass and energy would be breached, because the whole universe would be gaining energy.

This could mean that the universe has a finite life, which is also implied if photons have no inherent curvature of motion, meaning that the universe must gradually dissipate. But another interesting conclusion is that I may have replaced the big bang with the “big catherine wheel”, where everything spirals in to the point where angular velocity is so great that everything is thrown out again in spirals, but with less energy. This may seem to be contradictory, but this time it represents an oscillating system that in the long run is still losing energy as photons leave the system (or rather dissipate it) and I suspect that the time frame involved is vastly more than the 13.7 billion years of current big bang theory. I have to say again that this is a most unforeseen conclusion, only reached as I type this on 14th March 2006, and I have to say that I am not entirely sure that it makes complete sense, but it allows me to finish with the modified quote from Einstein contained in my book.

God does not play dice with the universe.....roulette maybe?

Robert F. Beck

14th March 2006

www.einsteins-revolution.com